

dominate. He argued that it would protect against class legislation and that anyone who was educated, including poor people, would have more votes.

Mill spent most of his working life with the East India Company. He joined it at age sixteen and worked there for thirty-eight years. He had little effect on policy, but his experience did affect his views on self-government.

Legacy of John Stuart Mill:

Although Mill was influenced by utilitarianism, he nevertheless wrote again and again in defense of the importance of the rights of individuals—notably in defense of both suffrage for women and their equal rights in education. (His essay called “The Subjection of Women” [1869] is an early, and at the time quite controversial, defense of gender equality, and because of it he is often considered a proto-feminist.)

Mill’s belief that the majority often denies individual liberties drove his interest in social reform, and he was a strident activist on behalf of political reforms, labor unions and farm cooperatives. He has been called “the most influential English-speaking philosopher of the 19th century” and is remembered as one of history’s great thinkers in regard to social and political theory.

ALFRED MARSHALL:

Alfred Marshall (26 July 1842 – 13 July 1924) was one of the most influential economists of his time. Alfred Marshall was an English economist and the true founder of the *neoclassical school of economics*, which combined the study of wealth distribution of the *classical school* with the *marginalism* of the *Austrian School* and the *Lausanne School*. Professor at Cambridge, he was the author of “Principles of Economics”, 1890 His book, *Principles of Economics* (1890), was the dominant economic textbook in England for many years. It brings the ideas of supply and demand, marginal utility, and costs of production into a coherent whole. He is known as one of the founders of neoclassical economics. Although Marshall took economics to a more mathematically rigorous level, he did not want mathematics to overshadow economics and thus make economics irrelevant to the layman.

Marshall was born in London. His father was a bank cashier and a devout Evangelical. Marshall grew up in Clapham and was educated at the Merchant Taylors' School and St John's College, Cambridge, where he demonstrated an aptitude in mathematics, achieving the rank of Second Wrangler in the 1865 Cambridge Mathematical Tripos. Marshall experienced a mental crisis that led him to abandon physics and switch to philosophy. He began with metaphysics, specifically “the philosophical foundation of knowledge, especially in relation to theology”. Metaphysics led Marshall to ethics, specifically a Sidgwickian version of utilitarianism; ethics, in turn, led him to economics, because economics played an essential role in providing the preconditions for the improvement of the working class.

He saw that the duty of economics was to improve material conditions, but such improvement would occur, Marshall believed, only in connection with social and political forces. His interest in Georgism, liberalism, socialism, trade unions, women's education, poverty and progress reflect the influence of his early social philosophy on his later activities and writings.

Marshall was elected in 1865 to a fellowship at St John's College at Cambridge, and became lecturer in the moral sciences in 1868. In 1885 he became professor of political economy at Cambridge, where he remained until his retirement in 1908. Over the years he interacted with many British thinkers including Henry Sidgwick, W.K. Clifford, Benjamin Jowett, William Stanley Jevons, Francis Ysidro Edgeworth, John Neville

Keynes and John Maynard Keynes. Marshall founded the "Cambridge School" which paid special attention to increasing returns, the theory of the firm, and welfare economics; after his retirement leaderships passed to Arthur Cecil Pigou and John Maynard Keynes.

ALFRED MARSHALL CONTRIBUTIONS TO ECONOMICS:

Marshall desired to improve the mathematical rigour of economics and transform it into a more scientific profession. In the 1870s he wrote a small number of tracts on international trade and the problems of protectionism. In 1879, many of these works were compiled into a work entitled *The Theory of Foreign Trade: The Pure Theory of Domestic Values*. In the same year (1879) he published *The Economics of Industry* with his wife Mary Paley.

Although Marshall took economics to a more mathematically rigorous level, he did not want mathematics to overshadow economics and thus make economics irrelevant to the layman. Accordingly, Marshall tailored the text of his books to laymen and put the mathematical content in the footnotes and appendices for the professionals. In a letter to A. L. Bowley, he laid out the following system:

- (1) Use mathematics as shorthand language, rather than as an engine of inquiry.
- (2) Keep to them till you have done.
- (3) Translate into English.
- (4) Then illustrate by examples that are important in real life
- (5) Burn the mathematics.
- (6) If you can't succeed in 4, burn 3. This I do often".

Marshall had been Mary Paley's professor of political economy at Cambridge and the two were married in 1877, forcing Marshall to leave his position as a Fellow of St John's College, Cambridge to comply with celibacy rules at the university. He became the first principal at University College, Bristol, which was the institution that later became the University of Bristol, again lecturing on political economy and economics.

He perfected his *Economics of Industry* while at Bristol, and published it more widely in England as an economic curriculum; its simple form stood upon sophisticated theoretical foundations. Marshall achieved a measure of fame from this work, and upon the death of William Jevons in 1882, Marshall became the leading British economist of the scientific school of his time.

Marshall returned to Cambridge, via a brief period at Balliol College, Oxford during 1883–4, to take the seat as Professor of Political Economy in 1884 on the death of Henry Fawcett. At Cambridge he endeavoured to create a new tripos for economics, a goal which he would only achieve in 1903. Until that time, economics was taught under the Historical and Moral Sciences Triposes which failed to provide Marshall the kind of energetic and specialised students he desired.

***Principles of Economics* (1890)**

Marshall began his economic work, the *Principles of Economics*, in 1881, and spent much of the next decade at work on the treatise. His plan for the work gradually extended to a two-volume compilation on the whole

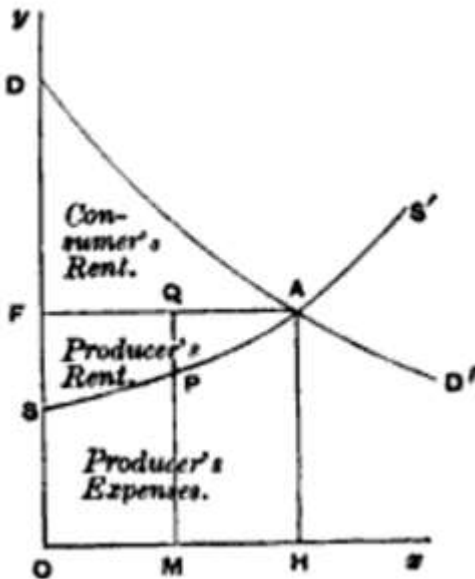
of economic thought. The first volume was published in 1890 to worldwide acclaim, establishing him as one of the leading economists of his time. The second volume, which was to address foreign trade, money, trade fluctuations, taxation, and collectivism, was never published.

Principles of Economics established his worldwide reputation. It appeared in 8 editions, starting at 750 pages and growing to 870 pages. It decisively shaped the teaching of economics in English-speaking countries. Its main technical contribution was a masterful analysis of the issues of elasticity, consumer surplus, increasing and diminishing returns, short and long terms, and marginal utility. Many of the ideas were original with Marshall; others were improved versions of the ideas by W. S. Jevons and others.

In a broader sense Marshall hoped to reconcile the classical and modern theories of value. John Stuart Mill had examined the relationship between the value of commodities and their production costs, on the theory that value depends on the effort expended in manufacture. Jevons and the Marginal Utility theorists had elaborated a theory of value based on the idea of maximising utility, holding that value depends on demand.

Marshall's work used both these approaches, but he focused more on costs. He noted that, in the short run, supply cannot be changed and market value depends mainly on demand. In an intermediate time period, production can be expanded by existing facilities, such as buildings and machinery, but, since these do not require renewal within this intermediate period, their costs (called fixed, overhead, or supplementary costs) have little influence on the sale price of the product.

Marshall pointed out that it is the prime or variable costs, which constantly recur, that influence the sale price most in this period. In a still longer period, machines and buildings wear out and have to be replaced, so that the sale price of the product must be high enough to cover such replacement costs. This classification of costs into fixed and variable and the emphasis given to the element of time probably represent one of Marshall's chief contributions to economic theory. He was committed to partial equilibrium models over general equilibrium on the grounds that the inherently dynamical nature of economics made the former more practically useful.



Alfred Marshall's supply and demand graph

Much of the success of Marshall's teaching and *Principles* book derived from his effective use of diagrams, which were soon emulated by other teachers worldwide.

Alfred Marshall was the first to develop the standard supply and demand graph demonstrating a number of fundamentals regarding supply and demand including the supply and demand curves, market equilibrium, the relationship between quantity and price in regards to supply and demand, the law of marginal utility, the law of diminishing returns, and the ideas of consumer and producer surpluses.

This model is now used by economists in various forms using different variables to demonstrate several other economic principles. Marshall's model allowed a visual representation of complex economic fundamentals where before all the ideas and theories were only capable of being explained through words. These models are now critical throughout the study of economics because they allow a clear and concise representation of the fundamentals or theories being explained.

Alfred Marshall Theoretical Contributions

Marshall is considered to be one of the most influential economists of his time, largely shaping mainstream economic thought for the next fifty years, and being one of the founders of the school of neoclassical economics. Although his economics was advertised as extensions and refinements of the work of Adam Smith, David Ricardo, Thomas Robert Malthus and John Stuart Mill, he extended economics away from its classical focus on the market economy and instead popularised it as a study of human behaviour. He downplayed the contributions of certain other economists to his work, such as Léon Walras, Vilfredo Pareto and Jules Dupuit, and only grudgingly acknowledged the influence of Stanley Jevons himself.

Marshall was one of those who used utility analysis, but not as a theory of value. He used it as a part of the theory to explain demand curves and the principle of substitution. Marshall's scissors analysis – which combined demand and supply, that is utility and cost of production, as if in the two blades of a pair of scissors – effectively removed the theory of value from the center of analysis and replaced it with the theory of price. While the term "value" continued to be used, for most people it was a synonym for "price". Prices no longer were thought to gravitate toward some ultimate and absolute basis of price; prices were existential, between the relationship of demand and supply.

Marshall's influence on codifying economic thought is difficult to deny. He popularised the use of supply and demand functions as tools of price determination (previously discovered independently by Cournot); modern economists owe the linkage between price shifts and curve shifts to Marshall. Marshall was an important part of the "marginalist revolution;" the idea that consumers attempt to adjust consumption until marginal utility equals the price was another of his contributions.

The price elasticity of demand was presented by Marshall as an extension of these ideas. Economic welfare, divided into producer surplus and consumer surplus, was contributed by Marshall, and indeed, the two are sometimes described eponymously as 'Marshallian surplus.' He used this idea of surplus to rigorously analyse the effect of taxes and price shifts on market welfare. Marshall also identified quasi-rents.

Marshall's brief references to the social and cultural relations in the "industrial districts" of England were used as a starting point for late twentieth-century work in economic geography and institutional economics on clustering and learning organisations.

Gary Becker (1930-2014), the 1992 Nobel prize winner in economics, has mentioned that Milton Friedman and Alfred Marshall were the two greatest influences on his work.

Another contribution that Marshall made was differentiating concepts of internal and external economies of scale. That is that when costs of input factors of production go down, it is a positive externality for all the firms in the market place, outside the control of any of the firms.

The Marshallian industrial district:

A concept based on a pattern of organisation that was common in late nineteenth century Britain in which firms concentrating on the manufacture of certain products were geographically clustered. Comments made by Marshall in Book 4, Chapter 10 of *Principles of Economics* have been used by economists and economic geographers to discuss this phenomenon.

The two dominant characteristics of a Marshallian industrial district are high degrees of vertical and horizontal specialisation and a very heavy reliance on market mechanism for exchange. Firms tend to be small and to focus on a single function in the production chain. Firms located in industrial districts are highly competitive in the neoclassical sense, and in many cases there is little product differentiation.

The major advantages of Marshallian industrial districts arise from simple propinquity of firms, which allows easier recruitment of skilled labour and rapid exchanges of commercial and technical information through informal channels. They illustrate competitive capitalism at its most efficient, with transaction costs reduced to a practical minimum, but they are feasible only when economies of scale are limited.

The works of Alfred Marshall:

- 1879 – *The Economics of Industry* (with Mary Paley Marshall)
- 1879 – *The Pure Theory of Foreign Trade: The Pure Theory of Domestic Values*
- 1890 – *Principles of Economics*
- 1919 – *Industry and Trade*
- 1923 – *Money, Credit and Commerce*.

NEOCLASSICAL ECONOMICS:

Neoclassical economics is an approach to economics focusing on the determination of goods, outputs, and income distributions in markets through supply and demand. This determination is often mediated through a hypothesized maximization of utility by income-constrained individuals and of profits by firms facing production costs and employing available information and factors of production, in accordance with rational choice theory.

Neoclassical economics dominates microeconomics, and together with Keynesian economics forms the neoclassical synthesis which dominates mainstream economics today. Although neoclassical economics has gained widespread acceptance by contemporary economists, there have been many critiques of neoclassical economics, often incorporated into newer versions of neoclassical theory.

The term was originally introduced by Thorstein Veblen in his 1900 article 'Preconceptions of Economic Science', in which he related marginalists in the tradition of Alfred Marshall et al. to those in the Austrian School.

No attempt will here be made even to pass a verdict on the relative claims of the recognized two or three main "schools" of theory, beyond the somewhat obvious finding that, for the purpose in hand, the so-called Austrian school is scarcely distinguishable from the neo-classical, unless it be in the different distribution of emphasis.

The divergence between the modernized classical views, on the one hand, and the historical and Marxist schools, on the other hand, is wider, so much so, indeed, as to bar out a consideration of the postulates of the latter under the same head of inquiry with the former. – Veblen.

It was later used by John Hicks, George Stigler, and others to include the work of Carl Menger, William Stanley Jevons, Léon Walras, John Bates Clark, and many others. Today it is usually used to refer to mainstream economics, although it has also been used as an umbrella term encompassing a number of other schools of thought, notably excluding institutional economics, various historical schools of economics, and Marxian economics, in addition to various other heterodox approaches to economics.

Neoclassical economics is characterized by several assumptions common to many schools of economic thought. There is not a complete agreement on what is meant by neoclassical economics, and the result is a wide range of neoclassical approaches to various problem areas and domains—ranging from neoclassical theories of labor to neoclassical theories of demographic changes.

Three central assumptions of the Neoclassical Theory:

It was expressed by E. Roy Weintraub that neoclassical economics rests on three assumptions, although certain branches of neoclassical theory may have different approaches;

1. People have rational preferences between outcomes that can be identified and associated with values.
2. Individuals maximize utility and firms maximize profits.
3. People act independently on the basis of full and relevant information.

From these three assumptions, neoclassical economists have built a structure to understand the allocation of scarce resources among alternative ends—in fact understanding such allocation is often considered the definition of economics to neoclassical theorists. Here's how William Stanley Jevons presented "the problem of Economics".

Given, a certain population, with various needs and powers of production, in possession of certain lands and other sources of material: required, the mode of employing their labour which will maximize the utility of their produce.

From the basic assumptions of neoclassical economics comes a wide range of theories about various areas of economic activity. For example, profit maximization lies behind the neoclassical theory of the firm, while the derivation of demand curves leads to an understanding of consumer goods, and the supply curve allows an analysis of the factors of production. Utility maximization is the source for the neoclassical theory of consumption, the derivation of demand curves for consumer goods, and the derivation of labor supply curves and reservation demand.

Market supply and demand are aggregated across firms and individuals. Their interactions determine equilibrium output and price. The market supply and demand for each factor of production is derived analogously to those for market final output to determine equilibrium income and the income distribution. Factor demand incorporates the marginal-productivity relationship of that factor in the output market.

Neoclassical economics emphasizes equilibria, where equilibria are the solutions of agent maximization problems. Regularities in economies are explained by methodological individualism, the position that economic phenomena can be explained by aggregating over the behavior of agents. The emphasis is on

microeconomics. Institutions, which might be considered as prior to and conditioning individual behavior, are de-emphasized. Economic subjectivism accompanies these emphases.

Criticisms of Neoclassical economics:

Neoclassical economics is sometimes criticized for having a normative bias. In this view, it does not focus on explaining actual economies, but instead on describing a theoretical world in which Pareto optimality applies. Perhaps the strongest criticism lies in its disregard for the physical limits of the Earth and its ecosphere which are the physical container of all human economies. This disregard becomes hot denial by Neoclassical economists when limits are asserted, since to accept such limits creates fundamental contradictions with the foundational presumptions that growth in scale of the human economy forever is both possible and desirable. The disregard/denial of limits includes both resources and 'waste sinks,' the capacity to absorb human waste products and man-made toxins.

The assumption that individuals act rationally may be viewed as ignoring important aspects of human behavior. Many see the "economic man" as being quite different from real people. Many economists, even contemporaries, have criticized this model of economic man. Thorstein Veblen put it most sardonically. Neoclassical economics assumes a person to be,

[A] lightning calculator of pleasures and pains, who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift about the area, but leave him intact. Large corporations might perhaps come closer to the neoclassical ideal of profit maximization, but this is not necessarily viewed as desirable if this comes at the expense of neglect of wider social issues.

Problems exist with making the neoclassical general equilibrium theory compatible with an economy that develops over time and includes capital goods. This was explored in a major debate in the 1960s—the "Cambridge capital controversy"—about the validity of neoclassical economics, with an emphasis on economic growth, capital, aggregate theory, and the marginal productivity theory of distribution.

There were also internal attempts by neoclassical economists to extend the Arrow-Debreu model to disequilibrium investigations of stability and uniqueness. However a result known as the Sonnenschein–Mantel–Debreu theorem suggests that the assumptions that must be made to ensure that equilibrium is stable and unique are quite restrictive.

Neoclassical economics is also often seen as relying too heavily on complex mathematical models, such as those used in general equilibrium theory, without enough regard to whether these actually describe the real economy. Many see an attempt to model a system as complex as a modern economy by a mathematical model as unrealistic and doomed to failure. A famous answer to this criticism is Milton Friedman's claim that theories should be judged by their ability to predict events rather than by the realism of their assumptions. Mathematical models also include those in game theory, linear programming, and econometrics.

Some see mathematical models used in contemporary research in mainstream economics as having transcended neoclassical economics, while others disagree. Critics of neoclassical economics are divided into those who think that highly mathematical method is inherently wrong and those who think that mathematical method is potentially good even if contemporary methods have problems.

In general, allegedly overly unrealistic assumptions are one of the most common criticisms towards neoclassical economics. It is fair to say that many (but not all) of these criticisms can only be directed towards a subset of the neoclassical models (for example, there are many neoclassical models where unregulated markets fail to achieve Pareto-optimality and there has recently been an increased interest in

modeling non-rational decision making). Its disregard for social reality and its alleged role in aiding the elites to widen the wealth gap and social inequality is also frequently criticized.

What are the assumptions behind Neo-Classical Economics?

How can the economy allocate resources most efficiently?

Through markets, assuming economic agents are *rational* and *have perfect knowledge*. In a market, an equilibrium will occur which maximizes the benefits to economic agents given the *law of diminishing returns*, *many agents buying and selling*, and *freedom to enter and leave* the market. This is called a “freely competitive market”, and a system of such markets is called a **market economy**. The basic message of neo-classical economics is that economic efficiency and economic progress are maximized by ensuring that markets work freely and competitively.

How is this achieved?

Through giving individuals as much economic freedom as possible. The individual is left to decide what to buy, what to produce, and what to sell. Finally, if markets work badly, the *government has a duty to individuals to correct this*. In the jargon, governments must intervene to correct market failure, but then and only then.

Lets look at each assumption required to produce a freely competitive (or ‘perfectly’ competitive) market within neo-classical economics:

- **1) Rationality:** The first assumption made is that people are rational and prefer more valuable goods and services or leisure to less. Remind yourself of what Boulding said about economic man the clod as against heroic man. Well, rationality means we assume all economic agents are clods! (A clod, in case your dictionary does not say, is a lump of grass and soil!)

Does this sound reasonable? The answer is surely, yes. If you try to invent an economic theory based on mankind the hero, you will have a hard job. It is a short step from wanting more rather than less of the good things to wanting to maximize the amount of good things (literally ‘goods’) you can get. Rational economic man has objectives and attempts to maximize them. In neo-classical economics, that tends to get narrowed down to maximizing one thing:

- *consumers allocate their incomes in order to maximize their satisfaction (or utility)*
- *producers allocate resources in order to maximize their profits*

Does this still sound reasonable? It is at this stage that doubt creeps in, especially with regard to profit maximization. After all, most producer decisions are taken by managers, not by owners. However, if we put profit maximization another way, it may seem more plausible. If managers create more value at lower cost than competitors, their business will prosper, its profits will rise and the managers will be rewarded. *If one has difficulty accepting this version of profit maximization as a reasonable assumption – s/he will not like the rest of the assumptions very much!*

- **2) Perfect Knowledge:** More contentious is the second assumption of the neo-classical model, that economic agents act in the light of perfect knowledge. Buyers and sellers know all the prices of all the goods in the market, know everything they need to know about the quality of goods, the character of the other economic agents, what the government is going to do next, and so on. No doubt, no uncertainty. Like a computer with perfect knowledge, rational economic man can compare prices with what they have or want, and set out to maximize their objective function, be it consumer satisfaction or business profits.

How credible does this sound, for example in the agricultural context?

It could apply to world commodity markets, where a large number of participants bring information to bear on their actions. However, in local and regional agricultural markets, there are a lot of uncertain factors such as:

- timing and volume of supplies
- quality and storage potential of crops harvested
- consumer demand when that is weather specific
- the extent of international trade, partly related to exchange rate movements

So this assumption is often unrealistic in agricultural markets. Does this mean the neo-classical model is no use? Well no – the users of this model handle it by starting with the assumption of perfect knowledge, then relaxing it and trying to think through what happens then. In this way neo-classical model is used as the basis for a comparison with the real world.

- **3) Diminishing Returns:** The third neo-classical assumption is more properly called a behavioural hypothesis, because it can be tested. Since hardly anyone bothers to test it, it is often called an assumption. The hypothesis is known as the Law of Diminishing Returns. It is essential because it means that on the buyer's side, the more and more they buy, the smaller and smaller the increment in satisfaction becomes.

What do you think it means on the seller's side of the market? The more and more that is sold, the smaller the increment in extra profits. Put together this gives the likelihood of an equilibrium position. That is, a stable position, from which the market has no reason to depart, other things remaining the same. Without the law, consumers could happily keep buying forever, and suppliers happily supplying forever!

- **4) Equality of Sales and Purchases:** We must assume that whatever is bought equals whatever is sold. If goods are put into store, we must count them as either being part of what is bought, or exclude them from the market calculation all together. Otherwise an equilibrium will never be discovered.
- **5) Unique Equilibrium:** Equilibrium is reached when all economic agents are content with their actions and feel no reason to change them. In the neo-classical model, price changes until sellers are happy to sell what they sell, and buyers are happy to buy what they buy. It is this concept of equilibrium which distinguishes the neo-classical approach.

Why could this be useful? Because it allows to forecast where a market will be in the future, after specified changes. Without equilibrium, there is virtually no point in using neo-classical analysis. Therefore, neo-classical economists interested in markets under disequilibrium conditions construct their model to include an eventual, long run equilibrium position towards which the market is moving, even if it never actually arrives!

- **6) Many participants, Freedom of Entry and Exit:** These assumptions ensure that a market is freely competitive. If a few buyers or seller dominate, this means the outcome may be equilibrium, but it may not be the best, or optimal, outcome for the economy as a whole. It is an inefficient equilibrium. Similarly with freedom of entry and exit.

If a market is to be truly competitive, there must be scope for new buyers and sellers to enter a market, and for old participants to leave and find other markets. This of course applies to markets for resources like labour as well as markets for goods and services. If the wages of plumbers are high compared to the wages of water engineers, the latter will leave their job and look for jobs as plumbers. We speak of 'resource mobility' in this respect.

- **7) Independence of Demand and Supply:** The last assumption could be relaxed but seldom is. We assume that buyers are quite distinct from sellers, so that the act of buying does not affect selling, and selling does not affect buying, except through the mechanism of the market. The time when it does get relaxed is in the analysis of peasant farms which are partially self-sufficient. In this case the farm is responsible for supplying the household and the market, so the household is both a buyer (from its farm and from the market) and a seller.

From the assumptions listed above and other blogs in this category, it is clear that neo-classical economical model is not the only way of looking at economic problems. Hence it is important to remember the limitations of economics as well as the power of its analysis.

NEW CLASSICAL ECONOMICS:

New Classical Economics, is a school of thought in macroeconomics that builds its analysis entirely on a neoclassical framework. Specifically, it emphasizes the importance of rigorous foundations based on microeconomics, especially rational expectations.

New classical macroeconomics strives to provide neoclassical microeconomic foundations for macroeconomic analysis. This is in contrast with its rival new Keynesian school that uses microfoundations such as price stickiness and imperfect competition to generate macroeconomic models similar to earlier, Keynesian ones.

The New Classical school emerged in the 1970s as a response to the failure of Keynesian economics to explain stagflation.

New classical economics is based on Walrasian **assumptions**. All agents are assumed to maximize utility on the basis of rational expectations. At any one time, the economy is assumed to have a unique equilibrium at full employment or potential output achieved through price and wage adjustment.

New Classical and monetarist criticisms led by Robert Lucas, Jr. and Milton Friedman respectively forced the rethinking of Keynesian economics. In particular, Lucas made the Lucas critique that cast doubt on the Keynesian model. This strengthened the case for macro models to be based on microeconomics.

After the 1970s and the apparent failure of Keynesian economics, the New Classical school for a while became the dominant school in Macroeconomics.

The new classical perspective takes root in three diagnostic sources of fluctuations in growth: the productivity wedge, the capital wedge, and the labor wedge.

- A **productivity**/efficiency wedge is a simple measure of aggregate production efficiency. In relation to the Great Depression, a productivity wedge means the economy is less productive given the capital and labor resources available in the economy.
- A **capital** wedge is a gap between the intertemporal marginal rate of substitution in consumption and the marginal product of capital. In this wedge, there's a "deadweight" loss that affects capital accumulation and savings decisions acting as a distortionary capital (savings) tax.
- A **labor** wedge is the ratio between the marginal rate of substitution of consumption for leisure and the marginal product of labor and acts as a distortionary labor tax, making hiring workers less profitable (i.e. labor market frictions).

New classical economics is based on Walrasian assumptions. All agents are assumed to maximize utility on the basis of rational expectations. At any one time, the economy is assumed to have a unique equilibrium at full employment or potential output achieved through price and wage adjustment. In other words, the market clears at all times.

New classical economics has also pioneered the use of representative agent models. Such models have received severe neoclassical criticism, pointing to the disjuncture between microeconomic behavior and macroeconomic results, as indicated by Alan Kirman.

The concept of rational expectations was originally used by John Muth, and was popularized by Lucas. One of the most famous new classical models is the real business cycle model, developed by Edward C. Prescott and Finn E. Kydland.

It turned out that pure new classical models had low explanatory and predictive power. The models could not simultaneously explain both the duration and magnitude of actual cycles. Additionally, the model's key result that only unexpected changes in money can affect the business cycle and unemployment did not stand empirical tests.

The mainstream turned to the new neoclassical synthesis. Most economists, even most new classical economists, accepted the new Keynesian notion that for several reasons wages and prices do not move quickly and smoothly to the values needed for long-run equilibrium between quantities supplied and demanded. Therefore, they also accept the monetarist and new Keynesian view that monetary policy can have a considerable effect in the short run. The new classical macroeconomics contributed the rational expectations hypothesis and the idea of intertemporal optimisation to new Keynesian economics and the new neoclassical synthesis.

Peter Galbács thinks that critics have a superficial and incomplete understanding of the new classical macroeconomics. He argues that one should not forget the conditional character of the new classical doctrines. If prices are completely flexible and if public expectations are completely rational and if real economic shocks are white noises, monetary policy cannot affect unemployment or production and any intention to control the real economy ends up only in a change in the rate of inflation. However, and this is the point, if any of these conditions does not hold, monetary policy can be effective again.

So, if any of the conditions necessary for the equivalence does not hold, countercyclical fiscal policy can be effective. Controlling the real economy is possible perhaps in a Keynesian style if government regains its potential to exert this control. Therefore, actually, new classical macroeconomics highlights the conditions under which economic policy can be effective and not the predestined inefficiency of economic policy. Countercyclical aspirations need not to be abandoned, only the playing-field of economic policy got narrowed by new classicals.

While Keynes urged active countercyclical efforts of fiscal policy, these efforts are not predestined to fail not even in the new classical theory, only the conditions necessary for the efficiency of countercyclical efforts were specified by new classicals.

Real business cycle theorist Bernd Lucke calls the new classical macroeconomics model the "caricature of an economy" because its underlying assumptions exclude any non-rational behaviour or the possibility of market failure, prices are always fully flexible, and the market is always in economic equilibrium. The current mission of the new classical macroeconomics is to find out to which extent this caricature of an economy already has enough predictive power to explain business cycles.

The Monetarist Theory:

The monetarist theory is an economic concept which contends that changes in the money supply are the most significant determinants of the rate of economic growth and the behavior of the business cycle. It can be attributed largely to the work of well-known economist Milton Friedman who wrote about his beliefs in the book "A Monetary History of The United States, 1867 - 1960." In the book he, along with Anna Schwartz, argue in favor of monetarism as a combat to the economic impacts of inflation. Other monetarists include former Federal Reserve Chairman, Alan Greenspan, and former U.K. Prime Minister, Margaret Thatcher.

Monetarism is a set of views based on the belief that inflation depends on how much money the government prints. Milton Friedman, who argued, based on the quantity theory of money, that the government should keep the money supply fairly steady, expanding it slightly each year mainly to allow for the natural growth of the economy.

Monetarism had its heyday in the early 1980s, when economists, governments and investors eagerly jumped at every new money supply statistic. In the years that followed, however, monetarism fell out of favor with economists, and the link between different measures of money supply and inflation proved to be less clear than most monetarist theories had suggested. Many central banks today have stopped setting monetary targets and instead have adopted strict inflation targets.

A monetarist is an economist who holds the strong belief that the economy's performance is determined almost entirely by changes in the money supply. Monetarists postulate that the economic health of an economy can be best controlled by changes on monetary supply, or money, by a governing body. The key driver behind this belief is the impact of inflation on an economy's growth or health and the belief that by controlling the money supply one can control the inflation rate.

Monetarism is an economic school of thought that stresses the primary importance of the money supply in determining nominal GDP and the price level. The "Founding Father" of Monetarism is economist Milton Friedman. Monetarism is a theoretical challenge to Keynesian economics that increased in importance and popularity in the late 1960s and 1970s. In fact, the tide was so strong that in 1979 the Federal Reserve switched its operating strategy more in line with Monetarist theory, though they subsequently abandoned the strategy in 1982 for a number of reasons.

The challenge to the traditional Keynesian theory strengthened during the years of stagflation following the 1973 and 1979 oil shocks. Keynesian theory had no appropriate policy responses to the supply shocks. Inflation was high and rising through the 1970s and Friedman argued convincingly that the high rates of inflation were due to rapid increases in the money supply. He argued that the economy may be complicated, but stabilization policy does not have to be. The key to good policy was to control the supply of money.

Monetarism is a school of thought in monetary economics that emphasizes the role of governments in controlling the amount of money in circulation. Monetarist theory asserts that variations in the money supply have major influences on national output in the short run and on price levels over longer periods. Monetarists assert that the objectives of monetary policy are best met by targeting the growth rate of the money supply rather than by engaging in discretionary monetary policy. Monetarism today is mainly associated with the work of Milton Friedman, who was among the generation of economists to accept Keynesian economics and then criticise Keynes's theory of gluts using fiscal policy (government spending). Friedman and Anna Schwartz wrote an influential book, *A Monetary History of the United States, 1867-1960*, and argued "inflation is always and everywhere a monetary phenomenon." Though he opposed the existence of the Federal Reserve, Friedman advocated, given its existence, a central bank policy aimed at keeping the supply and demand for money at equilibrium, as measured by growth in productivity and demand.

Characteristics of Monetarism:

Monetarism is a mixture of theoretical ideas, philosophical beliefs, and policy prescriptions. Here we list the most important ideas and policy implications and explain them below.

1. The theoretical foundation is the Quantity Theory of Money.
2. The economy is inherently stable. Markets work well when left to themselves. Government intervention can often times destabilize things more than they help. *Laissez faire* is often the best advice.
3. The Fed should be bound to fixed rules in conducting monetary policy. They should not have discretion in conducting policy because they could make the economy worse off.
4. Fiscal Policy is often bad policy. A small role for government is good.

The Quantity Theory of Money: The Short-Run

We begin with the *equation of exchange*. This is the building block for monetarist theory. It says that;

$$M \times V = P \times Y$$

where M is the quantity of M1, V is velocity of M1, or the average number of times that the dollar turns over in a given year on the purchase of final goods and services, P is the price level, and Y is real output.

As defined, the equation of exchange is always true. Keynesians, Monetarists and all other economists accept this equation as valid. The controversy arises because Monetarists make a seemingly innocuous assumption that velocity is stable in the short run. Let us take that assumption to its extreme and assume that velocity is fixed in the short run.

Where V implies that velocity is fixed in the short run. By making this simple assumption, we have transformed the equation of exchange into the Quantity Theory of Money. This equation tells us that any change in M1 will impact $P \times Y$. Changes in the money supply are the dominant forces that change nominal GDP ($P \times Y$). It is not surprising, therefore, that monetarists view control of the money supply as the key variable in stabilizing the economy.

The Quantity Theory of Money: The Long-Run

Because monetarists believe that markets are stable and work well, they believe that the economy is always near or quickly approaching full employment. Even if the economy is not at full employment, the danger of GDP deviating substantially from its potential level is small. So in the long-run, the economy will be at Y_p .

Notice that 'M' and 'P' are the only variables in this equation that change in the long run. The implication is that changes in the money supply will only impact the price level, P. *In the long run, changes in the money supply only cause inflation.* This conclusion explains Friedman's famous quote "Inflation is always and everywhere a monetary phenomenon." Another implication is that the rate of growth of the money supply will equal the rate of growth of the price level (or inflation) in the long-run. If the money supply grows by five percent per year, the inflation rate will be about five percent per year.

The Rules vs. Discretion Debate

Because monetarists believe that the money supply is the primary determinant of nominal GDP in the short run, and of the price level in the long run, they think that control of the money supply should not be left to the discretion of central bankers. Monetarists believe in a set of "rules" that the Federal Reserve must follow. In particular, Monetarists prefer the *Money growth rule*: The Fed should be required to target the growth rate of money such that it equals the growth rate of real GDP, leaving the price level unchanged. If the economy is expected to grow at 2 percent in a given year, the Fed should allow the money supply to increase by 2 percent. Monetarists wish to take much of the discretionary power out of the hands of the Fed so they cannot destabilize the economy.

Keynesians balk at this proposed money growth rule. Keynesians believe that velocity is inherently unstable and they do not believe that markets adjust quickly to return to potential output. Therefore, Keynesians attach little or no significance to the Quantity Theory of Money. Because the economy is subject to deep swings and periodic instability, it is dangerous to take discretionary power away from the Fed. The Fed should have some leeway or "discretion" in conducting policy. So far, Keynesians have won this debate. There has not been serious talk in some time of tying the Fed to a fixed money growth rule.

Fiscal Policy

Because Monetarist dislike big government and tend to trust free markets, they do not like government intervention and believe that fiscal policy is not helpful. Where it could be beneficial, monetary policy could do the job better. Excessive government intervention only interferes in the workings of free markets and can lead to bloated bureaucracies, unnecessary social programs, and large deficits. Automatic stabilizers are sufficient to stabilize the economy.

Empirical Evidence of Monetarism:

Which school of thought is right, Keynesians or Monetarists? The answer hinges on the two assumptions described above: the stability of velocity and the efficiency of markets. We address the first of these two assumptions here. The figure titled "Velocity" plots velocity of M1 from 1970 to 2003. In the 1970s velocity was not stable, but at least it was increasing at a fairly constant rate.

Monetarism relies on the *predictability* of velocity rather than absolute stability, so in the 1970s one could make a case for the short-run quantity theory. However, the 1980s and 1990s have not been kind to Monetarist assumptions. Velocity was highly unstable with unpredictable periods of increases and declines. In such an environment, the link between the money supply and nominal GDP broke down and the usefulness of the quantity theory of money came into question. Many economists who were convinced by Friedman and Monetarism in the 1970s abandoned this approach in the mid- to late-1980s. The empirical relationship had simply broken down. Why?

Most economists think the breakdown was primarily the result of changes in banking rules and other financial innovations. In the 1980s banks were allowed to offer interest-earning checking accounts and many people chose to hold their wealth in the form of M1. In short, the distinction between checking and savings accounts partially eroded. Moreover, many people found that money markets, mutual funds and other assets were better alternatives to traditional bank deposits.

Hence, the relationship between money and economic performance changed. The figure titled "Growth of M1 and Nominal GDP" illustrates the lack of correlation between money growth and nominal GDP growth since the mid-1980s. Monetarists and Keynesians alike closely watch the behavior of velocity. If velocity should