

## The First Decade of Nobel Prize in Economics: A Brief Account

Dr. S S Deshpande

Associate Professor (Economics), New LJ Commerce College (Gujarat University), Ahmedabad, Gujarat, India

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**Abstract:** Nobel Prize is one of the most prestigious prizes in economics as it is in some of the other selected fields. The current paper attempts to give a brief account of the Nobel Laureates in Economics during the first decade of its inception and their important works. The contribution of the Nobel Laureates during 1970s is extremely crucial as it paved the way for further research and development in the subject. This paper is a compilation of their contribution, which is mainly in the fields of micro-economic theory, growth and development and international economics. It would be a pleasant reading to know and understand the contributions of some of the stalwarts and legends of 1970s in economics at one place.

**Keywords:** Nobel-Prize, Nobel-Laureates, Economics, 1970s

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### I. Introduction

The Nobel Memorial Prize in Economic Sciences is officially known as “Sveriges Riksbank Prize in Economic Sciences”. The prize is given in fond memory of Alfred Nobel. Nobel Prize in economics is actually a late entry as it was not awarded since its inception in 1895. It was later established in 1968 by Sweden’s Central Bank Sveriges Riksbank on the occasion of the Banks 300<sup>th</sup> ceremony. The current paper is a compilation of the works of the Nobel laureates of the 1970s.

### II. Works And Contributions Of Nobel Laureates In Economics (1970s)

Following is the list of Nobel Prize winners in economics during the first decade of the award. A brief account of their contributions is also given. 1970s saw a lot of path-breaking research in the advancement of economic theory and in the field of economics of development and growth.

**Ragnar Frisch** (Norway) and **Jan Tinbergen** (Netherlands) won the prize in 1969 for developing and applying dynamic models for the analysis of economic processes. Frisch is credited with making economics a modern science. He made a number of significant advances in the field of economics and coined a number of new words like econometrics and macroeconomics.

On the other hand, Tinbergen, in his work on macroeconomic modelling and economic policy making, classified some economic quantities as targets and others as instruments. Targets are those macroeconomic variables which the policy maker wishes to influence whereas instruments are the variables that the policy maker can control directly. Tinbergen emphasized that achieving the desired values of a certain number of targets requires the policy maker to control an equal number of instruments. Tinbergen’s classification remains influential even today. Many central banks regard inflation-rate as their target and the short-term interest-rate as their instrument.

**Paul Samuelson** (USA) won the prize in 1970 for the scientific work through which he has developed static and dynamic economic theory and actively contributed to raising the level of analysis in economic and social structure and processes in economic analysis. Samuelson worked in many fields including consumer theory, where he pioneered the revealed preference approach. In welfare economics, he popularised the Lindahl-Bowen-Samuelson conditions (criteria for deciding whether an action will improve welfare). In the theory of finance, he is known for his Efficient Allocation Hypothesis. In public finance, he is particularly known for his work on determining the optimal allocation of resources in the presence of both public goods and private goods. In international economics, he influenced the development of two important international trade models: the Balassa Samuelson Effect and the Heckscher-Ohlin Model (with the Stolper-Samuelson Theorem).

**Simon Kuznets** (USA) won the Prize in 1971 for his empirically founded interpretation of economic and social structure and processes of Development. He is credited for making the modern economic science as an empirical discipline through the development of statistical methods of research. Kuznets is also recognized for revolutionising Econometrics. Kuznets treated a-priori and speculative conceptions with deep scepticism and believed in inductive construction of hypotheses in economics and its empirical testing.

**John Hicks** (UK) and **Kenneth Arrow** (USA) won the prize in 1972 for their pioneering contributions to general economic equilibrium theory and welfare theory.

Hicks gave his famous Theory of Wages in 1932 which is still considered to be very effective in the field. He collaborated with R.G.D. Allen in two seminal papers on value theory published in 1934. His magnum opus is ‘*Value and Capital*’ published in 1939. The book built on ordinal utility and established the now-

standard distinction between the substitution effect and the income effect for an individual in demand theory for the two commodity case. It generalised the analysis to the case of one good and a composite good, that is, all other goods. He also developed the famous "compensation" criterion called Kaldor-Hicks Efficiency for welfare comparisons of alternative public policies or economic states. Hicks's most familiar contribution in macroeconomics was the Hicks-Hansen IS-LM model which formalised the interpretation of the theory of John Maynard Keynes.

On the other hand, Kenneth Arrow's most significant works are his contributions to social choice theory, notably "Arrow's Impossibility Theorem", and his work on general equilibrium analysis. He has also provided foundational work in many other areas of economics, including endogenous growth theory and the economics of information. He has also presented the first and second fundamental theorems of welfare economics.

Arrow gave the endogenous-growth theory (also known as new-growth theory), which sought to explain the source of technical change, which is a key driver of economic growth. Until this theory came to prominence, technical change was assumed to occur exogenously – that is, it was assumed to occur outside economic activities, and was outside (exogenous) to common economic models. At the same time there was no economic explanation for why it occurred. Endogenous-growth theory provided standard economic reasons for why firms innovate, leading economists to think of innovation and technical change as determined by economic actors i.e. endogenously to economic activities, and thus belong inside the model.

In other pioneering research, Arrow investigated the problems caused by asymmetric information in markets. In many transactions, one party (usually the seller) has more information about the product being sold than the other party. Asymmetric information creates incentives for the party with more information to cheat the party with less information.

**Wassily Leontief** (USSR, USA) won the prize in 1973 for the development of the input-output method and for its application to important economic problems. Input-output tables analyse the process by which inputs from one industry produce outputs for consumption or for inputs for another industry. With the input-output table, one can estimate the change in demand for inputs resulting from a change in production of the final good.

Leontief used input-output analysis to study the characteristics of trade flow between the U.S. and other countries, and found what has been named Leontief's paradox. He found that U.S. exports were relatively labour-intensive when compared to U.S. imports. This was opposite of what one would expect, considering the fact that the U.S.'s comparative advantage was in capital-intensive goods. Leontief was also a very strong proponent of the use of quantitative data in the study of economics. Throughout his life Leontief campaigned against "theoretical assumptions and non-observed facts". According to Leontief, too many economists were reluctant to "get their hands dirty" by working with raw empirical facts. He made quantitative data more accessible and more indispensable, to the study of economics.

**Gunnar Myrdal** (Sweden) and **Friedrich Hayek** (Austria, UK) got the prize in 1974 for their pioneering work in the theory of money and economic fluctuations and for their penetrating analysis of the interdependence of economic, social and institutional phenomena. Myrdal connected social science, political science and economics as a practitioner.

Hayek's principal investigations in economics concerned capital, money and the business-cycle. Hayek argued that the business cycle resulted from the Central bank's inflationary credit expansion and its transmission over time, leading to a capital misallocation caused by the artificially low interest rates. Hayek claimed that "the past instability of the market economy is the consequence of the exclusion of the most important regulator of the market mechanism, money, from itself being regulated by the market process". Unemployment and idle resources are, for Keynes, caused by a lack of effective demand; for Hayek, they stem from a previous, unsustainable episode of easy money and artificially low interest rates. He explained that price-signals are the only means of enabling each economic decision maker to communicate tacit knowledge or dispersed knowledge to each other, in order to solve the economic calculation problem. He was a strong advocate of free market and was a huge critique of Government intervention. He argued that the role of the government should be limited to providing law and order and supporting the deprived.

**Leonid Kantorovich** (USSR) and **Tjalling Koopmans** (Nederland, USA)) won the prize in 1975 for their contributions to the theory of optimum allocation of resources. Kantorovich had important results in functional analysis, approximation theory and operator theory. He was known for his theory and development of techniques for the optimal allocation of resources. He is regarded as the founder of linear-programming. The work for which Koopmans was awarded focused on activity analysis, the study of interactions between the inputs and outputs of production and their relationship to economic efficiency and prices.

**Milton Friedman** (USA) won the prize in 1976 for his achievements in the fields of consumption analysis, monetary history and theory and for his demonstration of the complexity of stabilization policy. A striking conclusion of his research with Anna Schwartz was regarding the way in which money supply fluctuations are contributing to economic fluctuations. Several regression studies with David Meiselman during

the 1960s suggested the primacy of the money supply over investment and government spending in determining consumption and output. Friedman was the main proponent of the monetarist school of economics. He maintained that there is a close and stable association between price inflation and the money supply, mainly that price inflation should be regulated with monetary deflation and price deflation with monetary inflation. Friedman's empirical research and some theory supported the conclusion that the short-run effect of a change in the money supply was primarily on output but that the longer-run effect was primarily on the price level. Friedman rejected the use of fiscal policy as a tool of demand management; and he held that the government's role in the guidance of the economy should be restricted severely. Friedman wrote extensively on the Great Depression, which he termed the Great Contraction, arguing that it had been caused by an ordinary financial shock whose duration and seriousness were greatly increased by the subsequent contraction of the money supply caused by the misguided policies of the directors of the Federal Reserve. Friedman was also known for his work on the consumption function, the permanent income hypothesis, which Friedman himself referred to as his best scientific work. This work contended that rational consumers would spend a proportional amount of what they perceived to be their permanent income. Windfall gains would mostly be saved. Other important contributions include his critique of the Phillips curve and the concept of the natural rate of unemployment. In his essays "The methodology of positive economics", he argued that economics as science should be free of value judgments for it to be objective. Moreover, a useful economic theory should be judged not by its descriptive realism but by its simplicity and fruitfulness as an engine of prediction.

**Bertil Ohlin** (Sweden) and **James Meade** (UK) got the prize in 1977 for their path breaking contribution to the theory of international trade and international capital movements. Ohlin's prize was based on his book *Interregional and International Trade*, published in 1933. With a 1919 article by his former teacher Eli Heckscher as his starting point, Ohlin showed that both interregional and international trade occur because goods can move more easily than the labour, capital, and land that produce them. Therefore, a country with a relatively abundant factor of production should export goods that intensively use that abundant factor, and should import those that intensively use the factor that is relatively scarce.

On the other hand, much of Meade's work on international trade is in the two volumes of his *Theory of International Economic Policy*. He examined conditions under which free-trade makes a country better off and conditions under which it does not. Meade concluded that, contrary to previous beliefs, if a country was already protecting one of its markets from international competition, further protection of another market could be "second best." That is, although the ideal would be to eliminate all trade barriers, if for some reason this was not feasible, then adding a carefully chosen dose of protectionism could improve the nation's economic well-being. Another of his notable contribution was his growth model.

**Herbert A Simon** (USA) got the Prize in 1978 for his pioneering research into the decision making process within economic organizations. He studied the behavioural and cognitive processes of making rational human choices, that is, decisions. He mentioned that the human being striving for rationality and restricted within the limits of his knowledge has developed some working procedures that partially overcome these difficulties. These procedures consist in assuming that he can isolate from the rest of the world a closed system containing a limited number of variables and a limited range of consequences.

**Theodore Schultz** (USA) and **Arthur-Lewis** (Saint Lucia, USA) won the prize in 1979 for their pioneering research in economic-development with particular consideration of the problems of developing countries. Schultz analysed the role of agriculture within the economy and his work has had far reaching implications on industrialization policy, both in developing and developed nations. Schultz also promulgated the idea of educational capital, an offshoot of the concept of human capital, relating specifically to the investments made in education.

Lewis published in 1954 what was to be his most influential development economics article, "Economic Development with Unlimited Supplies of Labour". In this publication, he introduced what came to be called the Dual Sector Model or the "Lewis Model."

In his theory, a "capitalist" sector develops by taking labour from a non-capitalist backward "subsistence" sector. At an early stage of development, the "unlimited" supply of labour from the subsistence economy means that the capitalist sector can expand for some time without the need to raise wages. This results in higher returns to capital, which are reinvested in capital accumulation. In turn, the increase in the capital stock leads the "capitalists" to expand employment by drawing further labour from the subsistence sector. Given the assumptions of the model (for example, that the profits are reinvested and that capital accumulation does not substitute for skilled labour in production), the process becomes self-sustaining and leads to modernization and economic development.

**Lawrence Klein** (USA) won the prize in 1980 for the creation of econometric models and their application to the analysis of economic fluctuations and economic policies. He created computer models to forecast economic trends in the field of econometrics at the Wharton School of the University of Pennsylvania. Due to his efforts, such models have become widespread among economists.

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