



Munich Personal RePEc Archive

A Review of Scientific Approach in the Methodology of Social Science Research: Contributions of Kuhn, Popper and Lakatos

George, Justine

Assistant Professor, Department of Economics, St Pauls College,
kalamassery

1 January 2016

Online at <https://mpra.ub.uni-muenchen.de/70513/>
MPRA Paper No. 70513, posted 06 Apr 2016 15:04 UTC

A Review of Scientific Approach in the Methodology of Social Science Research:

Contributions of Kuhn, Popper and Lakatos

(Justine George, Assistant Professor, Department of Economics, St Paul's College, Kalmassery)

Abstract

Methodological understanding of the theory is as important as the theory itself, and must show the relationship between theoretical concepts used in the study and its expected conclusions. Measuring scientificity of each theory and then to categorize on the basis of its relative merit often difficult given available theories are concerned. However, theoretical contributions of Thomas Kuhn, Karl Popper and then Imre Lakatos are best to develop a framework to evaluate the progress of social science research.

Introduction

As Marx rightly point out that the need for theory comes when the appearance of a thing not coincide with reality that one confronted with. If things appeared precisely as they are, then there would be no need for theory to explore the reason of appearance. Methodology of the theory is as important as the theory itself and must show the relationship between theoretical concepts used in the study and its expected conclusions. It has long seemed that among social sciences, especially sociology and economics, have spent much time on discussing methodological aspects of theory. Measuring scientificity of each theory and then to categorize on

the basis of its relative merit often difficult given available theories are concerned. However, theoretical contributions of Thomas Kuhn, Karl Popper and then Imre Lakatos are best to develop a framework to evaluate the progress of social science research. This write up is divided into three sections to touch upon above issues. Second section reviews the contributions of above three philosophers and try to connect with the contemporary issues of social science research in India and followed by conclusion.

II) Contributions of Thomas Kuhn, Karl Popper and Imre Lakatos and contemporary issues of social science research in India

Development of science happened in cumulative manner, was the notion existed in scientific community before Thomas Kuhn's influential book, *The Structure of Scientific Revolution* published in 1962 and introduced the term 'Paradigm' to explain the development of science, now became part of common vocabulary, which means formulation of concept, gathering of various facts, methods, assumptions, theories, to solve a research problem. On the contrary, Karl Popper introduced the term 'falsification' in his celebrated book, *The Logic of Scientific Discovery*, published in 1959 expounded when a theory can be called as scientific. To him, a theory must have the capability to falsify itself to be termed as scientific. Another comparable contribution done by Imre Lakatos in end of 1970's, developed a frame work termed as Methodology of Scientific

Research Programme(MSRP). It is a framework developed to examine the scientific research, which is useful to evaluate a series of theories to judge whether theoretical development in a particular stream is 'degenerating' or 'progressing'.

Development of science happened in non-linear manner in which growth accentuated by revisionary revolution and used paradigm shift to explain the development of science. Paradigm serves many functions in a discipline, some of which are advantages and some are not. Scientific community allows the efficient functioning of paradigm. The scientific community according to Kuhn means a group of scientist and intellectuals who share same level of education and being get acquainted with same school of thought. Any scientific work can be categorized into normal and revolutionary science. Outcome of normal science happens when scientists are deal only puzzle solving issues. On the contrary, paradigm shift or revisionary science occurs when newly developed paradigm fully able to explain and solve anomalies as oppose to earlier paradigm. Historical evidence suggests that newly developed paradigm never immediately accepted by the existing scientific community. Normally, they come up with new explanation of anomalies, and try to solve the problem with the use of same paradigm. The work of Copernicus, Sir Isaac Newton, and Lord Kelvin never immediately accepted by then scientific community and took a lag to accept among them(Kuhn, 1969).

Scientific community will accept innovation that happened within their paradigm and would strongly resist changes that threatens the fundamentals of that paradigm. Paradigm sets the frame work and direction of research in which each paradigm is incommensurable means non-comparable, as each paradigms explaining anomalies in different time periods.

Keynesian revolution in 1930's satisfied as a paradigm shift in Kuhnian sense in which classical economics, the earlier paradigm was not able to explain the situation as sensible as former. Marginal revolution happened in early part of 20th century, then some of the development since 1950's such as New Keynesian, Post Keynesian, Monetarism, New Classical, Supply side economic, finally Institutional economics are all either refined or being evolved from earlier theories. They engaged in puzzle solving phenomena as in Kuhnian sense. Therefore, above developments can be considered as normal science because they have only marginal contributions to the existing knowledge. If one takes the contribution of institutional economics could find it nothing more than institutional explanation of the failure of market. By trying to remove anomalies, it paves the way forward of classical approach in consistent manner. Global economic crisis occurred in 2008 made huge pressure on existing paradigm to change. However, many evidences since then reflected, scientific community who were involved in the paradigm that

caused crisis still retaining their position by altering a minor addition of state intervention of market.

It is often interesting, though missing these days to ask when a theory can be considered as scientific. Though, the question seems more relevant in science, but it is as important as in the realm of social science especially one takes the methodology of research adopted by social science. The question of scientificity can easily solve with the logic of Falsification, the term introduced by Karl Popper in his celebrated book, *The Logic of Scientific Discovery*, published in 1959. The falsifiability is the best available criterion to check the scientificity. Under condition of falsifiability, researcher must specify the condition by which a particular theory fails. In addition to that, the scientist tentatively accept hypothesis as true only if after a series of rigorous evaluation that made to find the hypothesis as untrue. It is very difficult to fully practice the idea of falsifiability in methodology of social science due to the nature of issues that is confronted with. However, researcher must spent enough time to explain why particular research outcome not in the way it is explained rather than to explain the outcome itself.

Lakatosian MSRP is best to evaluate series of research programme. Four basic concepts underlined in Lakatosian methodology:- First, hard core assumptions which means such are common for a group of theories, and second, protective belt of auxiliary hypothesis means it is relevant only

in particular research programming. Finally, positive and negative heuristics in which positive heuristic means the way in which research is organised, how we operationalise our variable, and then how our research designed to test the auxiliary assumptions. In Lakatosian MSRP, hard core assumption is protected from direct empirical test by a set of methodological prohibition (DiCicco and Levy, 1999). Under this methodology progress of theoretical development can be divided into inter and intra programme shift. Intra programme shift occurs when a problem shift consistent with the hard core assumptions in which inter programme problem shift happen when there is any break away from hard core assumptions, though it is indeed a much awaiting reform but seems rare in the social science research. Patching the holes in a theory or an addition made to solve the anomalies to the empirical content seen as the usual research practice in social science research which cannot be taken as progressive in lakatosian methodology.

Conclusion

Social Science research has a growing role to play in developing countries like India, where state is struggling to break away from the clutches of non-developmental social norms which are not allowing the kind of economic progress ought to be in the country. Therefore, it is high time to check whether the kind of social science research in India has able to reflect some of the important social issues and then to come

up with ideal solutions. Survival of social science research in India depends on to how new issues being identified and then, the insertion of new methodologies in existing research to be able to find a meaningful answer of the research issues. More use of scientific approach in the methodology of social science research would produce more fruitful contributions that help to solve some of complex pressing social and economic problems of India.

Bibliography

Baumberger, Jörg (1977): “No Kuhnian Revolutions in Economics”,*Journal of Economic Issues*, Vol. 11, No. 1, pp. 1-20

Caldwell, B. (1982): “Beyond Positivism: Economic Methodology in the Twentieth Century”, Allen and Unwin, London

DiCicco, J M and Levy, J S(1999): “Power Shifts and Problem Shifts: The Evolution of the Power Transition Research Program”, *The Journal of Conflict Resolution*, Vol. 43, No. 6 (Dec., 1999), pp. 675-704.

Kuhn, Thomas(1969): “The Structure of Scientific Revolutions”, University of Chicago.

Phillips, D L(1973): “Paradigms, Falsification, and Sociology”, *Acta Sociologica*, Vol. 16, No. 1, pp. 13-30.

Popper, K R(1959): “The logic of scientific Discovery”, Basic Book, Newyork.

Popper, Karl(1957): "Science as Falsification," ed. Cambridge University Peter house, London: Mayfield Publishing Company.

Purkayastha, P(1989): “Science, Falsification and Ideology”, *Social Scientist*, Vol. 17, No. 3/4, pp. 22-30.

Stravros and Karayiannis(2005): “A Review of Kuhnian and Lakatosian Explanations in Economics”, mpra, University of Athens, Department of Economics, Athens.

Williams, J B and McNeill(2010): “The Current Crisis in Neoclassical Economics and the Case for an Economic Analysis based on Sustainable Development”, working papper series no: 206, graduate school of social leaders.