The Dawning of a Neuro(economic) Era? Some Methodological Considerations

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Neuroeconomics is a very recent development in the evolution of economics. Concisely, it refers to the conception that observed behavioural regularities are caused by the workings of the brain (Davis, 2006). It combines neuroscience with “new” behavioural economics. For its proponents it offers potentially ground-breaking insights into the apparent paradoxes of human behaviour. This paper considers the veracity of these claims within a broader analysis of the interpretation of data, and upon the instinct psychology that influenced Thorstein Veblen.

Arguably, neuroeconomists consider that the field makes three critical interventions:

First, the application of neuroscientific methods – such as brain imaging techniques, the recording of single neuron activity, animal behaviour, and the behaviour of brain damaged individuals – to a host of economic behaviours, such as: preference formation; strategic behaviour; trust; altruism; utility and money, and learning, etc. challenges orthodox tenets. For instance, Camerer, et al (2005) report that neural imaging indicates that the part of the brain which reacts to sources of pleasure responds in the same way for money as it does for “other cultural objects”. This finding challenges the neoclassical notion that money is only an indirect source of utility.

Second, neuroeconomics represents a potentially highly lucrative conduit of conceptual trading between economics and neuroscience. Indeed, for Camerer, et al (2004) it opens up the “black box of the brain” furnishing a more “embrained” approach to cognitive processes in decision-making, and Glimcher (2003) argues that neuroscience can be enhanced through the incorporation of standard economic concepts. For Glimcher then, the issue is not one of the anomalies of behaviour relative to economic theory, but how economic theory can augment the analysis of human behaviour by revealing the “economizing functions of the brain”.

Third, for some, neuroeconomics highlights interesting policy implications that may be seen to open up avenues of discussion over the role of the state. Neuroeconomic studies demonstrate that emotional responses frequently dominate rational reasoning, and on this basis, question the standard assertion that rational individuals interacting in markets will produce outcomes that are beneficial to all. In other words, the functional operation of the human brain may support the case for a paternalistic state to enhance efficiency. In this case the state does not address market failure, but failures of rationality.

Arguably these claims rest on specific interpretations of neuroscientific data. Indeed, the central approach of neuroeconomics is grounded in the employment of experimental techniques. In particular brain imaging procedures make several fundamental assumptions of the structure and nature of brain activity during specific tasks. This paper argues that these techniques are subject to limitations that impede a justifiable and singular interpretation of imaging data. Among the issues analysed: assumptions relating to interpretations following observations of increased cerebral blood flow, and data interpretation that is based on inferential strategies that aim to isolate, from normal cerebral activity, neural activation related to single operations executed during the assessment of a particular task. This implies a highly localised functionality and relegates notions of network. In effect Duhem-Quine underdetermination problems are identified. The paper endeavours to consider whether the mechanistic orientation of neuroeconomics has the capacity to address issues of underdetermination.
In this paper discusses neuroeconomics’ invocation of mainstream economics’ dichotomy between theory and data.

Neuroeconomics represents a potentially insightful and interesting field of study for economics which contests many established prevailing textbook views of human behaviour from an individualistic entry point. Nonetheless, following Esther-Mirjam Sent (2004) and Jack Vromen (2005) there are considerable grounds for asserting that neuroeconomics relegates, or contentiously, is incapable of adequately dealing with issues of evolution, institutions, and structure and agency. Moreover, it does not appear to engage with the insights afforded by a Veblenian psychology: chiefly there are few if any references to the importance of habit in human behaviour. We feel that our reflections on neuroeconomic practice provide a further basis for highlighting the commensurability of this approach with mainstream economics, and accordingly question its “novelty” and “groundbreaking” properties in economics.

References