

# Current Directions of Research and Trends in Economic Science

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## Abstract

*The paper aims to assess the main theoretical evolutions and directions of research in contemporary economic science. To this aim, we set off with an analysis of the highest distinction in economics, the Nobel Prize for Economic Science.*

*The analysis reveals a strong focus on theoretical, formal approaches – particularly mathematical formulation – but also quantitative methods – particularly econometrics. Other important features include the great importance assigned to macroeconomics, a pluralist view of economic research and a strong focus on imperfections in current macroeconomic analysis. And even though the academic community is divided between the New Classical and the New Keynesian approaches, the traditional ideological division seems to have disappeared, in the sense that the numerous theories do not strictly follow a certain ideological line. On the whole, all recent research is focused on the macroeconomic implications of a certain imperfection, of a nominal and/or real nature.*

**Keywords:** New Classical School, New Keynesian economics, nominal rigidities, real rigidities

In order to assess the main directions of research and trends in economic science, it would be interesting to start with an analysis of the highest distinction awarded in this field, namely the Nobel Prize for Economic Science.<sup>1</sup> In this respect, economists generally agree that the prize does reflect the most important fields of research and more importantly, it does influence them, while setting the trends for future research.

In order to discover the implications of the prize both on economic research and the economic community, it would be interesting to start with a rough classification of the awards given so far; however, any such classifications are rather arbitrary because of the multidimensional nature of scientific contributions. In this respect, we can distinguish five main categories of prizes which reflect the **main fields of analysis** in economic research and give us an idea of the current trends in economics:<sup>2</sup>

- 1. General equilibrium theory** – obvious examples include the prize to Paul Samuelson for having developed static and dynamic economic theory, Kenneth Arrow and John Hicks for their contributions to the theory of general equilibrium and the theory of welfare, or Maurice Allais for the contributions to the theory of markets and of the efficient allocation of resources. Owing to these economists, general equilibrium theory has become the basic approach in theoretical economic analysis. In particular, these economists are associated with the ever-increasing use of mathematics in economic analysis. Their contributions deal primarily with the analytical structures of theoretical models and focus on the equilibrium, stability and efficiency conditions of the economic system.
- 2. Macroeconomics** – this category includes a rather large number of prizes, underlining the increasing importance of macroeconomic research. An outstanding example is that of Milton Friedman, for the contributions to consumption analysis (the permanent income hypothesis), as well as monetary history and theory through the resurrection of the quantity theory of money. Another remarkable award is the prize to Robert E. Lucas, Jr., for emphasizing the role of expectations in macroeconomic analysis and for developing the consequences of rational expectations among economic agents. Other directions of research include: the construction and use of econometric models in analyzing economic fluctuations and economic policies (Lawrence Klein); financial markets and their relationship to employment, output and prices (James Tobin); international trade and international capital movements (James Meade and Bertil Ohlin); analyses of long-term economic growth using mathematical models (Robert Solow); monetary and fiscal policy under different exchange rate regimes and optimal currency areas (Robert Mundell).
- 3. Microeconomics** – these prizes are mainly concerned with information theory and with financial microeconomics. One of the most remarkable research directions is the analysis of industrial structures, the functioning of markets, as well as the causes and effects of public regulation (George Stigler). Other important fields include: the theory of asymmetric information (James Mirrlees, William Vickrey); financial economics (Harry Markowitz, Merton Miller, William Sharpe) and derivative instruments of financial markets (Robert Merton, Myron Scholes)
- 4. Interdisciplinary Research** – several prizes have also been awarded to economists who have widened the domain of economic analysis to new areas. These prizes acknowledge important research contributions on the boundary between economics on the one hand and political science,

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<sup>1</sup> The Nobel prize for economic science is not an “original” Nobel prize; it was instituted by the Swedish Royal Academy of Science in 1969, to acknowledge the importance of economics in the modern world.

<sup>2</sup> Lindbeck, Edward Assar - *The Sveriges Bank Prize in Economic Science in Memory of Alfred Nobel 1969-2000*, 2003, [www.nobel.se](http://www.nobel.se)

sociology, law, psychology, philosophy or history, on the other. One important direction of research is Friedrich von Hayek's focus on the legal background of the economic system, the study of psychological and philosophical issues related to individuals, organizations, or different social systems. Other important contributions include: public choice theory (James Buchanan), transaction costs and property rights (Ronald Coase), or the theory of human capital (Gary Becker), to name just a few.

- 5. New Methods of Economic Analysis** – this is a large category comprising mostly prizes for advances in empirical analysis, particularly in the field of econometrics. Econometrics represents an integration of economic theory and statistical methods, and has come to dominate the mainstream in economic science in our days. Examples in this category include the systems of national accounts (Richard Stone)<sup>3</sup>, the input-output method (Wassily Leontieff)<sup>4</sup>, game theory (John Harsanyi, John Nash, Reinhard Selten), and optimal resource allocation (Leonid Kantorovich, Tjalling Koopmans)

In this context, it would be interesting to analyze how progress is approached and interpreted in modern economic science. First of all, contemporary economists seem to have adopted a flexible and open position and to have attributed a broad interpretation to the term “economic science”, by recognizing the importance of theoretical research in other related disciplines, when it concerns economic matters. In other words, interdisciplinary research is a top priority, whether it regards the boundary between economics and political science, sociology, philosophy or history. Widening the scope of economic research to related disciplines led to the approach of several unexplored economic issues, by using economic and econometric methods. At the same time, this undertaking may be regarded as an alternative to pure economic analysis, which has so far failed to provide solutions to current economic problems and imbalances. The degree of specificity on the other hand, does not seem to matter much, progress is judged in terms of both general, macroeconomic models, and also in specific, strictly specialized microeconomic theories.

Progress is also assessed in terms of originality, scientific and practical importance, as well as impact on scientific research of new economic theories. A theoretical contribution is considered important, to the extent that it sets the ground for subsequent research. At the same time, its impact is assessed relative to the entire society, including the impact on public policies. Last, but not least, progress seems to be assessed with a time lag, based on the premise that in economics – as in other social sciences – evaluating the solidity and consistency of a theory requires a longer period of time. In addition, evaluating the quality and relevance of a contribution requires critical analyses and repeated testing, due to the complexity of economic behaviour, as well as its variation through time and space.

The Nobel prizes awarded so far obviously reflect some **characteristic features of economic analysis** during the last half century. Moreover, the classification of the prizes provides an insight into the main fields of interest in economics, as well as the **dominant trends in economic research**. These trends can be summarized as follows:

- The **dominant role of the USA in economic research** during the above-mentioned period – more than two thirds of all the prize winners are American citizens, even though some of them were born and educated in different countries; had the prize started at the beginning of the 20th century – some say – the English would undoubtedly have dominated it. This American supremacy stems from the

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<sup>3</sup> these systems are based on microeconomic accounting principles, and they reflect the main macroeconomic aggregates of economic activity

<sup>4</sup> this methodology reflects the interdependencies between different sectors of the economy in a quantitative form

high-powered research at public and private institutions, which fosters scholarly competition and innovative thinking

- The **domination of theoretical, purely formal approaches**, rather than empirical ones; however, this is not to say that the latter have been left out completely.
- The **increased role of mathematical formulation** is also strongly reflected in the awards, as one of the distinctive features of economic research in the second half of the 20th century
- Another characteristic trend in economics during this period is the **growing importance of quantitative methods, particularly systematic statistical testing – econometrics**. These methods usually consist of complex macroeconomic models, often involving large masses of data; such developments have been rendered possible by technological progress in other fields such as mathematics, statistics and computer science.
- The **great importance assigned to macroeconomics** during the post-war period, in conjunction with the deeper dysfunctions experienced by most market economies, and particularly, growing inflation and unemployment.
- The Nobel prizes also reflect a **pluralist view of economic research**, by shifting over the years between candidates in different fields, using different methods of analysis, and reflecting different views of the world. Of considerable importance in this respect is the recognition of **new ways of looking at or approaching the economic system**, reflected in the awards to the economics of information, the theory of human capital, game theory or the role of economic institutions.

Apart from these general trends in economic science, there are a number of specific topics which show up recurrently on the research agenda of economists and which have experienced considerable theoretical advances. The following presentation is focused precisely on these issues and points out the progress economists have made in their research.

### **Coordination in the price adjustment mechanism**

The adjustment of the general price level in response to the discretionary, unsynchronized adjustment of individual prices is, in many ways, similar to team-working: if the team members do not coordinate or synchronize their efforts rigorously, the chain of activities/duties is marked by efficiency loss. And this loss in efficiency becomes larger, as the degree of interdependence among activities is higher and the number of team members is greater. Empirical research on the behaviour of individual prices seems to confirm the validity of this analogy: in most cases, the discretionary adjustment of individual prices results in a slow adjustment of the general price level. And the adjustment process is slower, the more each individual price depends on other prices or the greater the number of prices each individual price depends upon. But empirical research has also raised a number of questions and doubts regarding this perspective – which is generally accepted among economists; the most relevant such question is the counterexample of Caplin and Spulber (1987)<sup>5</sup>, which is in complete opposition to the hypothesis of slow price adjustment: the two authors show that under certain circumstances, even unsynchronized adjustment of individual prices may result in a very flexible general price level. The circumstances that ensure the validity of this implication are more likely to occur during periods of high inflation and this has another essential implication: the effects of the money supply on real variables will be shorter, the higher the money supply and the inflation rate.

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<sup>5</sup> Andrew Caplin, Dan Spulber – *Menu Costs and the Neutrality of Money*, Quarterly Journal of Economics, 102, 1987

### **Nominal and real rigidities**

If we admit that individual price adjustments are not synchronized, then the general price level will only increase if some firms want to increase their relative prices. Once the general price level has completely adjusted to the increase in the money supply, and supply and demand have returned to their initial levels, the relative prices targeted by producers will also reach their previous levels; but this only happens at the end of the adjustment process, resulting in a very important implication: the adjustment speed of the general price level depends on the elasticity of relative prices desired by producers to the shifts in demand. The larger this elasticity, the stronger producers' desire to raise prices, hence the faster the increase in the general price level, and consequently, the shorter the effects of money supply on prices. This observation usually takes the following form: in order to explain the substantial nominal rigidity of prices, additional real rigidities are required – such as this low elasticity of the prices desired by producers to the shifts in demand.

The above implication is extremely important, since it points out to the existence of an interaction between nominal rigidities and other type of imperfections in the economy. If such imperfections are in a position to generate real rigidities – which is still questionable – then they can contribute to the explanation of the substantial nominal rigidities manifested in modern economies.

### **Demand and supply**

If prices adjust slowly, then an increase in the money supply leads to an increase in demand, but in the absence of information on the structure of the goods market and the labour market, the demand increase alone is not sufficient to ensure an increase in supply, as well. This was the main theoretical error of equilibrium models incorporating the assumption of fixed prices. In order for the supply to rise, the market must have such a structure that producers might be willing to produce more, even at current prices. Such structures do exist in modern economies, therefore, an important hypothesis in current research refers to the existence of markets with monopoly characteristics. In equilibrium, monopoly implies that the price level is above the marginal cost, consequently, producers will be willing to produce more, even at the existing price, as long as it stays above the marginal cost. However, whereas on the goods market it seems reasonable to assume that producers do have a certain monopoly power, this assumption is still doubtful on the labour market. Anyway, in order to understand why output and employment respond to shifts in demand, further theoretical investigation of the goods and labour markets is required.

### **Money as liquid asset and medium of exchange**

The argument underlying the monetary non-neutrality hypothesis is founded, in turn, on two particular characteristics of money: that of medium of exchange and that of liquid asset. The unsynchronized adjustment of nominal prices has the implication of a slow adjustment of the price level from the latter perspective; if, in addition, cash is also a medium of exchange – which is not absolutely necessary from a logical point of view – then the slow adjustment of prices as liquid asset implies at the same time, a slow adjustment of prices from the former perspective, as well. It is precisely the combination of these two features that leads to the conclusion that shifts in the nominal money supply lead to shifts in the real money supply and subsequently, to shifts in the interest rate, the demand for goods and output.

This implication suggests that separating the two functions of money might lead to substantially different effects of shifts in the nominal money supply<sup>6</sup> on output. Moreover, such a separation could even change the nature of business fluctuations over the short term. Even though this idea is not new – Irving Fisher was particularly concerned with the issue – the current state of research is not in a position to explain what the macroeconomic implications and the potential benefits of such a distinction might be.

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<sup>6</sup> and more generally, of shifts in demand

The above mechanism lies at the foundation of a recent and promising approach of monetary non-neutrality: the *menu costs* theory. The term itself captures the idea that the existence of small individual obstacles to price adjustment – obstacles which are translated into costs – can indeed have important macroeconomic effects. At the same time however, this mechanism is not the best possible choice, since the effects of money supply on output appear to be accidental, whereas these effects are actually intrinsic features of modern economies. Anyway, beyond all controversies related to terminology, the menu costs approach proposes a plausible and promising assumption for explaining the large nominal rigidities experienced by modern economies.

### **Future trends**

In trying to assess the current state of economics<sup>7</sup>, we are entitled to say that today, economic science is strongly committed to a general equilibrium framework; current macroeconomic models start from the assumption that the economy is in a temporary state of equilibrium, given the implications and consequences of the past, as well as the expectations about the future. According to these models, business fluctuations are interpreted as the result of shocks that operate and propagate their effects through certain mechanisms. In their vast majority, business cycle theories are grounded on different types of imperfections observed in modern economies.

In light of this theoretical progress – which is obvious – it is only natural to wonder about the future directions of economic science. Given the multitude and variety of recent theories and the enormous volume of economic literature, many economists claim that making predictions about future trends in theoretical research is like making predictions about the stock market. This is not altogether true: by analyzing the current directions of research and the progress achieved so far, as well as the gaps and deficiencies of existing theories, we can draw a picture of what economic science will look like in the near future.

### **What types of imperfections?**

The reason why current research often seems rather confused resides, in part, in the number and diversity of the imperfections responsible for the malfunctioning of different markets. Today, we can witness a multitude of theoretical investigations and refinements which have led to the proliferation of an enormous number of theoretical models; one must note however, that in most cases, these models are not incompatible, they do not exclude each other, because they usually focus on different markets or market segments. These fervent searches that characterize recent theoretical research seem to reveal a goal as ambitious, as it is hard to accomplish: economists feel the need for an integrated, coherent macroeconomic model, based on a small number of imperfections in the economy. There are at the moment a few such attempts to provide an integrated approach: one of these is Edmund Phelps' theory (1994)<sup>8</sup>, which focuses on the implications of asymmetric information on the goods market and the labour market. Another such example is that of Caballero and Hammour (1996)<sup>9</sup>, based on the assumption that most relations and interactions on the credit and labour markets involve specific investments, which lead to subsequent obstacles and dysfunctions. But

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<sup>7</sup> Olivier Blanchard – *What Do We Know about Macroeconomics that Wicksell and Fisher Did Not?*, NBER Working Paper no 7550, NBER, Cambridge, febr. 2000

<sup>8</sup> Edmund S. Phelps – *Structural Slumps*, Harvard University Press, 1994

<sup>9</sup> Ricardo Caballero, Mohamad Hammour – *The „Fundamental Transformation” in Macroeconomics*, American Economic Review, 86 (2), 1996, p.181-186

even though these models represent important contributions, many economists compare them to those prototypes that we never see manufactured and sold on the market: they are nice, but not really feasible and applicable in real economies.

### **The medium term**

So far macroeconomic analysis has made a traditional conceptual distinction between the short term – underlying business cycle theory – and the long term – underlying economic growth analysis. Perhaps a better distinction should distinguish between the short, medium and long run. Such phenomena as the long-standing European unemployment or the evolution of output in East-European countries during transition cannot be easily integrated either in business cycle or in economic growth analysis. It looks like in these particular cases, we deal with different shocks than those at the origin of the business cycle: shifts in the pace and nature of technological progress, demographic evolutions, and, in the case of Eastern Europe, dramatic institutional changes. At the same time, these situations seem to involve certain imperfections that show up on the goods, labour and credit markets, different however, from the nominal rigidities underpinning theoretical research of business fluctuations. In this respect, one must admit that the research on imperfections has enabled considerable theoretical progress in this direction: a relevant example is in the area of European unemployment, where we have much more knowledge than 3 decades ago, even though economists still have a lot to unveil for a complete understanding of the phenomenon.

### **Macroeconomics and institutions**

The presence of imperfections in the economy leads naturally to the emergence of numerous institutions created precisely to correct these imperfections; they cover a very broad area, ranging from anti-trust legislation to capital market regulations or unemployment benefits. The emergence and development of these institutions play a crucial role in the understanding of macroeconomic evolutions over the medium term – for instance, the role of labour market institutions in explaining unemployment or the role of the legal structures in understanding the national product of transition economies. Institutions also play a crucial part in what regards the short term, in understanding business fluctuations: the differences between each country's institutions not only lead to different shocks, but also to different propagation mechanisms. Therefore, identifying the role that institutional differences play in generating short-run and long-run macroeconomic evolutions is very likely to take up a large amount of research.

### **Current controversies**

In the early '80s, economic research seemed divided between two approaches with opposite ideological and methodological views. Real business cycle theorists claimed that economic fluctuations can be explained within a perfectly competitive framework, characterized by technological shocks. On the other hand, the New Keynesians analyzed the central role of imperfections in triggering business fluctuations. Furthermore, real business cycle theorists used well determined, general equilibrium models focused on optimizing behaviour under uncertainty. The New Keynesians used small-sized models, destined to capture the very essence of their theoretical arguments – namely the different sorts of imperfections observed in modern economies.

In what regards the ideological division, this seems to have disappeared today, in the sense that these numerous theories do not strictly follow a certain ideological line. On the whole, all recent research is focused on the macroeconomic implications of a certain imperfection. As to the methodological division, it is still present, even though to a smaller extent than in the past. Methodological debates revolve around two possible alternatives: using small-sized models – such as the IS-LM diagram or Taylor's model on the one

hand, and using general equilibrium models, now that they can be solved numerically, on the other. One must note however, that this debate refers to the models used in research, and not to the econometric models used in practice for forecasts and policy formulation, which are usually very large, complex models. In these terms, however, the debate is incorrectly formulated. Intuition works better when operating with smaller models, while large explicit models allow for additional certification and often, for corrections or refinements. At the same time, small models help convey messages efficiently and facilitate their understanding. Still, at the moment, they are neither greatly appreciated, nor much used in theoretical research, even though they are very useful for theoretical research. Moreover, the ongoing debate is rather useless, taking into account that the two types of models are not only compatible, but also complementary.

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