**Need for a New Paradigm in Economics**

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Abstract: The multidimensional challenges confronting humanity today combined with our inability to fully harness the abundant human, social, technological and financial resources to meet human needs point to serious insufficiencies in prevailing economic theory modelled on the natural science. A paradigm change is needed in the social sciences akin to that which occurred in Physics a century ago. A human-centered theoretical framework is needed to heal the divorce between economics and human values, reintegrate economy with society, unify the objective and subjective, individual and collective dimensions of social reality. The article identifies nine essential characteristics of new economic theory.

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Key words: paradigm-change, new economic theory, social science, subjective factors, values, uncertainty.

**Knowledge, power and progress**

Knowledge is power. Centuries of remarkable progress in science, technology and social organization have fueled a twelve-fold rise in per capita living standards globally since 1800, in spite of a seven-fold growth in population during the same period. Average life expectancy has more than doubled. Qualitative improvements in living standards and quality of life have been equally impressive. In spite of these remarkable achievements, today humanity faces challenges of unparalleled magnitude and complexity. The persistence of poverty, rising levels of unemployment and inequality, pollution, over-exploitation of resources, climate instability, social unrest, armed conflict and continued proliferation of nuclear weapons are symptoms of our collective incapacity. They bring into stark relief the inadequacy of prevailing knowledge (Johnson and Jacobs, 2012).

The 21st century is also a period of unprecedented opportunities. The spread of democracy, human rights and law, rise of the global middle class, unprecedented access to information, technological advances in communications and transportation, rising levels of education and health, are liberating, empowering and enriching people around the globe as never before in human history. These achievements reflect remarkable strides in knowledge. Yet, humanity has not been able to fully harness these remarkable powers to effectively address persistent social problems. This too reflects the inadequacy of current knowledge.

All the major challenges confronting humanity today share common characteristics. All of them are complex in nature and defy solution from partial strategies. They are also interrelated and interdependent with one another, defying solution from fragmentary approaches confined to one sector. They all result from serious inadequacies in our social institutions and public policies, and these inadequacies are in turn founded upon and reinforced by prevailing social theories that prevent us from even perceiving, no less addressing, root causes with effective remedies. All these challenges defy effective remedy by piecemeal concepts, incremental policy changes and narrow strategies framed within the context of prevailing institutions, concepts and values. They are all global in nature and necessitate the further evolution of both our concepts and institutions for global governance. At the same time, they all are within the power of humanity to remedy, because they are all the result of human ideas, values and actions, not of any inalienable laws of Nature. Finally, they all point to the urgent need for new knowledge – for a new conceptual paradigm in the social sciences (Jacobs, 2014).

Knowledge has indeed grown immensely in recent times. That progress has spurred rapid and revolutionary social transformations. Progress in the material and engineering sciences has led to the development of powerful technologies impacting every aspect of human life, from human health and longevity to computing and telecommunications. Corresponding advances in the social sciences enabled the West to avoid or minimize the impact of destabilizing financial crises since the 1930s and to reduce the number of deaths resulting from armed conflict by more than 90% worldwide since 1990.

Nevertheless, the advancing front of knowledge has not been uniformly distributed among all domains. Advances in natural science and technology have far outpaced advances in the social sciences, resulting in a widening gap between our technical capacities and organizational capabilities. The multi-dimensional challenges confronting humanity today, a compelling fact that calls for serious consideration, are a result of this widening gap. Increasing social uncertainty is largely the result of insufficient knowledge, rather than the inherent unpredictability postulated by Quantum Mechanics.

# Paradox of needs and resources

The inadequacy of current theory in the social sciences is dramatically illustrated by the paradox between unmet needs and underutilized opportunities. Economics may have been born at a time of scarcity, which justified its title as the dismal science. But today we find a world afloat with surplus capacities and untapped opportunities. The world now possesses all the capabilities needed to eradicate poverty and provide for the minimum needs and aspirations of every human being on earth. According to McKinsey, global financial assets rose from $12 trillion in 1980 to exceed $225 trillion in 2012, and they are projected to reach $370 trillion by 2020 (Lund et al., 2013; Economic Times, 2011). Yet only about 20% of these resources are actually involved in supporting the real economy that produces the goods, services and employment opportunities needed to provide economic security and welfare to human beings. The rest of these assets are circling the globe in search of speculative returns, destabilizing financial markets, drawing off funds from investment in productive assets, lowering economic growth and employment generation, widening inequalities, compelling countries to build up huge currency reserves, and rewarding behaviors that promote greater inequality, social unrest and instability. The single act of modifying tax policies to encourage investments in the real economy could radically alter the global economic outlook for individuals, nations and humanity.

Money is not the only resource in surplus and poorly utilized. The world also possesses the technological and production capacity to grow sufficient food, produce enough clothing and construct enough housing to meet the needs of every human being. But much of that capacity remains unutilized or diverted for competitive destruction rather than human welfare.

Most important of all, we have the human resources needed to ensure human security for all, but much of this most precious and perishable of resources remains undeveloped and unutilized. According to ILO, more than 200 million human beings, including about 80 million youth, are unable to find the gainful remunerative employment which they seek. Employment is the economic equivalent of the right to vote in democracy. It is the most essential condition for exercising their economic rights in a market economy. If underemployment is taken into account, the figure of wasteful neglect is far in excess of one billion people.

Common sense tells us that when you have a plethora of unmet social needs and an abundance of underutilized social resources, there must be a way to apply the one to meet the needs of the other. If that is not happening, it points to the insufficiency of our policies, institutions and theories rather than any inherent limits or universal laws. People everywhere fault their leaders, public institutions and policies for failures of performance, little realizing that these limitations are backed and symptomatic of a more serious and fundamental deficiency in knowledge (Jacobs and Šlaus, 2011).

Economy is a subset of society and its activities can be validly assessed only in the context of their contribution to and impact on social welfare. Efficiency is a fundamental concept in Economics. But a narrow conception of economic efficiency that considers only the quantum of time and resources directly consumed in performing a task ignores the wider costs and benefits of economic activity to society as a whole. True measures of efficiency must take into account the indirect costs of unemployment to society in terms of welfare costs, rising levels of inequality, deteriorating human health, breakdown of families, crime and drug use, social alienation and unrest, the rising costs of the criminal justice system, etc. Generating sufficient employment opportunities for all is also an essential condition for social stability. Rising levels of unemployment are one of the underlying causes of spreading fundamentalism and violence among those who see no hope for a better future. Economic value and welfare cannot be divorced from or evaluated independently of social value and social welfare.

## Natural vs. social science

On reflection, it should not be surprising to learn that our knowledge of the physical world has grown more rapidly than our knowledge of human society and of ourselves. The natural sciences had a 200 year head start. Moreover, the complexity of human life far exceeds anything found in material and biological Nature. Social science needs to grapple not only with the complex interactions between material forces, living species and their natural environment. In addition and more centrally it must account for the infinitely more varied, complex and less predictable behaviors of human beings at the level of conscious thought and feeling as well as subconscious instinct and physical movement.

In the past, progress in the social sciences largely resulted from efforts to reproduce the objectivity and rigorous discipline developed by the natural sciences. This led to the search for impersonal, immutable universal laws governing society, akin to Newton’s laws of motion and thermodynamics. It also led to the emphasis on quantitative measurements and mathematical formulations which have proven so precise and effective in the material sciences.

In the process the social sciences have largely come to ignore or regard as externalities three vitally important distinctions between social and natural science – subjectivity, conscious choice and individuality. Unlike natural science, subjective sensations, perceptions and conceptions play a dominant role in human behavior as every political, military and business leader knows so well. Franklin D. Roosevelt assumed the presidency of the United States in 1933 in the midst of a major banking crisis that had led to the closure of more than 6000 financial institutions. He understood that public perceptions and trust were a far more important factor than objective facts in explaining and addressing the panic. Therefore his first act was to appeal to the understanding, courage and patriotism of the American people with his famous exhortation, “We have nothing to fear but fear itself.” His call to Americans to redeposit their hard-earned, life-time savings to support faltering financial institutions reflected deep insight into the subjective factors that underpin modern economy and society.

The notion of natural law and universal principle so central to the natural sciences fails to take into account the conscious dimension of human behavior so vitally important to understanding the role of conscious human choice and its impact on social systems. Efforts to discover universal laws of political, economic and social behavior fail to recognize the fact that the laws governing human society are created by human beings and are determined by prevailing rights, values, attitudes, laws, customs, institutions and social forces rather than immutable universal principles. FDR stopped the panic by altering social priorities and affirming his commitment to protect the economic and social right of American citizens. Had he lived to see the end of the Second World War, he intended to modify the US Constitution with a second Bill of Rights affirming the right to employment and other forms of social security. The implicit subjective factors that underpin the working of economy are largely taken for granted and accepted as absolute, thereby severely narrowing the scope and limiting the potential effectiveness of public policies.

# Evolutionary social science

Social science also ignores the single most powerful factor in social evolution – the role of the individual. In an effort to mimic the mathematical and statistical perfection of other sciences, the emphasis on mean, median and standard deviation in the social sciences obscures the fact that all significant changes in social behavior originate in the mind and action of a single individual and from there spread to the larger collective. All matter may be composed of only three types of quarks, but every human being possesses an element of individuality, creativity and uniqueness which defies comprehension and description by generalized principles. The end of colonialism can be traced back to the leadership of Mahatma Gandhi, which subsequently served as the inspiration for Martin Luther King and Nelson Mandela. Moore’s Law could never have predicted the sudden invention of the World Wide Web, iPod, iPhone, iPad or Facebook. These were the work of creative individuals who acted as catalysts for social change. The individual and the collective represent two complementary interacting and interdependent aspects of a greater whole we call society.

In times of radical and rapid change, solutions lie outside the beaten track and status quo of existing rules and assumptions. The limitations and failures of social science are not an indictment of the knowledge that has been discovered until now, but a call to move beyond present boundaries and assumptions to evolve a more truly effective science of society adequate to meeting the challenges of a rapidly changing, evolving and globalizing society.

A paradigm change in social science is needed akin to the paradigm change in Physics in the early 1900s which reframed existing knowledge within a larger context that recognized the limited validity of prevailing assumptions. Prevailing economic theories regarding the performance of markets under specific conditions rarely met in the real world or sustained over time are akin to Newtonian assumptions valid for everyday life but inapplicable to the quantum world of subatomic particles and the macrocosm of the universe in which they represent a special condition (Giarini et al, 2010).

A static science of physical nature may serve our everyday purposes, but in the social sciences evolution must be regarded as a continuous process rather than a rare exception. Unlike the material universe which evolves very slowly according to laws and principles valid for billions of years, human society is transforming itself at a rapid pace giving rise to new conditions subject to new principles and different laws.

As Orio Giarini points out, the notion of economic value developed in the context of the Industrial Revolution is grossly inadequate when applied to the modern knowledge-based service economy (Giarini and Jacobs, 2011). Traditional manufacturing lends itself to calculating cost at the point and time of sale. This method is inadequate when applied to large sections of the service economy, where development, production, delivery and utilization occur over long periods of time. Today services constitute 70 to 80% of domestic product in the most economically advanced nations. Services such as insurance, education, healthcare, telecommunications and transportation involve huge fixed costs with very low marginal unit costs. Service delivery often extends over many years, so that the true cost cannot be accurately assessed at any particular point in time. Those costs begin with research and development activities long before actual production, sale and delivery. They extend long after the actual point of service delivery through after-sale service, liability and final disposal. Moreover, the qualitative value of services may be only weakly related to the cost of providing the service. Thus, there is a need for radically new and originally thinking in economics and other social sciences to reflect the revolutionary nature and extremely rapid pace of change taking place globally.

# Does science have a purpose?

Karl Popper acknowledged that the social sciences can learn from the scientific method adopted by the natural sciences, but he warned against misguided naturalism (Popper, 1976). The natural sciences evolved as a quest for pure, objective, impartial knowledge of the natural laws governing the material world devoid of doctrine and unvarnished by religious dogma. The value of knowledge in the natural sciences is judged in terms of its veracity to fact and only secondarily in terms of its practical utility. In the social sciences, the quest for knowledge and its social utility can never be validly separated from one another. The ideal of natural science is impartiality, absence of prejudice, value free knowledge independent of personal preferences and perceptions. The ideal of truth in social science must be that which promotes the maximum welfare and well-being of all human beings.

In the social sciences, knowledge is power and can only be assessed in terms of the power it generates for addressing social issues. Adam Smith regarded himself as a moral philosopher in quest of ways to improve the human condition, not as a scientist out to discover universal laws. Popper repeatedly emphasized the ethical dimension of the social sciences and called on social scientists to accept moral responsibility for the outcomes of their knowledge. Persistent poverty, high levels of unemployment and widening inequality reflect failures of knowledge, not immutable laws of economic science.

Measurements of progress based on total economic activity may have been loosely connected with rising levels of economic welfare in past centuries, but today they are divorced from the wider objectives of social welfare. Expenditure on military, criminal justice, legal and illegal drugs used to compensate for rising levels of depression and environmental remediation are illustrative. The growth of the global bottled water industry to $60 billion by 2006 reflects rising concern over quality of drinking water resulting from pollution, rather than rising levels of welfare. Industrial production that depletes non-renewable energy sources and other scarce material resources can only be validly valued in terms of its overall impact on human welfare now and in the future.

# New economic theory

Economic theory shapes society by shaping understandings, policies and beliefs about what is possible. It also provides justifications for economic arrangements. It is still difficult to conceive of what precisely should be the shape of new economic theory, but some of its essential characteristics can be identified:

1. Economics should be goal-oriented. It must shed the poise of ivory tower scientific objectivity and accept responsibility for the wider social and political consequences of economic activity. Its validity should be judged based on its efficacy in improving human welfare.
2. Economics should recognize the true value of human beings as the most precious and perishable of all resources and the source of all creativity and innovation. It should seek to maximize the development of human capacities both for their contribution to human welfare and to our sense of fulfilment as productive human beings.
3. Economics needs to replace the implicit values of current theory, which often favour specific classes and activities in the guise of freedom and impartiality, with explicit affirmation of values that promote the equitable development of all human beings. Among these, the implicit power exercised by money over public policies and the distribution of benefits in democratic society needs to be fully exposed.
4. New theory needs to re-evaluate existing concepts of value in the context of the knowledge-based service economy in which utilization is an essential determinant of value.
5. New theory must integrate economy with all other fields of social life. It must break down the arbitrary divisions that presently divide the social sciences and replace the concept of externalities with a growing awareness of the complex nexus of political, legal, commercial, organizational, technological, social, cultural and psychological factors that determine economic performance and results.
6. New theory needs to be based on measures of value that more truly reflect the real and sustainable contribution of human activity to human welfare and well-being. It should also adopt measures of wealth that reflect the true contribution of activities to wealth generation and the net loss of wealth resulting from depletion and pollution of the natural environment.
7. New theory should broaden notions of wealth and well-being to incorporate the large non-monetarized sector, which is ignored by present theory but plays such a central role in determining our real freedom, comfort, social security, human relations and the quality of life.
8. New theory should abandon the mechanistic, reductionist view of economy as a machine and replace it with a conception of economy as a complex, living and continuously evolving social network of human relationships capable of endless development and enrichment.
9. New theory needs to re-examine the concepts of certainty and finite limitation implicit in prevailing theory. It needs to recognize the central quest of human beings for security, the inherent limits to certainty in a rapidly evolving society, and the relationship between uncertainty and creativity which is the source of continuous innovation and potentially unlimited human development.

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