Critical Realism and Applied work in Economic History: Some Methodological Implications

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Introduction

Prior to the Second World War economic history was largely practiced by economists who had also been trained as historians. As a result they brought to their craft the traditional historian's awareness of the central role played by broad socio-economic contextual factors for the explanation of historical events and the complimentary belief that good research required a sound acquaintance with the widest possible range of primary sources. After the war a new generation of economic historians, inspired by what they saw as the more hard-edged, scientific tools provided by econometrics, gradually came to dominate the discipline. Rather than context-specific explanation they looked to the use of statistical methods and hard quantitative data combined with economic and/or econometric models to provide precise quantitative apportionment of causal significance to independent variables and replace what were often seen as the fuzzy, impressionistic stories of the earlier generation.

It will be argued here, on the basis of the critical realist critique of mainstream methodology in economics, that this turn of events has been to the detriment of the discipline of economic history and should be largely abandoned. The bold claim made by critical realism is that economic modelling techniques and econometric analysis, when they are used as a basis for socio-economic explanation, are generally unsound and unscientific, because they attempt to apply an approach suitable only for closed systems to the explanation of processes taking place in systems that are inherently open[1]. In this paper, I will outline the critical realist case, using examples from my own research into various questions in economic history. I will then indicate some of the research strategies that I have developed and found useful in the practical application of the critical realist methodology to research in the field of economic history.

The problems with the orthodoxy

The central problem with the standard modelling/econometric approach in economics stems from an uncritical and often unrecognised commitment to the philosophies of logical positivism and methodological individualism. Logical positivism has its roots in Hume's empiricist position, and follows him in denying the possibility of reliable knowledge of causes (due to the problems of induction[2]) and instead relies

[1] Seminal works in the critical realist approach are Roy Bhaskar, *A Realist Theory of Science*, Harvester Pres, Sussex 1975 and Tony Lawson, *Economics and Reality*, Routledge, Cambridge 1997.
[2] Induction involves generalising from a sample. So an Australian might say, 'All the swans I have seen are black, therefore all swans are black'. Clearly induction has its problems as a logical tool.

overwhelmingly on empirical evidence. For this reason laws are only acknowledged to exist when there is absolute support for their existence at the level of the empirical[3]. That is, laws are expressed as (strict) regularity statements of the form 'whenever a then b'.

The problem with this approach, as pointed out by critical or scientific realists such as Roy Bhaskar and Tony Lawson is that it confuses the case of laws in closed systems with that in open systems. The object of scientific experimentation is generally, by means of some active intervention on the part of the researcher, to create a closed system in which the operation of the causal mechanism in which we are interested is closed off and isolated from all forces that might disrupt its operation: if complete closure is achieved then laws will take the 'whenever a then b' form.

The explicit or implicit use of this conception of laws encourages mainstream economics to a methodological approach that Tony Lawson has defined as 'deductivism'. That is, determinate closed system models are created based on a set of axioms of the 'whenever a then b' type. So in each instance when 'a' occurs it is immediately deduced that 'b' does. This approach means that the models economists and econometricians use, when they are trying to model economic relationships, are always closed system models. The use of stochastic models by econometricians does not overcome this problem, because a stochastic model by definition defines chance according to the sort of mathematically well behaved distribution that can only be associated with a closed system. Since social reality is clearly an open system, full of countervailing forces, the orthodox approach is likely to model reality correctly by chance only.

The orthodox approach to modelling is also often buttressed by an implicit commitment to the atomistic conception of social reality embodied in the approach known as methodological individualism. In the neoclassical view individuals are seen as self-interested utility maximisers. Models are set up in which human agents maximise some function under a set of constraints. If the model is to have a determinate closed outcome, there can be only one solution. So rather than individuals being seen to have true free choice over their decisions, they are characterised in a manner that assumes robot-like behaviour: with there only ever being one rational choice[4].

There are, of course, many Post-Keynesian and Marxist modellers who are not committed to methodological individualism. Nevertheless, the requirements of the modelling process and the need to produce deterministic outcomes means that they always adopt some set of simplifications regarding human behaviour that produces an equivalent to atomism. The normal assumption is that on average agents may be viewed as acting in certain ideal-typical, conventional or socially determined ways. The outcome, however, remains that humans are modelled as if en-masse they behave in strictly functional, robot-like ways.

By contrast, critical realism asserts that people are complex beings subject to varying brain states and changing philosophical views that can lead to different choices being taken under the same objective circumstances. Critical realism also recognises that

[3] On this basis critical realists at times refer to the logical positivist position as 'empirical realism'.
[4] T.Lawson E&R

humans are social beings who will be motivated by socially constructed desires (including political, ideological, religious and institutional beliefs) that lead to choices that may not represent the optimum outcome for the individual when measured purely in terms of self interest[5]. Moreover critical realism sees social factors realistically as always in a state of flux, conflict, change and development. So while some parameter describing social behaviour from the past might be estimated, it is not valid to assume that it would have remained the same in a different social context, that is, with different values for other parameters and variables, nor that it would be the same in the future, when by definition there will be new circumstances.

Again the key problem with the orthodox approach is the attempt to model complex open systems by means of a closed systems approach. The critical realist position is that the openness of the social world is due to both its epistemological and ontological complexity[6]. Its epistemological complexity stems from the almost infinite number of causal forces at work in the world, and their capacity for interfering and disrupting each other. The ontological complexity stems from the fact that individual agents are themselves complex causal mechanisms with a high degree of learning capacity and free wills (understood as the capacity to make free, rather than predetermined choices). Similarly social collectivities and institutions are complex objects and they change, learn and evolve over time. The epistemological and ontological complexity of the evolving open social world means that in most cases the future is characterised by true uncertainty rather than any well-behaved, mathematically definable forms of risk or chance.

The Post-Keynesian economic theorist, Paul Davidson argues that the social world can be conceptualised in terms of ergodic and non-ergodic systems. Ergodic processes 'can be fully described by a set of unchanging conditional probability distribution functions'[7]. This is not the case for a non-ergodic system. Davidson argues that true uncertainty should be comprehended 'in terms of the existence of non-ergodic processes…[or] the absence of governing ergodic processes'. When dealing with stictly ergodic processes, past trends are an actuarially certain guide to the future (insurable risk), but in non-ergodic systems underlying parameters can and will change, so that the future may not at all reflect a statistical series from the past. Davidson goes on to argue that much of the socio-economic world is best understood in terms of non-ergodic systems, so that critical realists are right to argue that ergodic modelling approaches are inappropriate as a means for understanding many economic relationships[8].

A second problem that springs from deductivism is the misuse of strictly functional mathematical formulations to describe economic behaviour. Mathematics is a language that both enables and constrains its users. At its best it enables people to think with

[5] So altruistic behaviour, such as fighting and dying for a cause, is explicable from the critical realist perspective, but incomprehensible from the standpoint of methodological individualism, due to its assumption that rational behaviour is entirely self-interested.
[6] Roy Rotheim, 'Post Keynesian Economics and realist philosophy' *Journal of Post-Keynesian Economics* 1999, Vol,22 No1, pp.71-103.
[7] Paul Davidson,'Economic Theory and Reality, Journal of Post Keynesian Economics, 1996, Vol. 18, pp.479-508.
[8] Ibid.

precision about functional relationships and via simple modelling techniques permits certain concepts to be expressed and grasped in a concise and unambiguous form. In this way it may play an important role in enabling the social scientist to conceptually isolate a set of relationships of interest and explore in thought the implications of both definitional and causal relationships. This heuristic function of mathematics in economics is a useful intellectual tool, which can lead to real insights into the operation of economic mechanisms. During the twentieth century, however, the constraints associated with mathematical modelling and statistical methods have come to rob economics of much of its utility with respect to explaining real world phenomena. This is not simply the result of the over-development of theoretical models based on patently unrealistic assumptions[9]. The essential constraint is that although mathematics is precise it is also rigid. Once the relationship between two variables is conceptualised in a functional form, however complex, non-linear or chaotic, a given input produces a given output, in a rigidly predictable manner on every occasion. The critical realist critique of this approach is that economics is a social science that deals with a complex, continually evolving social world, peopled by complex, learning human beings, who can, and do, change their behavioural patterns continually over time. Consequently no functional mathematical formula will ever be able to encapsulate the way in which people will behave under all conditions, particularly the unknown and new conditions that will hold in the future[10].

As an example of this problem consider the question of how the level of unemployment will be affected by a wage cut. Conservative economists would have it that a wage cut will reduce costs, increase profits and lead to a surge in business confidence that will in turn lead to a surge in investment, an expansion of output and a reduction in unemployment. Keynesians would argue that a cut in wages will depress effective demand, lead to a loss in business confidence, a reduction in investment and an increase in unemployment. The critical realist would not, however, be surprised to find strong evidence for both causal chains in different empirical circumstances, since firms, investors, workers and consumers might respond quite differently to wage cuts/rises in different social contexts. And social contexts are never precisely the same. Moreover, people have knowledge of earlier contexts and can change their behaviour when faced a second time with much the same circumstances. So human response patterns are always subject to qualitative factors that are inherently indeterminate and cannot be adequately grasped or generalised by a functional mathematical specification. Of course, after the event one can always fit a set of equations to the specific outcome that did occur, but the equations do not explain the data set, they simply mimic it. To explain what happened we need to move to the domain of the real causal mechanisms that we believe were at work and then reconstruct a plausible account of the way in which they interacted in the specific context. Of course the way we see and interpret the events will be influenced by our particular perspective and standpoint[11].

[9] F.Hahn, 'An Intellectual Retrospect', *Banca Nazionale del Lavoro Quarterly Review*, 1994, p.246.
[10] The best they can do is provide illustrations of a range of consequences which would occur if people were non-learning, robot-like and functionally predictable.
[11] T.Lawson, E&R

A common reaction of mainstream economists to the critical realist position is that if precise mathematical functional relationships between variables are ruled out and standpoints matter, then we are lost in an open world where anything can happen, there are only subjective views, and the possibility of scientific analysis eludes us entirely. The critical realist position is confused here with the post-modern position, in which the complexity of the world combined with the importance of personal standpoints means that there are only different impressionistic stories told from different viewpoints and no one interpretation can be judged superior to another. This is definitely not the critical realist view. Indeed the whole point of the critical realist position is to continue the enlightenment project of the search for objective scientific truth, but to develop scientific methods that are appropriate for use in open systems. The key difference between the critical realist position and that of postmodernism is that the critical realism acknowledges the force and relative mind-independence of social structures. That is, the later do not just depend on what individuals think of them, but rather are objectively embodied in social rules, conventions, habits, language, practices and especially legislation, the latter being backed by the coercive armed force of the state. Whilst social rules do change they generally do so only gradually and at all times they structure, stabilise and constrain the socio-economic environment and the choices open to individual agents. So while the social world is open it is structured and it is not the case that just anything can happen, or that any view of the structures is equally valid. Views must be tested against the empirical evidence regarding real structures and some will be more objectively adequate than others. Indeed, the position that will be argued for here is that critical realist methodology produces accounts of the generative mechanisms, structures, tendencies and events of the real world, which are objectively superior to others.

Critical Realist Ontology

For critical realists the world is conceptualised as structured by a series of domains: reality has ontological depth. The most immediately apparent domain is that of the empirical. Of the entire stream of events taking place in the universe the empirical is the subset that we perceive. The entire stream of events is defined as the domain of the actual. The domains of the actual and the empirical are generated by causal structures and mechanisms and the tendencies to which they give rise. Bhaskar defines the aspect of reality that consists of causal mechanisms and structures as the domain of the real. These deeper causal structures, mechanisms and tendencies are constitutive of the domains of the actual and the empirical, although they may not be immediately apparent to the senses.

Despite the ontological and epistemological complexity of the world, practical science indicates that laws go on operating outside the closed systems of the laboratory. That is, they are transfactually operating even when they do not conform to the 'whenever a then b' formulation[12]. Gravity continues to operate upon Humpty Dumpty even if I interfere

[12] Notably, for this reason, towards the end of his life, perhaps the leading logical postivist of the twentieth century, Karl Popper, came to conclusions very similar to those of critical realism in his book 'A World of

with its operation by catching him in the process of his tumble from the wall. Instead of the closed system, logical positivist conception of laws as determinist, regularity statements of the form 'whenever x then y', critical realism asserts that, due to the constant possibility of disruption in an open system, laws in open systems can only take the tendential form: 'whenever x then y has a tendency to happen'. A law of tendency refers to the characteristic effect of a particular causal mechanism as it operates in the world[13].

The philosophical language developed by critical realism provides a way of thinking through the epistemological and ontological complexity of the world and distinguishing valid from invalid forms of argument with regard to causation. In this regard a fundamental problem with regularity determinism is that it fails to grasp the transfactual nature of laws and thereby falls into two widespread and related errors. First is the regularity error of thinking that a law must always reveal itself at the level of the empirical. Critical realists refer to this logical positivist position as empirical realism because while it is realist, it conflates the level of causal structures and mechanisms with the level of the empirical and constitutes a flat ontology. For example, when economists think they are dealing with a well-grounded regularity, such as the idea that the direction and volume of migration are determined mainly by wage differences, then they tend to believe that that must prove to be the case in all circumstances (otherwise the regularity would not hold)[14]. I have found that economic historians working in the field of migration studies almost always assume that wage differences drive migration and not only construct their models on this basis, but, on the basis of responses to my own evidence to the contrary, find it almost impossible to accept that there could be exceptions to this rule.

The corollary to the regularity error is the error of pseudo-falsification[15]. This is to assume that if a set of circumstances occurs in which a law does not apparently hold then that law is invalidated *in toto* for all circumstances. As a case in point, in debates about the Prebisch-Singer thesis (that the terms of trade for primary products tend to decline relative to those for manufactures) the citing of particular (brief) historical periods when the terms of trade for primary products have risen is taken as all that is required to prove that the tendency does not exist[16]. For critical realists, however, the absence of evidence for a tendency that is thought to be well-grounded need not be the end of research, but rather, the trigger to a search for countervailing forces that may have disrupted or blocked the tendency on the occasion in question.

Propensities, Thoemmes, Bristol 1990. See also Jochen Runde, 'Popper, Probabailities and Propensities' in Steve Fleetwood,ed., *Critical Realism in Economics: Development and Debate*, Routledge, London 1999, pp.63-82.

[13] T. Lawson, (E&R).

[14] This point is elaborated with reference to UK migration in the early twentieth century in B.Pinkstone, 'British Migration to North America, 1900-1914: A Radical Revision' Joint EHANZ, AHA, AMHA Conference , Kalgoorlie, September 2001.

[15] Bhaskar, 1975,p.161.

[16] See B.Pinkstone, 'Persistent demi-regs and robust tendencies: critical realism and the Singer-Prebisch Thesis', *Cambridge Journal of Economics*, forthcoming.

The causal mechanisms that are at work in the world can be understood as operating in an ontology that is structured not only by domain, but also by a hierarchy of levels or fields in which particular sets of causal mechanisms and laws operate. These fields in fact usually constitute different and distinct fields of study. So we have physics, chemistry, biology, economics, linguistics, and psychology etc. [17]. Moreover some realms can be seen as providing the pre-conditions of existence of others, in a transitive manner. So the physical material world supplies the pre-conditions of the biological sphere, which in turn provides those of the social. Each lower or more basic realm both constrains and enables the causal mechanisms those that operate at the higher levels. But the structural laws operating at one level are relatively autonomous, they cannot generally be just read-off from those at lower levels, they must simply be consistent with them.

I have argued elsewhere that an important distinction between realms is that those at lower levels tend to be constituted by generative mechanisms and tendencies that have substantial degrees of endurance and extension through time and space[18]. Such generative mechanisms and structures may be regarded as having ontological inertia, relative to those operating at higher levels and thus give rise to what I have called robust tendencies[19]. From the relatively short time-perspective of human beings the causal mechanisms operating at the most basic levels, for example gravity, come closest to creating the sort of regularities in the domain of the empirical that are sought by logical positivism. So although we know that the universe is evolving over time, from our perspective the movement of astronomical objects is highly regular and predictable. The biological level changes at a much faster rate, but again from the perspective of social and individual change and development, the generative mechanisms and the tendencies that are associated with the biological level have considerable ontological inertia[20]. Put another way, individuals by and large must by natural necessity adapt to the social environment rather than the reverse and human society must adapt to its physical environment rather than the reverse. Of course the relationship is dialectical[21], but human attempts to change their physical environment must be in accordance with and through the use of the pre-existing and ontologically prior causal structures, mechanisms and tendencies that operate at the lower and more basic levels.

Taking this structured view of causal mechanisms provides one way of answering the question put to critical realism by Geoff Hodgson of how ontological priority may be

[17] Bhaskar RTS
[18] B.Pinkstone, CJE
[19] Ibid
[20] Human behaviour that is tightly determined by biological needs may give rise to the sort of robot-like, regularity behaviour characteristic of an ergodic system. So for example in very cold climates electricity consumption has a close inverse correlation with temperature. In such cases econometric modelling may be legitimate, see B.Pinkstone, 'Underlabouring Post-Keynesian Economics' in *Alethia*, Volume 3, April 2000. Number 1.,pp.45-48.
[21] Understood in the sense of the relationship between different and opposing forces, in which one must be regarded as dominant for reasons of natural necessity.

established between competing explanations of an event or process[22]. The answer is that one should proceed in general in a manner analogous to that of the Annales School of historical inquiry, considering the causal significance of physical, geographic, climatic and biological factors in explaining an event, before examining the role of causal mechanisms and tendencies associated with increasingly higher levels such as the economic, social, political or that of individual human agency. This causal hierarchy approach will be most relevant to helping us organise and clarify the explanation of the causal processes involved with respect to issues that apply across relatively wide time and space spectrums.

I have used this approach to rethink the Prebisch-Singer Thesis: that the terms of trade for primary products tend to decline relative to those for manufactures. I have argued that while Engel's Law (that the proportion spent on foodstuffs declines as incomes rise) is the immediate explanation for the tendential decline in primary product prices, the explanation of this explanation is a biological constraint on the capacity of humans to consume foodstuffs. This is the causal mechanism that then produces a series of related robust economic tendencies under capitalism, and deteriorating primary product prices is but one of this ensemble[23].

The above constitutes a contrastive that relates to a wide time and space continuum by historical standards. Economic historians, however, are often concerned with more historically specific questions. And as the time-space continuum in which we are interested narrows, the possibility that even the most robust economic tendencies may be disrupted or negated by a temporary conjuncture of less robust tendencies increases. In other words, if the issue in which we are interested is relatively time and place specific, then it is more likely that the efficient cause in the Aristotelian sense is related to some higher-level structure such as a political or ideological factor or even simple individual human agency (the action of a 'Great Man' etc). The time and space scope of the question that we seek to answer will thus set the context that determines which structural levels are most pertinent to the problem.

My work on UK migration in the period 1900-1930 provides an example. This is a quite historically specific time-space frame, so the possibility that robust economic tendencies will be disrupted by historically specific factors is therefore high. It is my contention that the tendency for migration to be driven by wage differences is quite robust, because under capitalism wage rates are a vital and enduring factor determining the overall quality of life for human beings. But unlike regularity determinism, which, as I have noted above, leads orthodox economic historians to have difficulty believing that there could be circumstances in which wage differences did not play the crucial role, critical realism encourages one to accept that in an open system there will always be exceptions to every rule, and pursuing these exceptions may lead to exciting new discoveries. The

[22] Hodgson,G., 'Marching to the Promised Land? Some Doubts on the Supposed Theoretical and Policy Implications of Critical Realism', *Workshop on Realism and Economics*, Kings College, Cambridge, April 26,1999.
[23] See my CJE paper forthcoming.

path to those discoveries, however, is likely to be conceptually closed off to investigators using the closed system, flat ontology of the mainstream approach.

Critical realist epistemology and methodology

The orthodox econometric approach to explanation in economic history consists of developing a model based upon whatever set of explanatory variables the researcher thinks will be most relevant to a particular historical period and question, and then gathering whatever quantitative data can be found to plug into the model, or *vice versa*, the existence of a range of quantitative data relative to a particular period leads the researcher to the development of what he sees as an appropriate model. In developing the model, the researcher will often consciously or unconsciously adopt a principle of parsimony, since large-scale models are fraught with technical problems and smaller models are generally considered more elegant. To the extent that a principle of parsimony is followed, however, important explanatory information is likely to be excluded. On the other hand, even if the modeller develops a large model with many explanatory variables, at some point the system will need to be closed off in terms of the number of explanatory variables that will be included. This always involves the possibility that crucial explanatory information will be excluded. In addition, although attempts may be made to find quantitative proxies for qualitative causal factors, in general significant qualitative factors that do not lend themselves to this approach are either dealt with by means of introducing structural breaks, which tend only to emphasise the explanatory gaps and inadequacies in the modelling process, or they are simply ignored.

The general result then of the closed system approach to explanation in applied fields such as economic history is a tendency to close out or exclude information, which then leads to information poor explanations. By contrast, as we shall see, critical realist methodology provides new tools of enquiry that are appropriate to the investigation of causal relations in open systems and, due to the fact that critical realism explicitly acknowledges the epistemological and ontological complexity of the world, the explanatory framework it encourages is holistic in nature and thereby will tend to produce information rich explanations.

Critical realist methodology starts with the proposition that although the social world is complex and open, it is structured in a way that gives rise to what Tony Lawson has defined as *demi-regularities* at the level of the empirical. Demi-regularities is the more precise critical realist term for what positivists call regularities. Recall that regularities must be strict and measurable. In a closed system, once a regularity is measured, we can predict that when it occurs in the future it will have precisely the same value. Strict regularities, however, are unlikely to exist in a complex open system characterised by true uncertainty, due to interference from both known and unknown countervailing tendencies. Nevertheless the fact that economic reality is structured by physical, biological, sociological constraints (including language), institutional conventions and cultural habits and customs, means that the world is characterised by quite persistent demi-regularities. So for instance, when Christians attend church, they tend to do so on

Sunday[24]. The demi-regularities consistent with such well-known habits are immediately explicable. On the other hand, the demi-regularities, which do not appear to be consistent with what we think we know about the world, Tony Lawson refers to as *contrastives*[25]. Precisely because they do not conform to what we would expect to be the case, given the context, they invoke a sense of surprise and, as a result, should provide a stimulus to research aimed at explaining their existence. In turn the tendencies that give rise to the contrastives might be called the *contrastive tendencies*, for it is these that the researcher will initially aim at explaining.

Even before attempting an explanation, however, the contrastive methodology encourages the researcher to seek to contextualise the contrastive demi-regularity to the greatest extent possible. The whole point of the contrastive is that it highlights a particular facet of the socio-economic context in which it is situated. But that does not mean that the contrastive process ends there. Once we have focussed on a particular contrastive, we can proceed to contextualise it further, by contrasting the contrastive information against other relevant data from similar, broader, narrower or different contexts. The adoption of such an approach from the start is clearly inclusive of information and begins the process of developing an information rich explanation.

For example, the research I have conducted into migration from the UK in the early twentieth century was stimulated by data that showed a striking increase in migration to the Empire in the decade before the First World War, and an equally striking collapse in migration to the United States[26]. The economic historians who have dealt with this phenomena from a mainstream 'closed system' perspective, have not attempted to situate this contrastive, if they noticed it all[27]. That is, leading scholars who have looked at migration in the period to the US, Canada and Australia, respectively, tended to do so in terms only of factors relevant to each nation, and thereby missed both the role of general push factors in the UK at the time, and the socially constructed qualitative differences between the attractors to empire versus those for the United States[28]. By emphasising from the start, contextualisation and comparison, the contrastive approach potentially leads to the consideration of a much wider range of evidence than does the orthodox closed system modelling approach.

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[24] Indeed, social conventions and habits are at least in part the means by which humans attempt to impose order and regularity upon an uncertain world see T.Lawson, E&R.

[25] The contrastive approach would seem to be very compatible with Marxian dialectics, in that a contrastive can be understood as a contradiction in underlying casual processes that has become manifest at the level of the empirical.

[26] In 1900 the US took almost 80% of UK migrants and Canada and Australia around 20%, by 1913 the position was reversed. B.Pinkstone, 'Economics Versus Contrastives: Alternative Approaches to Explanation in Economic History-a case study', in, Cambridge Realist Workshop Conference 2000, *Conference Papers*, Cambridge May 2000.

[27] For example, although David Pope has written numerous articles on migration from the UK to Australia in the early twentieth century, at no point does he acknowledge the significance of the collapse of migration to the US, let alone attempt to explain it. See especially his key paper, D.Pope, 'Modelling the Peopling of Australia', *Australian Economic Papers*, December 1981.

[28] Pope,Ibid for Australia, and for Canada and the United States see See Brinley Thomas, *Migration and Economic Growth: A Study of Great Britain and the Atlantic Economy*, 2nd ed., Cambridge University Press, Cambridge 1973.

The next step in the process of developing an explanation is for the researcher to try drawing upon those realistic causal mechanisms that he or she thinks can help account for the contrastive tendency. Critical realists denote this process as retroduction, in the sense that one tries to go behind the empirical evidence to the domain of the real casual mechanisms that generate it[29]. For the economic historian there is usually a plethora of possible explanans, and the researcher will attempt to discover evidence regarding the extent to which each possible causal mechanism was operative. This is basic historical detective work. Again though the critical realist will be open to considering a much wider range of evidence than will the orthodox economist, because the more holistic approach of critical realism means that the researcher cannot close out any possible factors, especially qualitative information relating to social and political influences and the role of human agency.

Once a tentative hypothetical explanans is established, it needs to be tested as thoroughly as possible in three distinct ways. First it needs to be tested for reasonableness against the initial contrastive evidence itself. Is the hypothetical explanation realistic in terms of what we think we know about the world? If not it should be either rejected and alternative explanations sought or we should seriously consider whether our general view of reality needs reworking. One holistic way of testing our hypothetical explanans is to check on its capacity to fit with not only the contrastive demi-regularity but also the wider context within which that demi-regularity is situated. So we might ask; 'if the hypothesised explanans exists, would its existence be expected to be associated with other tendencies and contrastive demi-regularities?' If this is the case, empirical research should reveal their presence.

Secondly, in the attempt to create the most adequate realistic and holistic account possible critical realism requires the researcher to 'explain the explanation' in theoretical terms. That is, to think through the conditions of existence of the explanation itself. Do these hold? Is the explanation of the explanation realistic? Does the explanation of the explanation suggest that we are dealing with a robust contrastive tendency, or a case in which less robust, historically unique countervailing tendencies have temporarily overridden some other more robust tendency? Where countervailing tendencies are involved are these intrinsic to the primary causal mechanisms and structures or are they essentially extrinsic and historically specific? Does the contrastive tendency point to the primary causal mechanism and tendencies involved, or is it of a secondary nature? If the latter then does the whole issue need to be reconceptualised with respect to the primary causal mechanisms and what Roy Bhaskar has called the *generic tendency* , that is a tendency that sums up of the overall impact of a variety of related causal mechanisms and structures[30].

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[29] Critical realists also use Alvin Hansen's term *abduction* in this context. Meaning that in the case of the development of an entirely new explanatory framework researchers may abduct ideas from quite different fields of enquiry: a process that can rely heavily on the use of metaphor. See Paul Lewis, Metaphor and Critical Realism, Steve Fleetwood,ed., *Critical Realism in Economics: Development and Debate*, Routledge, London 1999, pp.83-101.

[30] Bhaskar, R., *Dialectic: the Pulse of Freedom*, Verso, London 1993,p.78. As an example see my forthcoming CJE paper where it is argued that with respect to the Prebisch-Singer Thesis, the relevant

Once we have thought through the theoretical issues involved we should again check back against the empirical evidence for new contrastive demi-regularities that would be consistent with the types of parallel tendencies that the overall theoretical framework suggests should be apparent if the explanation of the explanation holds. When this is done successfully, the researcher should have at hand a relatively vast array of empirical circumstantial evidence that is consistent with the hypothesised explanation.

Finally the hypothesised explanans needs to be contrasted with the competing explanations of the phenonemna in which we are interested, if such explanations exist. If the critical realist methodological approach has been successful, it will produce an account that is information rich and should therefore have considerably more explanatory power than that of research based on the orthodox approach. It is on this basis that critical realists assert that the paradigm provides 'superior explanatory adequacy'[31].

Conclusion

During the last fifty years or so the discipline of economic history has fallen under the spell of econometric modelling techniques. This has lead to a plethora of explanatory accounts with a one-sided emphasis on quantitative data, and a tendency to beg more questions than they answer. Critical realism provides a number of ways out of this *cul de sac*. Firstly, the deep ontology of critical realism permits a clarification of many of the errors of logic that spring from the flat ontology that underpins econometric work. Secondly, rigorous application of the philosophical concepts of critical realism can shed entirely new light on old questions in the discipline, by re-conceptualising the causal processes in a way that that is not available to the conceptual framework of empirical realism. Thirdly, the contrastive methodology of critical realism offers the promise of opening up entirely new paths of research, many of which lie outside the purview of the closed system modelling approach. Unlike the orthodox methodology, which concentrates on creating internally rigorous and consistent closed system models, that in applied work lead to information poor explanations of the empirical world, the critical realist methodology provides an holistically rigorous and consistent open system, information rich, explanation of both the actual world of appearances and the real causal mechanisms at work within it. Finally, critical realism provides a new way forward for economic history because, above all else, it is a practical philosophy of science, which emphasises empirical evidence, but provides a superior, more comprehensive and appropriate, ontological framework and methodological approach for dealing with explanation in open systems.

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generic tendency is towards a steady contraction in the proportion of world trade (by value) accounted for by primary products.

[31] T.Lawson, E&R.