

FROM DISCONTENT TO REFORM: TOWARDS A MULTIDISCIPLINARY APPROACH TO THE STUDY OF ECONOMICS *

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ABSTRACT

The motivation for this paper springs from the “summer of discontent” that took place in France in June 2000 when French students broadcast an open letter from the economics students of the universities of France to professors and those responsible for the teaching of the discipline. In that letter, they declared themselves to be “generally dissatisfied with the teaching that they receive”, the main reasons being the unreal and imaginary worlds of economics being taught to them, the uncontrolled use of mathematics, and the lack of a pluralism of approaches to the study of economics. This paper discusses recent student perspectives on the need for reform of university economics teaching and the ensuing debates and controversies. The implications of the called-for reforms are then analysed, leading to suggestions for a multidisciplinary and pluralist approach to the study of economics to complement the dominant mainstream neoclassical economics curriculum.

Keywords: economic curriculum, neoclassical theory, pluralist economics.

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1. INTRODUCTION

Following the global financial crisis of 2008, a body of literature has emerged concerning the implications of the crisis for the teaching of

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mainstream neoclassical economics. This literature has been primarily driven by the perspectives of academic economists and teachers; see, for example, Colander *et al.* (2009), Lawson (2009a, 2009b), Harcourt (2010), and Fullbrook (2010). In this paper, however, I have approached what Colander *et al.* (2009) call the “systemic failure of academic economics” from a different perspective: that of university students rather than academic economists.

Section 2 outlines the critiques of mainstream neoclassical economics made by both academic economists and university students since the 1960s. Section 3 discusses the important teaching issues raised by French students in 2000 as well as by university students in other countries. A multidisciplinary approach to the teaching of economics is then proposed in Section 4 to satisfy both the objectives of the protesting students as well as the needs of other student clienteles. Section 5 concludes.

2. CRITIQUES OF MAINSTREAM ECONOMICS

It is well-known that Walras and Jevons in the 1870s took economics onto a mathematical path, with later consolidation effected by Samuelson’s (1947) *Foundations of Economic Analysis* and assisted by Hicks’ (1939) *Value and Capital*. The works of Arrow and Debreu, in the second half of the last century also made essential contributions. The result is a highly mathematised modern day school of mainstream, neoclassical economics. According to Samuels (1996), neoclassical economics achieved its hegemony as the dominant paradigm in the field in the period since the Second World War.

Thorstein Veblen was apparently the first economist to coin the term “neoclassical economics” in 1900 (Aspromourgos, 1986). At that time, Veblen referred only to a common utilitarian approach and the common assumption of a hedonistic psychology. The term’s modern connotation, however, alludes essentially to the competitive paradigm in which large numbers of rational profit-maximizing firms interact with rational utility-maximizing consumers in an economy with competitive markets (Alcorn and Solarz, 2006).

There have always been critics of the dominant neoclassical school (Keynes being a prominent example) but if we restrict ourselves to the last fifty years, one of the earliest was made by Seers (1963) in connection with its usefulness for solving economic development

problems. In the ensuing decades, there have been ongoing “waves” of critiques. The early 1970s saw critical articles and books by Leontief (1971), Phelps Brown (1972), Worswick (1972), Kaldor (1972), Ward (1972), Myrdal (1972) and Hunt & Schwartz (1972). From the 1980s until the early 2000s critical books appeared by Drucker (1981), Bell & Kristol (1981), Eichner (1983), Wiles & Routh (1984), Ormerod (1994), Heilbroner & Milberg (1996), Kanth (1996), Perelman (1996), Lawson (1997; 2003) and Hodgson (2001).

Unfortunately, despite so much discontent and dissatisfaction in the form of so many critiques of the discipline, neoclassical economics still remains at the core of university subjects and programs at all levels in nearly all universities. It is still going strong. It is a case of the old cliché: “Dogs bark, the caravan moves on”.

Similar critiques have also been voiced by university students. At the University of Sydney from the late 1960s onwards, various waves of student protests and demonstrations against mainstream economics occurred until an independent Department of Political Economy was finally created in the School of Social and Political Sciences in 2008. This department currently teaches alternative non-mainstream economics degrees, with mainstream economics degrees being taught separately in a traditional economics department (Butler, Jones & Stilwell, 2009).

A more recent critique came from French university economics students.¹ This began in 2000 on the occasion of conferences organised at the Ecole Normale Supérieure in Paris (a French “grande école” typically regarded as more prestigious than a normal university) on the teaching of tertiary level economics. Some students had the opportunity to share their discontent, unhappiness, disappointment and concerns about the type and contents of economics teaching being dispensed to them. Calling the economics taught to them “autisme-économie” (autistic economics), they felt, according to Gilles Raveaud, one of the student leaders, that they needed to do something about the situation (McIntyre, 2003, p.8).

Grouping themselves into “the student movement for the reform of university economics teaching” in France, they broadcast in June 2000 through a web-based petition entitled: *An Open Letter from*

¹ What follows owes much to the *autisme-économie.com* and *post-autistic economic newsletter/review* websites, particularly newsletter numbers 1 to 3, and to Fullbrook (2003), especially the Introduction and Part I.

Economics Students of the Universities of France Addressed to Professors and Those Responsible for the Teaching of the Discipline. The letter, which made very clear the dissatisfaction of French students with the economics teaching that they were receiving, was also published in *Le monde*, an important French daily on June 17, 2000. By July 2000, the open letter had been signed by more than 500 students (Benicourt, 2003), despite the looming traditional long vacation period in France.

The main reasons for this student dissatisfaction were threefold (Fullbrook, 2003, p.13):

- (i) Students sought escape from the unreal and imaginary worlds of the economics being taught to them. Such economics was seen by students as being far too out of touch with the concrete economic realities and phenomena of society, thereby depriving students of a deep understanding of these same economic phenomena and leaving the expectations they initially brought to the study of economics unfulfilled;
- (ii) The uncontrolled use of mathematics as an end in itself instead of being a useful tool for a better understanding of economic realities;
- (iii) The lack of a pluralism of approaches to the study of economics as a consequence of the heavy emphasis on the neoclassical approach, as if that were the only economic truth. Dogmatism was thus rejected by students and an appeal made for a pluralism of approaches in economics courses rather than sole reliance on the mainstream approach.

As a result of the students' petition, the months of June and July 2000 saw extensive coverage of the issues raised in all French media. Some well-known French economists such as Michel Vernieres (then economics professor at L'Universite Paris I), Jean Paul Fitoussi (then President of the Observatoire Francais des Conjonctures Economiques) and Daniel Cohen (then economics professor at the Ecole Normale Superieure) spoke out in support of the students.² At the end of June 2000, other French university professors supported the students with a petition of their own, calling for a national debate on the teaching of economics in France. This petition underlined the following important issues raised by the students:

² See *Post-Autistic Economics Newsletter*, Number 1, pp.1-3.

- (i) The dominant place of neoclassical theory in the curriculum and the “discrepancy of such teaching with respect to the concrete realities”, as opposed to an approach in which it makes more sense to always go back to the facts and to provide answers “useful to the economic and social actors”;
- (ii) The use of mathematics as an end in itself, and its use as a criterion of selection under cover of “scientificity”;
- (iii) A teaching method leaving no “place for reflection and thinking”;
- (iv) The need for a pluralism of explanations adapted to the complex nature of the objects under study.

These professors were convinced that it is possible to provide an economics education which is of high quality and at the frontiers of knowledge, which can be adapted to fulfil the students’ needs and aspirations, and which can take advantage of the strengths of universities to develop students’ critical thinking and other competencies.³

The long vacation period in France (July-August) provided a lull in the hectic events of that summer of discontent, but in September the French media re-opened the controversy. Famous economists like Amartya Sen, Robert Solow and Olivier Blanchard provided opposite and counter-balancing views to those of the students, thus further fuelling the controversy.⁴ On 31 October 2000, the professors in favour of the “status quo” launched a “counter-appeal to preserve the scientificity of economics” which was published in *Le monde*. Such a counter-attack could not be left unanswered by the students who made exhaustive comments on the points raised in the professors’ document.⁵

The debates aroused so much interest that the French government, via the then French minister of education (Jack Lang), set up a commission to investigate the teaching of economics in French universities. Jean Paul Fitoussi was appointed as chair, with the report

³ See <http://www.autisme-economie.org/article46.html?lang=en> [last accessed 30 March, 2011].

⁴ See *Post-Autistic Economics Newsletter*, Number 3, pp.1–2; and Fullbrook (2003, p.4).

⁵ See <http://www.autisme-economie.org/article3.html?lang=en> [last accessed 30 March, 2011].

due within twelve months. The *Fitoussi Report*, submitted in September 2001, made the following main recommendations:

- (i) The organisation of a multidisciplinary curriculum for at least the first three years of undergraduate studies;
- (ii) Debate on economic issues to be “integrated” into the structure and content of economics courses, not only through theory and statistics, but also through institutional and historical facts;
- (iii) The shift from contrived and artificial exercises to the production of essays, oral presentations and student debates. Teachers were also required to assist students in preparing these projects.

However, according to another open letter for the reform of university economics teaching published in *Liberation* on 2 July 2007, little has changed in the French universities regarding economics teaching.

By today’s date, as far as can be known, the teaching of university economics in France remains largely the same. Neoclassical economics continues to reign supreme. The main student leaders have graduated, and sadly, it looks like another case of “Dogs bark, the caravan moves on.”

The French protests were also echoed in other European countries such as the United Kingdom, Italy, Spain and Belgium, as well as in the United States. Various “open letters” and petitions concerning the teaching of economics expressed views, sentiments and positions similar to those of the French students. These included the June 2001 Cambridge University 27 Open Letter, the August 2001 Kansas City proposal, (both in Fullbrook, 2003), the March 2003 Harvard Students Manifesto,⁶ and the April 2008 University of Notre Dame Open Letter.⁷

3. ISSUES FOR THE TEACHING OF ECONOMICS

The most important teaching issues emerging from the students’ open letters are (1) a pluralism of approaches to the study of university economics (2) the excessive use of mathematics in economics and (3) the relevance of economics to the real world.

⁶ See <http://www.paecon.net/Petitions.htm> [last accessed 30 March, 2011].

⁷ See <http://www.paecon.net/petitions/petitionNotreDame.htm> [last accessed 30 March, 2011].

A Pluralism of Approaches in Economics

Various reasons were advanced for having a multiplicity of approaches to the study of economic phenomena, instead of only the mainstream neoclassical approach. First, economic phenomena are too complex to be explained only by the neoclassical approach. To argue that this approach alone results in the true explanation of what is going on amounts to dogmatism. Second, this approach is formalist and ahistorical. Third, the most telling criticism of all, is the fact that it prevents proper reflection and critical thinking on the part of the students themselves. The standard approach gives them no choice but to accept the mainstream material as the only economic truth.

However, in calling for a pluralism of approaches, the students did not request the complete elimination or replacement of the mainstream approach. They asked for exposure to fruitful debate about all possible approaches, so that the strengths and limitations of each could be assessed. They would then be allowed to decide for themselves which approach they think is of the greatest use to them in understanding the complex economic realities and issues of society.

The Excessive Use of Mathematics

Abstract, axiomatic, formal mathematical models of imaginary worlds are prevalent in mainstream neoclassical economics taught in most universities. The students strongly denounced the excessive use of mathematics as an end in itself, instead of seeing mathematics as one of a number of possible instruments that can be used to understand economic phenomena. They accepted that a certain amount of mathematics may be necessary, but argued that when mathematical models are axiomatic, abstract and formalist, and possess little practical or policy relevance for real economic problems, these models are less than helpful and should be replaced with more realistic approaches to the study of economic problems. It was *not* that the students could not, or would not, engage with mathematics. It was the lack of relevance of the mathematical approaches being taught to economic realities that was the object of student dissatisfaction.

The famous philosopher and mathematician, Bertrand Russell cautioned about one important shortcoming in the use and practice of mathematics. He insisted “that all the knowledge provided by mathematics and logic is only hypothetical: it merely tells us that if something is true, then something else is true” (Moorehead 1992, p.96). Blatt (1983, p.167) voiced similar concerns:

Mathematics is, after all, a purely logical subject. One starts from a set of assumptions (axioms) and uses the rules of logic to deduce their consequences. When mathematical reasoning is applied to problems outside of mathematics itself, then the results are no better than the initial assumptions.

In other words, if the assumptions are unrealistic in the sense of being far divorced from the real world, then the results obtained will be similarly unrealistic.

Mainstream economics to-day is merely a victory of sophisticated technique over actual substance, but a very sterile victory. It is a victory that unfortunately tends to turn much of economics into a branch of mathematics. Even Milton Friedman's disquiet led to a damning statement on the state of economics: "economics has become increasingly an arcane branch of mathematics rather than dealing with real economic problems" (Snowdon & Vane 1999, p.137). This was uttered not long before the French students' complaints about the "uncontrolled use of mathematics" in the teaching of economics and the use of "imaginary worlds".

Economics and Reality

In these ways, the economics teaching dispensed to university students becomes divorced from the economic realities and problems of the real world. Mathematical economic models can offer a wide array of logical results, but they cannot of themselves offer any practical, policy prescriptions for the actual economic problems of the present era, including the global financial crisis, high unemployment, the distribution of income, the alleviation of poverty, and the problem of underdevelopment.

This neoclassical, ahistorical and formalist methodology has been dubbed "scientism" by the critics, for it does not in any way turn economic theory into a scientific discipline dealing with facts and empirical evidence. Abstraction from reality may be necessary, but if there is no concern at all with empirical realities, this only leads to unreal and imaginary worlds unrelated to the actual world. As Worswick (1972, p.77, emphasis added) put it almost forty years ago:

. . . there could be a proliferation of theorems, *none of which help to illuminate questions about the real world*, and there could be what looks like spectacular progress in economic theory and yet no progress at all in economic science in the broader sense.

4. WHITHER THE TEACHING OF ECONOMICS?

In considering the implications of the issues discussed above for the teaching of economics in the future, one must consider the objectives of students and the needs of the various students clienteles before proposing an alternative structure for the economics curriculum.

The Objectives of Economics Students

The French students' objectives were to acquire a deep understanding of the economic phenomena of the day, to be able to reflect upon the economic material, and to render themselves useful to economic and social actors (Fullbrook, 2003, p.13-14). The Cambridge 27 petition argued for "a pluralism of methods and approaches justified by debate" to provide "significant insights into economic life" and for recognition and support of non-mainstream economics research (Fullbrook, 2003, p.37). The Kansas City Proposal contended that "All economics departments should reform economics education to include reflection on the methodological assumptions of our discipline. A responsible and effective economics is one that sees behaviour in its wider contexts, that encourages philosophical challenge and debate.we need an economics that is open-minded, analytically effective and morally responsible" (Fullbrook 2003, p.39-41).

The Harvard Students Manifesto, "Students for a Human and Responsible Economics" (SHARE) aimed to improve economics education by advocating broader diversity in the economics curriculum and by providing a forum on campus for discussion and debate on current economic issues." Other objectives were (i) to prepare students to be critical thinkers and engaged citizens, (ii) to facilitate students' pursuit of critical perspectives on economics, (iii) to raise students' awareness of the social and political implications of economics, and (iv) to get faculty and students to engage in critical dialogue about economics.⁸ The University of Notre Dame petition sought to teach students to think critically, to provide opportunities for students to intellectually engage with their discipline, and to acquire the skills for a critical examination of assumptions, logic and implications of all economics being taught.⁹

⁸ See <http://www.paecon.net/Petitions.htm> [last accessed 30 March, 2011].

⁹ See <http://www.paecon.net/petitions/petitionNotreDame.htm> [last accessed 30 March, 2011].

To sum up, the students' objectives are to acquire a deep understanding of economic phenomena, to become useful to economic and social actors, to be aware of the social and political implications of economics, to be able to impact on policy debates and to be reflective and critical of their discipline through being exposed to a plurality of approaches to economics. Since these objectives and expectations are not satisfied by current mainstream economics programmes, there is a need to come up with an alternative and more appropriate university economics curriculum.

Student Clienteles

In the design of an economics curriculum, it is important to take into consideration the range of student clienteles. Four groups of university economics students may be distinguished:

- (i) those that need or want an introduction to economics as part of their general education;
- (ii) those that need an introduction to economics as an integral component of their undergraduate degree, whether in commerce or business, engineering, arts, or social sciences etc;
- (iii) those that major in economics but go directly into the world of work, as an economist or in some other capacity;
- (iv) those that major in economics and go on to post-graduate studies and higher economics degrees.

Currently, the first two groups normally take one or two basic mainstream economics courses in their first year at university. They can be referred to as the "non-specialists" as they do not study more economics. The last two groups may be regarded as the "specialists".

In most universities, the greatest numbers of economics students are enrolled in first year, with the numbers diminishing substantially as they progress through their university career. In the USA, "44 % of undergraduate students enrolled at 4-year colleges and universities take at least one economics course. The fraction of bachelor degree recipients who major in economics is much smaller: between 2 % and 2.2 % on average" (Salemi & Siegfried, 1999). In addition, fewer than 3 % of U.S. undergraduate economics majors enrol in Ph.D. programs (Siegfried *et al.*, 1991). "Overall, fewer than 10 of every 10,000 Principles of Economics students enrol in a Ph.D. economics program and fewer than half of these earn a Ph.D. degree" (Salemi &

Siegfried, 1999). This is less than one tenth of one percent of the original economics students. More recently, Colander & McGoldrick (2009) state that “Less than 2 percent of the students who take introductory economics courses become majors and only about 2 percent of those who become economics majors go on to get a Ph.D. in economics”. This means that less than 0.04 of one per cent go on to a doctoral program in the USA, which is proportionally less than that of a decade earlier. Though the above evidence pertains to the USA, similar trends occur in other countries and this overall picture strongly supports Colander’s view in Colander & Brenner (1992, p.233):

Instead of preparing students for graduate work in economics, I see the primary goal of undergraduate economics education as helping students to understand economic events and to prepare them to evaluate current and future economic and public policy debates. Economics education is part of a broader liberal arts education and economics should be taught partly for its own sake and partly as an example of the broader intellectual inquiry of social science.

In designing an alternative economics curriculum, attention thus needs to be paid to the needs and requirements of the first two groups of students as well as those of the second two. Such a curriculum will therefore aim at satisfying the learning objectives and at fulfilling the expectations of the great majority of undergraduate students as detailed above, as well as dealing with the important teaching issues raised by the French and other students in their various open letters.

An Alternative Economics Curriculum: First Year

As per current practice in most universities (in Australia or elsewhere), first year economics is made up of introductory courses in microeconomics and macroeconomics. For the “non-specialists”, that will be all the economics they encounter, but the important question is whether these mainstream economics courses help them better understand the economic world around them.

For the “specialists”, these two basic courses are viewed as providing a good springboard to take students into the mainstream, neoclassical economics program through which they will progress in subsequent years; all the more so if these are the only economics courses they take in their first year, to the exclusion of alternative economic theories or other approaches to economics. In other words, the students are already being “shepherded” into the field of mainstream economics. Once inducted into it, very few are able to get

out of the isolated, unreal world of autistic economics. Mainstream neoclassical economics is fully in command. Such “unilateral” dominance of mainstream economics in the first year constitutes an important and difficult obstacle for bringing about any changes in the economics curriculum. What, then, is the best way to break away from this well-established, well-entrenched first year economics program?

Several scenarios can be put forward. One possibility is to do away with those two economics courses altogether and replace them by completely different courses where neoclassical economics will be studied as one of many possible schools of thought. This is the most extreme solution. A second scenario is to merge them into only one first year course dealing with the basic concepts, problems and issues from a mainstream economics point of view, and supplement this course with a “countervailing pluralist” course. A third scenario is to keep the two mainstream courses and counter-balance them with a third, “pluralist” course.

The second scenario appears the most promising if changes to the dominance of mainstream economics in the first year have a chance to succeed. It is proposed that the two traditional mainstream courses in the first year are combined into a single one semester course (with the necessary modifications) and named *An Introduction to Economics*. This is then complemented by a second course entitled *Comparative Economic Theory* which will provide the pluralism of approaches to economics that the students’ open letters have clamoured for. However, to avoid an “ahistorical” approach, the properly trained economist must also have a very good knowledge of past economic facts, problems, issues and policies. To this end, it is essential that economic history is studied as well, this helping students understand better the lessons from the past and possible guidance for the present and future. In the first year, there will thus be three, instead of two, compulsory one-semester economics courses. Details of these courses are outlined in Table 1.

One important question is whether these three courses should be taken by the “non-specialists” as well. If the students are not to go away with an incomplete or biased picture of what economics is all about, a positive reply has to be given, even though they are not going to proceed further with economics. After experiencing the three courses, they will be better equipped to understand the economic

Table 1: First Year Courses in an Alternative Economics Curriculum

I. Introduction to Economics

1. Economic Systems with special emphasis on the capitalist economy
2. Basic Economic Concepts
3. Market Demand and Supply
4. Market Structures: Forms of Competition
5. The Circular Flow of Income and Expenditure
6. National Income Accounting
7. National Income Determination
8. Macroeconomic Problems: Unemployment and Inflation
9. Fiscal Policy: the Role of Government
10. Money, Banking, Finance and Monetary Policy
11. Business Cycles and Economic Growth
12. International Trade and Finance

II. Comparative Economic Theory

1. Introduction
2. Classical Political Economy
3. Marxist Economics
4. Neoclassical Economics
5. Institutional Economics, Old and New
6. Keynesian, Neo-Keynesian and Post-Keynesian Economics

III. Economic History

In this course, the history of economic problems, facts, events and policies will be studied both at country and global levels.

realities and phenomena of society, and to appreciate the various theoretical attempts and frameworks for explaining them. However, for those students majoring in economics, other core, compulsory courses are proposed in the first year in order to broaden the general outlook of the future economist. Five additional core courses are suggested:

- (i) Mathematics for Economists
- (ii) Statistics for Economists
- (iii) Philosophy
- (iv) Political Science
- (v) Sociology.

While the first two appear necessary to give students a minimum of numeracy, the case for inclusion may not be so evident for the last

three. They are, however, an integral part of a multidisciplinary approach to the study of economics.

A first course in philosophy will be very useful because through philosophy, it will help develop important critical and thinking skills necessary for future studies. Political science is suggested to enlarge the future economist's toolkit by exposing students to political considerations and factors that are important and useful in both economic analysis and economic policy-making. Within this, some exposure to political philosophy will also be helpful. Studying sociology will make students appreciate other social and cultural factors that impact on economic behaviour.

Another important reason for these core courses is to restore dialogue and interaction between economics and these other social sciences. Society is an integral whole, and the study of society requires a holistic approach, although it might be convenient to break up its study into economics, sociology, political science, etc. But at some further stage, these different branches must come together again to enable a fuller understanding of society. What is happening in society cannot be explained by economics or political science or sociology alone. As has been aptly said, it is time to "decompartmentalise" the social sciences and to "disenclave" economics from its isolation from the other social sciences (Barrillon, 2004).

An Alternative Economics Curriculum: The Second and Third Years

The core curriculum in the proposed program will have the compulsory courses for the next two years of the economics degree outlined in Table 2.

Table 2: Intermediate and Advanced Courses in an Alternative Curriculum

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1. Current Economic Problems and Issues
 2. Economic Philosophy
 3. Microeconomic Theory and Policy
 4. Macroeconomic Theory and Policy
 5. Introductory Econometrics
 6. Econometric Methods
 7. Research Methods in the Social Sciences
 8. History of Economic Thought
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Additional elective economics courses could then be chosen by students in accordance with their interests in deepening their economic knowledge. Possible options would be Behavioural Economics, Environmental Economics, Experimental Economics, Development Economics, Economic Methodology, Financial Economics, Industrial Organisation, International Economics, Mathematical Economics, Marxian Economics, Public Finance, Monetary Economics, Econometric Theory, Applied Econometrics, Financial Econometrics, etc. Options outside economics could include psychology, law, accounting, politics, philosophy, etc depending on the interests of the students.

Fourth Year Honours

If students undertake fourth year studies, usually an Honours year in Australian universities, two components are central: their research honours thesis; and courses assisting them to extend their knowledge and understanding, including in relation to their thesis.

It is thus hoped that the above multidisciplinary economics program will satisfy students' objectives and expectations, will provide a useful solution to the teaching issues raised, and produce economists with strong mathematical, literary and thinking skills after their first degree.

5. CONCLUSION

The alternative undergraduate economics programme proposed here in response to student protests and criticisms is an ambitious one. It aims to provide a broader perception of what economics is about and a better comprehension of economic events as they unfold in the society. More specifically, it gives to the non-specialists sufficient economics knowledge to understand the problems and issues confronting the economy and to make proper economic choices at the individual and social levels. For the specialists, the main objective is to provide them with a broader outlook and a larger array of analytical tools with which to tackle the economic problems of the day in society at large.

Inspiration has been taken from two sources. First, John Maynard Keynes (1933) who declared:

. . . the master economist . . . must be mathematician, historian, statesman, philosopher . . . He must understand symbols and speak in words . . . He must study the present in the light of the past for the

purposes of the future. No part of a man's nature or his institutions must lie entirely outside his regard.

And second, C. Wright Mills (1959), with one important modification to the following passage - instead of "social science" and "social", read "economics" and "economic":

Of late, the conception of social science I hold has not been ascendant. My conception stands opposed to social science as a set of bureaucratic techniques which inhibit social inquiry by "methodological" pretensions, which congest such work by obscurantist conceptions, or which trivialise it by concern with minor problems unconnected with publicly relevant issues. These inhibitions, obscurities, and trivialities have created a crisis in the social studies to-day without suggesting, in the least, a way out of that crisis.

This paper, through its advocacy of a multidisciplinary approach to the study of economics, is a small contribution to making economics return to being one of the social sciences necessary to the study of society. It can only be hoped that this will happen sooner rather than later. Or will it be just another case of "Dogs bark, the caravan moves on"?

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Towards a multidisciplinary definition of innovation. Anahita Baregheh.Â definitions of organizational innovation, including definitions from the different disciplinary literatures of economics, innovation and entrepreneurship, business and management, and technology, science and engineering. A content analysis of these definitions was conducted in order to surface the key attributes mentioned in the definitions, and to profile the descriptors used in relation to each attribute.