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From a 'Moral Philosopher' to a 'Poor' Economist

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Abstract: The roots of modern 'Economics' are deeply buried in the moral and political philosophy of the ancient philosophers. The journey of an economist from the pedestal of a 'moral philosopher' to a state of 'poor economist' is rather long. Through the Middle Ages the 'natural law' approach to economics and sociology held firm. The 'socio-economic rationalism' of the Stoics helped this approach to develop into a 'social science' that later took the form of 'moral philosophy' of the 18th century philosophers. Since then Economics has been enriched by scientific thought of many. While Marshall and his *Principles* made the study of Economics popular at universities, Keynes provided a theoretical platform to the governments for their full employment policies ensuring an unprecedented economic growth for a quarter century during the post-war years. For more than a century now Economics has witnessed tremendous progress in methods and contents. Unfortunately, over the last two decades it has come under fire. Is there a new transformation underway or Economics has lost its lustre? This short essay tries to address some of such issues.

Keywords: Aristotle, *The Arthaśātra*, education, natural laws, moral philosophy, mathematics

Introduction

Since 1990s, the confidence of American, Japanese and West European corporations in the economic forecasts had stared dwindling. Because even with the help of computerised models, the economists had failed to foresee the stagflation of the 1970s and the cyclical trends of the 1980s. The faith was further lost in the usefulness of economics as a science for the experts did not accurately predict the consumption pattern of the households or the firms. Thus, in the mid

1990s some big multinationals in the US started firing their 'crystal bowl watchers'. While the General Electric, a giant corporation that earned revenue of some 70 billion in 1996 did not employ even a single economist, the IBM Corporation fired its 'team of economists' in favour of good 'portfolio and risk managers', because as one spokesperson said, 'it is much cheaper for us'. Company experts became more concerned with risk management, watching financial derivates, hedging against price and interest rate fluctuations, inventory management, etc. The Swedish Academy of Sciences too recognised this shifting course in Economics by awarding the 1990 Nobel Prize in Economics to Harvey Markovitz, Merton Miller, and William Sharpe.

The macroeconomic models of the 1930s were based on consumption and saving/ investment equations. 1960s were the 'golden years' for such models. For two decades the world recorded high economic growth rates, but in the 1970s the high hopes were watered down when these models could not foresee the repercussions of the explosive hikes in oil prices. The mainframe computers were fed with 'known' and 'unknown' parameters to produce equations that could be used in justification of proposed growth policies. One worthy author of such models Lawrence Klein won a Nobel Prize for his models in 1980. These models were designed to simulate faster sustained economic growth of the national economies. In 1974 the Economic Council of the President of the United States enthusiastically over estimated the economic growth for 3 per cent and underestimated inflation by the same percentage.

As the doubts in the forecasting accuracy of economic models grew the interest of researchers in general economics declined. Inside company research became popular. Moreover, the scepticism of 1980s grew and engulfed the entire economic forecasting activity. Many companies disbanded their forecasting units and independent forecasting economic consultancies withered away. Economics as a science was branded 'unreliable' and the economists as 'poor'.

Thus, on one hand while to no ones surprise, the classical teaching of economics slowly started withering away even in the most prestigious universities, on the other in the US, Europe and Asia in 1990s and 2000s there was a strong surge in admissions to the Business Schools at the cost of Economics. Thus, the question arises what has happened to economics? The quest for answer takes us back to the history of philosophical and economic thought.

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From Religion to Philosophy, to Economics

The journey of the 'economists', in fact, starts since the times when intellectuals began to study the functioning of ancient societies, basically theocracies, whose economies presented phenomena that were not very different from our own, and problems which they managed in a manner that too was not very different either. History records that Chinese, Indian and Greek philosophers had long expressed their views on economic issues [1].

Were these philosophers the first economists? The answer is: Not in the strict sense of the word; and Yes, because these philosophers of the 'ancient world' had ideas of their own about the day to day economic problems. They had their own vision of organisation of the society, justice, government, institutions, finance and other related economic matters. In short, 'statecraft' in the modern sense of the word was their business. Examples are many. Take for example famous philosophers such as K'ung Fu-tzŭ (Confucius) (551-478 BCE), Plato (429-347 BCE), Aristotle (384-322 BCE), Meng Tzŭ (Mancius) (371-279 BCE), Kautilya (c. 320 BCE), all had strong opinions about various issue that continue to stimulate the debates even today.

If we look back, the inseparable overlapping relationship of themes common to religion, philosophy and economics is like that of a holy trinity. In historical perspective, religious beliefs have dictated the daily life of the people. Humankind has always sought answers to varieties of questions about itself and its environment. At least at certain points of time, mankind has thought that it knew in what it believed (faiths, religion), had the scientific knowledge (philosophy) and tried to procure the means to satisfy their wants of daily life (economics).

It is difficult to determine when the religious belief took precedence over philosophy or economics, however, a possible scenario could certainly be that as soon the fear inspired in the heart of humans by the sights of the great commotions of nature such as the volcano, the tempest, the thunderbolt, the earthquake and the angry sea, it led them to invent the gods and seek consolation. Intellectuals of society came to rescue. While the wiser took the advisory role, the physically strong took the political leadership. Such leadership provided confidence and faith in the minds of people, stimulated them to toil and create prosperity. But then the codes of conduct were required. Ethical and Moral philosophies emerged. Developing economies also required frameworks and

regulations. Laws of the societies were devised in order to preserve the set of moral and social standards. Religion and philosophy got involved in the economics.

Each stems out of the other. Religious philosophy tries to attempt to understand the concepts involved in religion (e.g. existence, fate, creation, justice, mercy, redemption, God etc.). Until the twentieth century the western philosophy was primarily concerned with understanding the aspects of Jewish or Christian religion, while in other traditions like Hinduism, Buddhism and Taoism there is less distinction between religious and philosophical enquiry.

Philosophers have approached particular religious beliefs while advocating wide ranging views about philosophy and religion. Economics is defined as to concern itself with the study of human behaviour in a given social environment, which among others is based on religious and philosophical considerations. Economics, as we see it today, is a normative as well as a positive science. It has its own laws of motion but is also governed by social and moral codes (e.g. tax laws, property rights etc), and religious beliefs (Christian charity, or the interest rates in Islamic societies). Philosophers have in their search for Truth, Spirit, and Good have also observed and designed the social order. Throughout history of humankind, practices of various religious faiths and rites have incorporated philosophies of the time to enhance the economic welfare of the people. History is witness of the conflicts of beliefs, and economic ambitions of the preferred class (particularly the warrior kings) who have fought wars and destroyed economies, the intellectuals have helped protect human rights, develop democracy, and create new social orders. At times the intellectuals (religious pontiffs) have also seized political power and dictated the economics of time. Economic analysis and moral philosophy are concerned with economics and ethics. Moral philosophy has improved economic analysis and helped design codes of economic conduct.

On this planet the development of human civilisation since the Neolithic people, has witnessed specific advance in two directions: spiritual and material. Throughout history humankind has been preoccupied with issue of matter and mind.

A society is made up of the individual human beings, whose nature in turn influences their social conditions and social behaviour. Conversely, social conditions and socio-economic structure also influences individual psychology. The higher thought waves of an evolved person can influence the collective attitude of the society and pave the way for a new social system. If we want the society to benefit its members, we must understand their needs. The fundamental human

characteristic is his desire for liberation that inspires him to move forward on the path of self-realisation.

Human beings want liberation in three realms: physical, mental and spiritual. In order to free themselves from the relative physical bondage of time, space and person humans have developed transportation and communication. In their drive to free themselves from relative psychic bondage they have developed scientific knowledge. In the spiritual realm mankind has searched for absolute freedom from nature.

Any social system must aim at helping an individual to achieve such freedom. Spirituality is a natural tendency of mind in its quest for total expansion and liberation. The social system has a vital role in the reorientation of the human mind. Social freedom means political and economic freedom. It means freedom from injustice, exploitation and class domination. Philosophy speaks in terms of rational propositions or principles that are thought to be universal, and philosophical ethics sets forth the virtues of temperance, prudence, fortitude, and justice on a purely rational basis.

It may be objected that various philosophical systems of the past are merely antique relics; that history of philosophy consists of "refuted and spiritually dead systems, since each has killed and buried the other" [2]. Did not Kant, declare that Metaphysic is always "keeping the human mind in suspense with hopes that never fade, and yet are never fulfilled"; that "while every other science is continually advancing", in Metaphysic men "perpetually revolve round the same point, without going a single step". European Thought may be "represented as littered with metaphysical systems, abandoned and unreconciled" [3].

Because the economy is important to the conduct and the policies of the individuals and nations economics is important. From the earliest days of human civilisation, economists have concerned themselves with the grounds and social role of what they have accepted as knowledge. Precisely because of the very fact that economics is important, we must inquire into the methodological strengths and weaknesses and significance of their work.

Warren J. Samuels (1979) stresses on three facets of economics: (i) One of these is knowledge. As a science it is concerned with providing information, description and interpretation of the nature of economy in all its ramifications. Economists use the tools of deductive theory, empirical inference, and the concepts of model

and paradigm construction. The objective is positive knowledge and insight into what the economy is about; (ii) Economics is also social control, one of the modes through which in modern societies, a social construction of reality is formulated. Through internalisation, however individualised, the construction provides people with a sense of proper and possible with regard to economy. Economics, then, has both explanation and rationalisation, and thus its ideology has come to serve some of the purpose formerly provided by religion. The content and nuances of economic theory is to control the formation of issues (defining problems) and policies (finding solutions); and (iii) the third facet of economics is its function as psychic balm i.e. it provides us with a sense of order and sets our mind at rest [4].

In as much economics is a combination of knowledge, social control and psychic balm, the study of its methodology and its status as knowledge is complex and capable of diverse interpretation. The study of methodology can be a mode of self reflection and can contribute to the elevation of the discipline to more sophisticated levels.

Economists-philosophers, in the past, have at least served two basic interests i.e. systematic evolution of the economic system; and the fundamental problem of economic organisation and control, both as subjects for positive (objective) and normative (valuational) study. Opposing ideological elements in economic analysis have enabled us to better comprehend the nature and limits of our knowledge [5].

From Moral Philosophy to Social Science

The facts about eighteenth century thought show that in spite of the wide criticisms that were invited by the natural-law approach to sociology and economics, it held to its own path to a considerable extent. The facts teach us a lesson of continuity in development. Nevertheless, the natural-law system underwent a transformation especially in Germany and Scotland into a new system of thought called Moral Philosophy – the science of mind and society (analogous to 'natural philosophy' denoting physical sciences plus mathematics). Francis Hutcheson (teacher of Adam Smith) was a professor of moral philosophy in this sense, and so was Adam Smith himself.

Thus the old universal social science survived in a new form, but not for very long. This was due to the same reason that broke the natural-law system. It is highly significant that Smith found it impossible to do what Hutcheson had done as a

matter of course, i.e. to produce a system of moral philosophy or social science at one stroke. As long as this absorption was not consummated (that happened ultimately during 1776-1848), the little body of scientific economic knowledge retained independent and distinctive character of its own. Owing to greater intellectual refinement of the men who created it, and to their detachment from the immediate practical issues of economic policy, their economic analysis was much different from that of others.

Developments in the natural sciences, scientific method, philosophy, and political thought strongly affected Smith. Through him these influences permeated economics and its methods. He is sometimes accused like his contemporaries to have killed the 'pure philosophy' substituting it by 'moral philosophy'. Also, he stands of being accused as the last 'moral philosopher'. True, his works did radically change the fate of economics by creating it as a new 'social science'. Smith describes an ideal economy as 'rational capitalist' economy, in which feudalism and monopoly have been removed making its theory a normative one.

Smith adopts Aristotelian notion of purposeful nature, and so the conception of consumption as the final cause of economic activity. Aristotle held that things develop towards ends, internal to their own nature. Smith identified the final cause of economic activity as consumption, and found the propelling force in human nature: a 'natural' desire to improve his position according to his own 'self-interest'.

The systematic form of Smith's work is derived from Newton. He was influenced by the ideas of those who expanded a theory of the mechanical universe into a theory of materialism as a theory of reality. To 'economics', while Aristotle provided teleology, Newton provided systematic form, Descartes and Montesquieu provided methods. Descartes methodological precepts [6], if applied to Smith, would convince us of reasons to believe that much of the normative economics of Smith is really the 'first step' simple model. Montesquieu dealt with historical and evolutionary development of legal and political forms of societies that provided Smith to use historical method. This approach, as Schumpeter (1954) suggests, yielded a realistic explanation and potential analytic theories but no general theory. Schumpeter further suggests that this was a 'significant break with natural law ideas'.

Both Karl Marx and Alfred Marshall spoke approvingly of the marriage of history and theory that was integral to Smith's method [7]. James Bonar (1927,

p.5), referring to Smith's, *The Theory of Moral Sentiments* (TMS), observes, "What Smith proposed to achieve was not merely a treatise on political philosophy and a treatise on economics, but a complete moral and political philosophy in which two elements of history and theory was conjoined."

Absolutists observe that philosophic influence is irrelevant for judgement of an economist's work. Scholars agree that Hume, a close friend of Smith, exerted considerable influence on Smith's thought. To Hume, the end of economic activity was development of a moral society, and free market system was seen as a means to higher economic development. There is evidence that Smith concurred with this view. On the other hand, the Relativists consider Smith's model invalid because they consider it impossible to valid judgement concerning theory without reference to its ends.

Economics has been influenced, through Smith at any rate, by a number of fields. Some of these influences have shaped economist's view of the economic universe, some have conditioned his method of analysis, and some have helped to form his concept of man. The introduction of Newtonian view of universe into economics has led to adoption of absolutististic approach [8].

Economists have typically concentrated their attention upon an economy organised around free markets and have bent their efforts to the explanation of a perceived structure for that type of economy. In consequence they have been led to attempts at cataloguing elemental changes leading to different structures. Thus they speak of spectrum of structures ranging from perfect competition to perfect monopoly. But only seldom does one find explicit discussion of the forces causing structures to change.

Smith's quest for philosophy and economics are two faces of the same coin. It is omnipresent in all his works. While the TMS reflects his philosophical thoughts having their bearings on human economic behaviour; in *An Inquiry into the Causes of the Wealth of Nations* (WN) economics has the upper hand. The Stoic philosophy of the time had had the primary influence on his ethical thought. It also fundamentally affected his economic theory. Like other scholars of the day Smith was well versed in ancient philosophy as is evident from his references to Plato, Aristotle and Cicero in his TMS [9]. Smith's ethical doctrines are in fact a combination of Stoicism and Christian virtues. Smith accepted the tradition of the universalistic ethic of the Romans that became enshrined in the 'law' of nature. Ethics for him implied a 'natural jurisprudence' and his economic theories arose

out of the same. Stoic concept of social harmony, as Smith understood, it did not mean that everyone behaved virtuously.

Smith suggests that the purpose of philosophy is to explain the coherence of nature and interdependence of phenomena. This leads to the idea of a 'system' and 'systematical arrangement' (WN, V.i.f.25). He likened the pleasure to be derived from the contemplation of a great system of thought to that felt when listening to a "well composed concerto of instrumental music", ascribing to both an almost sensual quality. He believed in "lay(ing) down certain principles" and using them in analysing the phenomena.

Smith's economics and his philosophy necessarily touches his various ideas on social theory, the stages of society, exchange society, role of the state etc. that are intermixed in his lectures, notes and books. This may be an appropriate choice not only because Smith himself taught the elements of economics against a philosophical background, but also because so much of that background was formally incorporated in the WN.

Seeking to scientifically study Economics, economists became the first social scientists to abandon philosophy. But, they could never completely sever their intellectual roots in philosophic discourses. Economists study human behaviour. In ancient times ethics supplied the criteria of judgement, and Economics could only be understood in context of social, political, ritualistic moral and aesthetic considerations.

Smith was eagerly awaited because he offered a new concept that seemed to exhibit a power to explain the wealth of nations. It was a new paradigm that successfully incorporated new facts into its model and gave economics new rules of investigation. Though challenged later by Marx and others, the classical theory appeared invulnerable, especially after it was well buttressed by Augustin Cournot, Leon Walras, Alfredo Pareto and Knut Wicksell. It seemed that their analysis most effectively and realistically described what occurred in the market. These theories suggested an extraordinary capacity to predict the most likely outcome of any action, and thus declared valid. Quite simply the economic order functioned autonomously. However, the classical theory failed to meet the standards of the XIX century economic paradigm. Competition underwent changes, unemployment interfered with free flow of income, and automaticity was not always manifested. Disarray in the real world led to disarray in economic theory. The theory needed to be altered. Increased disarray meant that institutions and their behaviour

remained unexplained. Economists voiced dissent. Norms of action, purpose and prescriptions began to draw attention once again. Sectors of economy long neglected by classical theory now assumed more weight e.g. public sector. The more economics became concerned the greater was the need for a philosophy to define the standards of economic behaviour and social purpose.

Implicit in this philosophy was a concern with nature. Knowing nature made it possible that humans might escape the pain engendered by their wants. With Stoics and precepts of nature dictated a turn to man's inner soul, and consequently, a rejection the turbulence of the market place. It was argued that such rejections meant accommodating oneself to the laws of nature. Yet in later centuries the same laws of nature were upheld to support the market. History's irony would make virtue an ingredient of trade and business efficiency a personal attribute to be cultivated, thus giving quite a different twist to the concept of natural law.

The complete identification of virtue with trade was not accomplished until the Reformation. In between, it was necessary to transform the idea of natural law so that it may offer a new setting for the new paradigm. With Cicero, the ethics of natural law was divorced from the ethics of economics, so that it was possible to preach high-minded morality while doing anything one wanted to do in economic matters. Roman philosophy restricted the scope of ethical inquiry, refusing to examine the behaviour in the market because it was so undignified, thereby denying to economics a legitimate place in the spectrum of philosophical questions.

Canonists and Scholastics strengthened the tradition of natural laws that persisted in the middle ages. The old paradigm modified by Christian faith still seemed useful. Philosophy followed a line of development from the faith of St. Augustine to the divine reason of St. Thomas Aquinas, leaving the underlying theme and reliance on natural law untouched.

St. Thomas Aquinas clarified the confusion by fusing the principle of 'following nature' with precepts derived from reason. It told men that ethical goals could be reached through the faculty of reason, enabling men to apprehend what was good now shifted from the social to the individual. The Scottish moral philosophers incorporated natural law into their new system of thought, later to become an integral element of Smith's economics. But, the real implications of such thinking were exposed only later in the writings of Thorstein Veblen.

Scholasticism, which had sought to infuse a sense of ethics into the practices of market, urged the rules of conduct that were inappropriate for a rising capitalism. By eighteenth century natural law had been given reverse twist that supported individualistic trends in moral philosophy and in economics. Individual became the key to human relationship and all social relationships and social actions were explained as the sum of individual actions. Economic discussion began with the atomistic assumptions, making it possible for self-interest to become the fundamental moral principle.

Yet some questions were raised. Montesquieu thought that institutions were relative to the needs of those they served. Hume very much doubted the efficacy of 'natural law rationalism'. Writers like Earl of Shaftesbury and Hutcheson preferred an appeal to benevolence rather than self-interest as the basis of human relationship. Indeed, Hume's 'principle of communication' suggested the abandonment of individualism as an ethical precept.

Though these developments reach their climax in Smith, yet, with him there seems to be an unresolved tension between benevolence or sympathy, and self-interest. His TMS employed the idea of sympathy i.e. "capacity of a person to enter into another person's situation and thus establish accord with him". In this book, he is not so much under the spell of Shaftesbury and Hutcheson, as much in that of Mandeville. As against this, in his WN it is self-interest that is the motive force that drives the social behaviour.

Whenever, individuals pursued their own aims they contributed to the social order. The theory revealed not only a sublime faith in the natural order, but was also a paradigm that very well suited the needs of rising middle class and its political and economic demands. By the end of eighteenth century the paradigm changed. With Bentham the discussion moved from natural law to utility. Happiness for the greatest number became the touchstone of social ethics and guiding principle of economic behaviour. The idea led Alfred Marshall to believe that knowledge and progress would rid the world of poverty and ignorance (*The Principles of Economics*, Ed. 1961, bk 1, Ch 1). Progress became a natural phenomenon, inherent in society, constantly moving upward in ascending spirals, and totally self-sufficient.

While Smith might have rejected utility, preferring the sentiment of sympathy, as a way of social experience, his epigones had no difficulty in assimilating the new utilitarianism into their justification of the sort of economy they preferred. Free

trade and the spontaneous identification of interests were all they required; even seldom government action could now be discarded.

Accumulation and growth is locus of all fundamental contradictions of the capitalist order. Actor in this process was the declining rate of profit and the periodic eruption of crises. Superimposed on this, are the group conflict, class-consciousness, and the entire sociology of revolution. Basically, the economic problem was to discover how the continuous reduction of labour requirements affected accumulation and the changing structure of capitalism. English history provided Marx with many striking illustrations of this inexorable process. His analysis of accumulation and growth was internal to the economic order and did not require an outside stimulus to get it moving.

But such a paradigm was harshly rejected; there were errors in it, and perhaps more important, it threatened the *status quo*. It seemed that evolutionism was a more effective counter weight to the mechanistic models. Political virtue as seen in Hegelianism was challenged by Darwin's evolutionism, which was later applied by brutal precision by Thorstein Veblen.

Spencer's 'Social Darwinism', was a compound of the Puritan ethics and crude Malthusianism. His principles were divine in origin reflecting elementary justice and seemed to stress that the state should not come in between the way of humans and their suffering. The government was not to be trusted. The state had no business educating the young, carrying post, minting currency, providing charity, regulating industry, operating lighthouse, improving sanitation, or being concerned with outbreaks of the plague.

The middle class grasped this philosophy readily. The idea that those who survived the economic jungle were indeed the fittest was an agreeable self-congratulation sustained by political economy. Economists, following the doctrine, notably J. B. Clark proved beyond doubt that the economy rewarded everybody justly.

Thus, Economics as a science offered few genuinely new ideas to explain what was happening, and was less able to predict the course of events. There were some modifications and changes in economic theory e.g. marginalism propounded by Stanley Jevons and the Austrian School; concepts of elasticity and time stressed by Alfred Marshall, but from philosophical point little was added.

Unfortunately, all the paradigms offered to date economics no longer served social needs. Decisions once made by individuals have been transferred to groups, organisations, and governments. To assume, that they will behave exactly as individuals has proved to be false, as the parameters of action have been altered and the areas of performance are no longer strictly economic.

What are the elements of the new paradigm that economics now requires? The basic element is the recognition of the fact that actions of actors of social system are not only political but economic as well. Their decisions are made in a social setting that strongly conditions the economic behaviour. Goods and services are not only commodities and performances with price tags, but are directions and actions significantly related to human actors who control them. Thus the paradigm of pure market has little relevance to the problems of the day. Constructing a new paradigm in Economics will be achieved by relating a relevant and meaningful theory to practical policy i.e. a concern with *political* and *social* economics.

The influence exerted by the economic environment, whence even the most abstract economist gets material for reflection and the exercise of his logical acumen, is indisputable. The problems, which the theorist has to solve, are suggested by the rise of certain phenomena that at one moment cut a very prominent figure and at another disappear altogether [10]. But it is important that we should remember that facts alone are not sufficient to explain the origin of any doctrine, even those of social politics, and still less those of purely scientific character.

There is no doubt that the beginnings of economic science lie in a remote past, but the great currents of economic thought known as the 'schools' only began with appearance of those two typical doctrines, individualism and socialism.

Educating an Economist

Education is a complex process. As a teacher, I am inclined to believe that education is not only acquiring skill or aptitudes, but it is also about acquisition of attitudes. People need to know not only methodology, but also reality and should be problem/solution driven. They should know the scope as well as the limits of techniques they learn.

Greek philosophers have long back recognised the importance of education of the people. Modern economics, in pioneering work of Theodore Schultz has recognised

the significance of the role that education plays in economic development of a country. Question is what type of education? General or specialised, scientific or skill-oriented, intermediate or higher university education should be provided. From a country's perspective and its future, all types of education facilities need to find proper place to suit the public choice. But, at all levels and for every science/art there must be the right type of education. This, moreover, depends upon the choice of curriculum, length of study, intensity of learning, quality of teachers and institutional facilities, etc.

I would like to concern myself here with the graduate education of 'economists' alone. On this issue my views as expressed below are deeply influenced by three famous economists who taught me and became my professional friends later in my life: one, Paul Streeten, educated at Oxford and the other two, Sir Hans Singer, and Amartya Sen, educated at Cambridge.

In the 1980s, voices were uttered loudly that "one who is only an economist is a poor economist". The pressure for jobs, promotion, tenure and publication in the US and UK universities grew such that the economists had to 'cultivate ever narrower fields' and in the academia 'publish or perish' was the course. The result was that the economics students were trained to become 'narrow specialists' without understanding the institutions, the history of economic thought, the economic literature, the handling and evaluation of quantitative and qualitative data, learning to weigh evidence, and without wider visions.

Lately, with the reform of the education system within Europe, the so called *Bologna Process* is asking for major changes, including the curriculum. At least in the domain of Economics, questions are being posed: how much of what content to be provided, interdisciplinary or specialised education, should mathematics be compulsory or not, should the degrees be oriented to theoretical knowledge or to applied skills, etc.? I express some of my views in the light of these issues.

The Content of Economics

Professor Alfred Marshall seems to have created the gross content of Economics of the last century. He taught Economics at Bristol, Oxford and Cambridge. He deserves due credit for (a) making Economics completely independent of the Moral Sciences, (b) broadening the contents of economics, and (c) educating leading economists of the future (like D. H. Robertson, John Neville and John

Maynard Keynes, Joseph A. Schumpeter, Gustav Cassel, Irving Fisher, E. R. A. Seligman, R. W. Taussig, Charles Gide and W. R. Sorley) who will have an immense impact on the future of economics education later.

Although, Harvard, Yale and Columbia universities in the US had already established Departments of Economics and Social Sciences much earlier, Cambridge and Oxford in the UK had to wait until 1903 when Professor Marshall got his way in getting approved by the University a separate Tripos in Economics, after a long fight lasting since his joining as a Professor of Political Economy at Cambridge in 1885. At that time, the subject was taught formally for both the Moral Science and History Tripos and accounted for a little less than one-third in the moral sciences.

At Cambridge, Alfred Marshall had opposed every effort to subdivide economic studies into theory, history and policy and he carried his struggle of independence of Economics from Moral Sciences successfully. In 1902 he stressed the need of economics education arising from growing complexities in business, the need in labour relations for the training of 'sympathies and intellect' which economic studies provide, and for wider education on social questions such as housing, charity and the causes of unemployment. He considered "reasoning, perception and observation, and possession of a scientific imagination" as the three basic requirements of study of economics [11].

In his essay on Alfred Marshall, J M Keynes writes: "The study of Economics does not seem to require any specialised gift of an unusually high order. Is it not intellectually regarded a very easy subject compared with the higher branches of philosophy and pure science? Yet good or even competent, economists are the rarest of the birds". He further adds, "...the master economist must possess a rare combination of gifts. He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historian, statesman, philosopher – in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purpose of the future. No part of human nature or their institutions must lie entirely outside his regard. He must be purposeful and disinterested in a simultaneous mood; as aloof and incorruptible as an artist, yet sometimes as near the earth as a politician. [12]"

Since J. M. Keynes wrote, Economics education in the Western world, particularly in the US, has moved far away from these types of skills. Many distinguished economists in 1991 agreed that in graduate (master) education 'tools' and 'theory' is preferred at the cost of 'creativity' and 'problem solving'. It was also noted that graduate students who come from other fields can get Ph.D.s with little or no knowledge of economic problems and institutions [13].

In the light of the above observation, I believe that it would perhaps be right to sacrifice some technical aspects of economics (including mathematics) in favour of disciplines like political science, philosophy and economic history.

Philosophy consists of logic, epistemology, moral and political philosophy. A sound knowledge of logic and theory of knowledge will make the economist not only a good theorist but also teach him to distinguish between, on one hand, tautology and deductions from them, and on the other, empirical facts and their relation. Economics suffers from mistaken validity for truth and the easy transition to falsehood that lies at the alleged rigour and precision of mathematical economics. Conclusion may be valid but untrue.

Similarly, a good education in moral and political philosophy (political science) would avoid or at least reduce the numerous hidden biases in economic reasoning. The knowledge of political institutions and processes makes the economist aware of the constraints and opportunities for getting policies right. The economists need to take their investigation into the political variables in economic policy, and supplement positive with normative political economy.

Further, social, political and economic history is deeply neglected in modern economic education. It hardly needs any argument of defence.

Does this broadening not mean that we have to sacrifice some education in economics that is all the time becoming more and more technical, specialised, fragmented and professional? I am afraid that unless we lengthen the time of study, evidently, some sacrifices in curriculum will have to be made.

Specialised Education

As far as the question of specialised economics education is concerned, it is said that the specialist knows more and more about less and less until he knows everything about nothing. The real question is should a well-trained economist

deal with few areas or spread his investigation widely? I feel that it should be left to individual choice.

A widely held criticism of modern American education of economics [14] is that it has, unfortunately, become too narrow and too far from reality [15]. The "departments of economics are graduating a generation of *idiots savants*, brilliant at esoteric mathematics yet innocent of actual economic life" [16]. British and European education of economists with the growing popularity of business studies is slowly moving on a similar path.

I would rather agree with Paul Streeten and favour "being a broad-gauged economist and vaguely right to being precisely wrong". Economics is not a science in which controlled experiments can be conducted and no economic theory has ever been falsified by an experiment.

Mathematics and Economics

Many of us would agree that mathematics is a language of expression. Therefore, hardly there can be an objection to its use wherever appropriate. The only concern could be that the users of it should know its limitations as well as its scope [17]. From its beginnings economics has been couched in formal arguments over the issue.

It is often claimed that the virtue of mathematics is that assumptions, deductions and conclusion are spelt out precisely, whereas descriptive economics permits fuzziness. But fuzziness enters into mathematical economics when a, b, c are identified with individuals, firms, and equipment. The identification of the precise symbol with often fuzzy reality creates lack of precision and blurs the concept.

Correct inference from clearly stated premises leads to valid conclusions. There are two dangers of the over use of mathematics with which economics is known to suffer. One is that validity can be mistaken for truth as the deductions from analytical models can be taken as descriptions and analyses of the real world. The other is that time and effort devoted to extract theorems can be at the expense of investigation of real events.

British economists of the pre World War II era had expressed their reservations regarding the over-use of mathematics in economics. Both Alfred Marshall and J. M. Keynes (mind that the latter was well trained in mathematics), were fairly

sceptic about it. Alfred Marshall in his letter to A. L. Bowley and J. M. Keynes in his *General Theory* write about the issue.

To quote Alfred Marshall: "In my view every economic fact whether or not it is of such a nature as to be expressed in numbers, stands in relation as cause and effect to many other facts, and since it *never* happens that all of them can be expressed in numbers, the application of exact mathematical methods to those which is nearly always waste of time, while in the large majority of cases it is positively misleading; and the world would have been further on its way forward if the work had never been done at all [18]".

In his another letter Alfred Marshall writes: "I had a growing feeling in the later years of my work at the subject that a good mathematical theorem dealing with economic hypotheses was very unlikely to be good economics: and I want more and mire on the rules – (1) Use mathematics as a shorthand language, rather than as an engine of inquiry. (2) Keep to them until you are done. (3) Translate into English. (4) Then illustrate by examples what are important in real life. (5) Burn the mathematics. (6) If you can't succeed in (4) burn (3). This last I did often"[19].

J. M. Keynes expresses his view by stating that "... symbolic pseudo-mathematical methods of formalising a system of economic analysis ... allows the author to lose sight of the complexities and interdependencies of the real world in a maze of pretentious and unhelpful symbols"[20].

In the post-war years many distinguished mathematical economists have won Nobel Prizes in Economics. From Jan Tinbergen and Ragner Frisch to Simon Kuznets, Kenneth Arrow, Gerard Debreu, Lawrence Klein, Edmund Phelps, and Wassily Leontief have all been critical of the abuse and excessive use of mathematics [21].

However, let us not forget that their criticism is directed towards the triumph of technique over substance, of form over content, of elegance over realism. Mathematics should be the servant and not the master of economics. No doubt that every economist must have a training in mathematics else he would not be able to see through the flawed reasoning.

Why is increased dominance of mathematics in economics? Frank Hahn blames Milton Friedman's "as if" doctrine and the romantic desire to pass as a scientist.[22] At the end of the 19th century, with the so-called 'marginal revolution', mathematics was increasingly introduced in Economics by Leon

Walras, Augustin Cournot, Stanley Jevons, Arthur Cecil Pigou, F Y Edgeworth and others to make it more like physics, and raise its status. Since then and particularly after 1950s it has come to dominate the subject.

Conclusion

Economics, today, definitely is under transformation. To me personally the current state of graduate education of Economics in most universities world-over seems in a delicately poor state. Although, Alfred Marshall got Economics the recognition of being an independent 'social science', its position was only strengthened by the introduction of mathematical and geometrical tools, and analytics used by F. Y. Edgeworth, J. R. Hicks and A. C. Pigou. Economics of the post-war years on both sides of the Atlantic, particularly in the US, under the influence of works by Paul Samuelson, Kenneth Arrow, Laurence Klein, Robert Solow, Wassily Leotief and other mathematical economists, this 'social science' was turned more into a 'technical science'. Unfortunately for Economics, the employment successes of business school graduates in the US had cast a shadow on its teaching and learning. Moreover, the irony is that the US business schools employ the best Economics faculty.

Economics of Adam Smith as a 'social science' has indeed come a long way. What remains at a loss is that the trained economists have lost touch with the reality of daily economic life and the institutions. To the surprise of many not even a sound technical knowledge of methods is of any great help to solve the real problems of economic growth, employment, inflation, recession etc.

Thus, the task for us all ahead: An improvement in the quality of Economics education, through multidisciplinary of courses and intermediate mathematics.

Endnotes

[1] Ancient Chinese philosophy centres round the teachings of Confucius and the schools of thought led by Mo-Tzŭ, Meng Tzŭ (Mencius), Hsun Tzŭ, and Han Fei. These schools, which together with Confucianism (Taoism) constituted the intellectual foundation of China, they were primarily interested in ethics and government. However, they discussed theoretical and logical problems.

In India, Kautilya's book *The Arthaśātra* – literally the science of material well-being is devoted to economics and public policy.

Ancient Greece was compressed by an intricate web of social relationship. Economic action was conditioned by higher social needs. Greek *polis* was on decay. Socrates had been a witness to the Athenian oppressive oligarchy, succeeded by democracy that then destroyed him. Plato's economics was embedded in broad social and philosophical concerns emphasising ethics and politics. It was guided by the principles of proper functioning and management of the polis. The *Republic* and *Laws* describe a planned society. Aristotle's prudence and moderation was a glimmering recognition of market. Improper pricing could create an immoral situation, violating justice. A just exchange, based on equality of the ratios involved, was one way of relating natural forces to each other and maintaining social equilibrium. Such were some of the Aristotle dicta on economics.

[2] Hegel, G. W. F. (1787).

[3] Whitehead, A. N. (1987, pp. 18).

[4] Elaborating these points G. Shackle (1967) writes, 'All we can seek is consistency, coherence, order. The question is what thought scheme will best provide with a sense of that order and coherence, a sense of some permanence, repetitiveness and universality in the structure ... that will carry it to the highest expression. Religion, science and art have all of them this aim in common. The differences between them lie in the different emphases in their modes of search...

The chief service rendered by a theory is setting of minds at rest. Theory serves deep needs of the human spirit: it subordinates nature to man, imposes a beautiful simplicity on the unbearable multiplicity of fact, gives comfort in face of the unknown and inexperienced, stops the teasing of mystery and doubt which, though salutary and life preserving, is uncomfortable, so that we seek by theory to sort out the justified and unjustified fear. Theories by their nature and purpose, their role of administering to "a good state of mind" are things to be held and cherished. Theories are altered and discarded only when they fail us' (pp. 286, 288-89).

[5] See Samuels, W. (1977), pp 467-484.

[6] Five methodological precepts as Descartes suggests are: 1. Never accept anything as true not known to be so; 2. Divide the analysis into as many parts as might be necessary for adequate solutions; 3. Conduct the examination from easy

to understand to increasingly complex; 4. Order must be assigned even to those objects which do not in themselves possess a sequence; 5. Always make enumeration so complete and general that one is sure that nothing has been overlooked. Here, 3rd and 4th precepts are worth considering, i.e. one must design simple models before the more complex ones; and that scientific work will always have a tentative and temporal quality.

[7] It is interesting to note that only Smith and Marx used the historical method consistently. Perhaps unfortunately, the profession did not absorb the aspect of Smith, although the relativists have typically urged it.

[8] Since a machine is a static structure, its analysis is appropriately conducted in static terms. It can be very well argued that at least a part of the difficulty in developing a dynamic explanation of economic activity stems from the fact that the overall view of economists has been static in this sense.

[9] Smith was well informed about ancient philosophy, keenly interested in the history of science and the evolution of society, and widely read in the culture of his own time, especially its literature, history and nascent social science. In his survey of the history of moral philosophy his fascination with Stoicism is evident.

[10] The peculiar economic conditions in which England found itself at the beginning of nineteenth century had a great deal to do in directing Ricardo's thought to the study of the problems of rent and currency issue. But the advent of machinery, with the subsequent increase in industrial activity and the parallel growth of a proletarian class, followed by the recurrence of economic crises, we may be certain that neither the doctrine of Sismondi nor of Marx would have seen the light of the day. It is equally safe to assume that the attention which economists bestowed upon monopoly is not altogether unconnected with the contemporary development of trust movement.

[11] Marshall, A. (1902) "Economic Teaching at the Universities in Relation Public Well Being", paper presented at a Conference of Members of the Committee on Social Education, London, pp 3-9.

[12] Keynes, J. M. (1972) "Alfred Marshall", in *Essays in Biography*, London: Macmillan.

[13] See Krueger, A. et. al., *JEL*, Vol XXIX, No. 3 Sept. 1991, pp 1035-1053.

[14] Streeten, Paul (1990), "American Economics Education", mimeo

[15] Klamer, Arjo and David Colander, (1990), *The Making of an Economist*, Boulder: Westview Press.

[16] Kuttner, R. (1986), "The Poverty of Economics", *Atlantic Monthly*, February Issue, pp 74-84.

[17] Famous American economist Kenneth E. Boulding in his article "Samuelson's Foundations: The Role of Mathematics in Economics", published in the *Journal of Political Economy*, June 1948, pp. 187-209 has said that "I know of no mathematical expression for the literary expression 'I love you'". In *5th Annual Kenneth Parsons Lecture Series*, in his lecture "Economics as an Institution" delivered at IBS, Boulder, Colorado on March 8,1989 he reiterates, "Mathematics is a language – or perhaps we should say a jargon – with an extraordinary paucity of verbs – it is hard to think of more than four: equals, is greater than, is less than, and is a fraction of."

[18] Quoted in Pigou, A. C. (ed.)(1966), *Memorials to Alfred Marshall*, London: Kelly, p. 422.

[19] Ibid, p. 427.

[20] Keynes, J. M. (1936), *General Theory of Employment, Interest and Money*, London: Macmillan, pp. 297-298.

[21] In his presidential address to the AEA meeting in 1970, Wassily Leontief condemned "preoccupation with imaginary, hypothetical, rather than with observable reality." In a letter to *Science* magazine he wrote, "Page after page of professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but entirely arbitrary assumptions as to precisely stated but irrelevant theoretical conclusions."(quoted by Kuttner, R. op. cit. 1985).

It is interesting to mention that as a good empirical analyst Wassily Leontief investigated the *American Economic Review*. He found that 54 per cent of articles were 'mathematical models' without any data. Another 22 per cent drew statistical inferences from data generated for some other purpose. Another 12 per cent used analysis with no data. Only one half percent used direct empirical analysis of data generated by the author.

[22] Hahn, F (1994) "An Intellectual Retrospect", *Banca Nacionale del Lavoro Quarterly Review*, p. 246.

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