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## LECTURE

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Translated by Tim Ennis

### ON ECONOMICS, POLITICS AN ECONOMIC POLICY\*

**Jorge Cauas**

This text analyzes the way in which trends in predominant macroeconomic thinking have affected the approach to economic policy. With this aim the author describes the main changes that macroeconomic theory has experienced since the consolidation of economics as an independent science. Relations with other theoretical developments, and their consequences for the authorities' perception of their greater or lesser capacity to affect the overall course of the economy, are central elements of this study. Finally, the paper analyzes a specific economic policy experience in which the author played a leading role.

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\* Complete text of the address delivered on the occasion of his induction as a Numbered Member of the *Academia de Ciencias Sociales, Jurídicas y Morales* of the *Instituto de Chile*, July 2nd, 1991.

The author thanks Rodolfo Armas M., Enrique Barros, Juan Andrés Fontaine, Dominique Hachette, Armando Roa, Francisco Rosende, Hernán Silva and Juan de Dios Vial L. for their valuable comments.

*Estudios Públicos*, 43 (invierno 1991, "Sobre economía, política y política económica").

The honor you bestow by inducting me into this Academy arouses, apart from a natural feeling of gratitude, an overwhelming need to respond by sharing what I think I have learnt in my life that could be useful to others. Apart this reaction, I feel proud to be occupying the seat of Don Enrique Bernstein, who in his life made extraordinary contributions to our country in the intellectual and diplomatic fields.

Licentiate in Laws and Doctor of Political Sciences, Don Enrique Bernstein had a brilliant career in the Ministry of Foreign Relations, which culminated in the General Directorate and in the Embassies of Austria, France, and the special Embassy to the Holy See. As Special Representative to the Papal Mediation in the dispute with the Republic of Argentina, he played an extremely important role in one of the most outstanding events in the diplomatic history of our country in this century.

When the moment came to share his experiences, he provided us with several volumes of memoirs, which constitute a fascinating account of his life and a extremely valuable contribution to the history of the periods they refer to.

I fondly remember the opportunities I had to come to know his ideas and opinions, in particular in my capacity as ambassador. His character, which was simultaneously profound, open and true, made his advice invaluable. His human qualities and his jovial style accentuated still more the pleasure of being near him. His friendship honored me deeply, and to succeed him is a great responsibility which I assume with pleasure.

In my life I have had the good fortune to take part in activities which have required me to be alert to the development of ideas, and also to enter the field in which they are made reality. The frontier between pure thought and concrete action has the profound quality of human creation, but at the same time it has the terrible force of what is incomplete and imperfect. Hence arise delight and humility; and of the two, it is the latter feeling which predominates in me right now.

I came to economics rather late in my intellectual and professional life. However, my initial scientific training in engineering was an excellent foundation for starting out in a discipline which, of all social sciences, claims to be most strongly based in rigorous formalization. This stage was therefore easy to cope with; what followed posed much more profound demands. The perception, diffuse at the outset but becoming increasingly powerful, was that reality could be imitated but not mirrored in its true complexity; that individual freedom introduces into human conduct, and in its impact on society, an element of richness which should not only be

valued but also respected and, in the end, to pass from thought to the desire to act in real life takes this respect for granted, which is nothing less than a frank acknowledgement of a deep limitation.

I do not want these reflections to be interpreted as denying or invalidating the possibility of a better understanding of the world through economics. On the contrary, this understanding represents an approximation of decisive importance. Instead, what I want to prevent in these reflections is the danger that “ideas grow until they reach monstrous proportions”, as Ernst Jünger has suggested<sup>1</sup>.

Balancing these two aspects: i.e. valuation of analysis as an tool, together with respect for freedom and the consequent acceptance of the richness of reality, is not a trivial matter. But it is absolutely necessary if one aims to obtain simultaneously efficient and enriching results. To the extent that one of these aspects becomes impoverished, one falls into one of two equally disturbing extremes: well intentioned attempts that generate disorder, or the imposition of forces which generate human impoverishment. Both in turn have a single destiny: failure.

History is often benevolent: it permits circumstances in which it is possible to reconcile these two aspects. This depends essentially on a combination of leadership with a basic acceptance of need. Jünger once again: “the spectator has his freedom curtailed because of what is necessary, but it is he, precisely with his freedom, who provides a style to the necessary”.

Let us now describe our purpose more precisely. Let me say firstly that although thinking on economic issues and their application has found expression in all historical epochs, it is only from 1776 onwards, with Adam Smith, that it acquires independence as a discipline, and it is notable that it was a professor moral philosophy who gave rise to modern economics with his treatise “The Wealth of Nations”<sup>2</sup>. The development of economics from then on has been profound and far reaching. It has deeply touched all aspects of human life in society, in some cases improving it. It has put other disciplines on their guard, and in some cases has influenced their development. And in yet other cases it has provoked more or less violent reactions of rejection. However, it has become a certain fact in history and has permeated regimes of different social organization.

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<sup>1</sup> The quotes from Ernst Jünger throughout this text are taken from his memoirs of the Second World War, *Radiaciones I* (Tusquets, 1989) first edition: *Das Erste Pariser Tagebuch*, 1949 p. 248, and from his essays *La Emboscadura* (Tusquets, 1988) (first edition: *Der Waldgang*, 1951)), p.44 and *El Trabajador* (Tusquets, 1990) (first edition: *Der Arbeiter*, 1932)), p. 37.

<sup>2</sup> Adam Smith, *The Wealth of Nations*, Edwin Cannan 1904 edition, (Methuen University Paperbacks, 1961 (first edition of the original: 1776).

I shall refer especially to a development which rightly is at the frontier of what was initially alluded to, and which has been particularly powerful in what is known as mixed economies; i.e. one which allows the market system to function, but also give governments a fairly important role. I refer to the concept of Economic Policy as it has been understood since the Second World War. The aim of this paper will be to refer to the genesis of the idea, to its development and the discussion of the historical and analytical context in which it has unfolded. Of course, at this stage this paper does not claim more originality than the organization with which it presents ideas that have shaped this discipline. Later we will discuss conceptual aspects and their institutional and political consequences. Finally, in the light of the earlier discussion, I will recount an experience of economic policy issues in which I participated during the 1960s.

I will try as far as possible to develop the exposition in non-specialist terms. However, inevitably, reference to certain theories will not be able to escape the analytical and conceptual framework constructed by the discipline. Finally, the bibliographical references included are the ones I consider essential, or particularly representative, and which also make it possible to go deeper into the different issues dealt with.

### **The roots of the concept of economic policy**

Our current understanding of the theory of economic policy starts with pioneering work of Jan Tinbergen in 1952<sup>3</sup>, who translated his experience in the Central Planning Office in Holland into a conceptual framework which is still a key to these issues, and which among other contributions won him the Nobel prize. His definition is precise and restrictive: economic policy corresponds to acts of economic conduct by the public authorities aimed at optimizing a certain function of a social nature; i.e. it relates to government acts.

It is important to stress the historical context in which this development occurs. It comes from the flowering of the ideas of John Maynard Keynes, professor at Cambridge University, who in his *General Theory of Employment Interest and Money*, published in 1936<sup>4</sup>, laid the basis for what would be the predominant theory on economic issues until well into the 20th century. Keynes, as well as being a sophisticated intellectual and a

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<sup>3</sup> J. Tinbergen, *On the Theory of Economic Policy* (North Holland, 1952).

<sup>4</sup> John Maynard Keynes, *The General Theory of Employment, Interest and Money* (Macmillan, 1936).

man of government, was a notable theorist. Suffice it to mention, for example, his other master work, in 1930, the *Treatise on Money*<sup>5</sup>. However, it is his *General Theory* which profoundly marked economic action for several decades. This was born of an economic crisis that shook the world, and its basic argument, attractive precisely for its simplicity, shifted to the sphere of public action responsibility for achieving global economic results—something that classical theories, with their concern for individual decision making, were apparently unable to achieve. From here the theory of economic aggregates emerged strongly, which relates to global magnitudes such as national income, and became known as macroeconomics. This provided a conception of economic organization giving governments much greater responsibility, based on their greater capacity than the market to guide economic processes. It is worth stating at this point that Keynes surely thought that his point of view would permit the survival of capitalism, which apart from suffering the crisis was also facing the intellectual and political attacks of socialist thought. Thus, theoretical frameworks emerged strongly which developed and amplified Keynesian thought, one of which will be mentioned later for its profound intellectual impact. As well as this, the idea of the efficiency of central planning in a mixed economy gained force in most western countries.

The success of the theory, its widespread application and its political attractiveness meant that, once the Second World War had ended, the time was ripe for more precise intellectual validation, this time from the application standpoint, and this is where Tinbergen comes in.

The first step Tinbergen makes in the macroeconomic context referred to above, is to distinguish the different variables, for example the overall level of income, the global level of output, the global level of employment, the quantity of money, fiscal spending, the general level of prices, etc.; separating those representing targets to be achieved from others that can be used as instruments to achieve them. To these two first categories he adds two more: those representing data external to the system under consideration, and those which can be derived through functional relations between some of the variables in the previous category. With this classification made, the next step is based on economic theory by using equations derived therefrom to express how these four types of variables interact.

Theory proceeds here by obtaining a number of relations equal to the number of targets defined, with each of them being a function of the other variables mentioned, in particular of the chosen instruments. This condition characterizes the logical structure of the system, and also makes

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<sup>5</sup> John Maynard Keynes, *A Treatise on Money* (Macmillan, 1930).

possible its quantification, giving rise in turn to a branch of economics called econometrics.

This consideration implies that, in theory, the targets are considered as unknowns and the instruments are data in the system to be resolved. The step made by Tinbergen in defining Economic Policy, and his fundamental statement, is to reverse the two roles by making the instruments unknowns and taking the targets as data, which is precisely the point of view from which the problem has to be faced by those responsible for policy decisions. For this reversal to lead to a single result, in a simple model, the number of instruments must be equal to the number of targets, and this is the nub of Tinbergen's contribution.

The consequences of this, although they seem to be common sense, have permanently set constraints on those responsible for economic policy, and are a basic test of fire of their capacity for success. The first is that in general, every targets depend on every instrument, thereby making policies highly interdependent. The second is that if there are more targets than instruments, a case which recurs systematically in reality, the system cannot be resolved consistently.

Much could be said here about the practical difficulties of applying this framework, ranging from the political difficulties of adequately defining society's targets, to the profound criticism of the ability to measure and quantify the necessary relations, to the need for a valid theory. However, the power of Tinbergen's reasoning consisted precisely in that he found the conditions for the existence and location of the solution being sought in a simple way.

It is perhaps necessary at this point to briefly mention a subsequent development which complements and enriches Tinbergen's analysis. In 1962, Robert Mundell<sup>6</sup>, at that time a staff member at the International Monetary Fund, explored the system's dynamic characteristics, i.e. those which introduce the influence of time into Tinbergen's equations, and he reached a complementary statement to Tinbergen's: not all policies are equally efficient in achieving the targets, and they should be paired off with the targets on which they exert the greatest influence. By way of example, he states and shows that in an economy with a fixed exchange rate facing an external imbalance—for example an undesired deficit in the balance of payments—monetary policy is the appropriate policy, whereas for dealing with a domestic imbalance—for example excess spending—fiscal policy is appropriate.

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<sup>6</sup> Robert A. Mundell, "The Appropriate Use of Monetary and Fiscal Policy Under Fixed Exchange Rates", *IMF Staff Papers* (March 1962).

It is not hard to imagine the optimism that this line of thinking gave rise to. However, it did not go unchallenged by thought rooted in classical economics, which in due time disputed the perceived weaknesses in its content and, in turn, formed the basis for the conceptual thinking that has come to maturity in recent decades and today constitutes current state of thinking on this issue.

### Replies and Rebuttals

One of the most important criticisms came from an intellectual whose economic thought is enriched by his ability to treat it not only with the rigor appropriate to the discipline itself, but also in a philosophical and rigorous social context. I am referring to Friedrich von Hayek, professor at the University of Freiburg, whose work from the 1930s onwards was marked by his profound criticism of the collectivist danger that he saw in socialist and Keynesian tendencies which, according to him, end up in the “fatal conceit that man can mold the world about him in accordance with his wishes”, as he mentions in his last book which summarizes his thinking, entitled precisely, *The Fatal Conceit*<sup>7</sup>. This concept, added to his criticism of analyses of aggregate phenomena without the rigor imposed by classical theory, as argued in his *Monetary Theory and the Trade Cycle*<sup>8</sup>, left a deep mark on the history of modern economic thought whose fruition in the policy field we are now witnessing, after a slow and systematic period of maturation.

Hayek’s conception of society is deeply rooted in his valuation of individual freedom and social process as an evolutionary phenomenon of a cultural nature, and this connects to his conception of economics as a philosophical discipline. Moreover, he points to the inability of *a prioristic* aggregate approaches to generate a consistent theory of the equilibrium of economic phenomena, turning his attention in particular towards the so-called Lausanne School of the end of the 19th century, and in particular its creator Leon Walras, whose General Equilibrium Theory, set out in his “*Elements of Pure Political Economy*”<sup>9</sup>, constructs, on the basis of individual decisions and the operation of markets, a rigorous foundation for the working of the economic system. We will see again the impact of this line

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<sup>7</sup> F. A. Hayek, *The Fatal Conceit* (University of Chicago Press, 1988).

<sup>8</sup> F. A. Hayek, *Monetary Theory and the Trade Cycle* (Jonathan Cape, 1933).

<sup>9</sup> Leon Walras, *Éléments d’Economie Politique Pure*, final edition: Pichon 1926 (first edition of the original: 1874).

of thought on one of the three contemporary currents of the present state of economics.

The other important criticism of Keynes' thinking and its effect on Economic Policy arises from the Anglo-Saxon tradition, its most outstanding representative being Milton Friedman.

This renowned economist, associated with what has been called the Chicago School, also manages to blend a strong analytical capacity with profound critical sense, as regards institutional organization and policy derived from collectivist currents. It is clearly in this second area where he is most recognized by the public, which associates him with a position defending the market system. However, his analytical contribution is what has made the strongest impact on the issue with which we are concerned.

An inheritor of the Anglo-Saxon tradition, as has been mentioned, his methodology merges with the formal structure associated with a Cambridge professor of the end of the last century, Alfred Marshall, who in his *Principles of Economics*<sup>10</sup> set out the analytical framework deriving from classical theory which still has full academic validity today. His approach, unlike Walras, tends to go into depth in terms of partial behavior in different markets, and this is the aspect where Milton Friedman's approach stands out most clearly.

Perhaps the paper which best summarizes Friedman's position is his Presidential Address to the American Economic Association, in 1968<sup>11</sup>, where he explores the implications of his theoretical standpoint for economic policy. There he shows his agreement with the aim of achieving economic policy goals such as high employment, price stability and rapid growth, but manifests his profound reservations as to the means of using the different policy tools, and more precisely his skepticism towards the idea that discretionary economic management by the authorities can be efficient in achieving given goals. This criticism, sustained when Keynesian theory was at its peak, began to have an impact when inflationary pressures started to coexist with low growth rates, thereby fundamentally contradicting one of the most potent points of the formerly predominant optimism: namely, achieving politically acceptable combinations of inflation and employment.

In this context, Friedman directs his attention to one market, the money market, which had been declared practically impotent by Keynes,

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<sup>10</sup> Alfred Marshall, *Principles of Economics*, Macmillan, 1949 (first edition of the original: 1890).

<sup>11</sup> Milton Friedman, "The Role of Monetary Policy", *American Economic Review* (March 1968).



and by reaching down to its deepest theoretical roots, comes to a recognition that this market only identifies the nominal value of aggregate output, i.e. it does not permit a breakdown between its real level and its price component, from which it is deduced that the authority can only control the nominal level and cannot fix the real variable. There remains a single step to be taken: the recognition that although monetary policy lacks the power to achieve real targets, when operated badly it tends to profoundly disturb the system, so it should adhere to a stable rule. For that reason, Friedman proposes that virtually the sole task of the monetary authority is to achieve moderate growth—in the range of three to five percent, for example—in the quantity of money which *is* an instrument the authority can control.

We are not going to elaborate here on the analytical and practical difficulties of this approach, which range from discussion about the correct theory of nominal income to the appropriate definition of the indicator measuring the quantity of money. However, by identifying an element of influence whose explanatory power for the conduct of nominal aggregates in the long run is recognized even by his critics, this came to be the basis of multiple policy designs and focused discussion on the institutional conditions under which economic policy could have real effects at least in the short run.

A rebuttal then emerged. Outstanding among many voices was that of Franco Modigliani, professor at the Massachusetts Institute of Technology, also a cradle of one of the key schools of economic thought. Perhaps Modigliani is better known for his fundamental contribution to the modern theory of finance, but his impact is also highly important in present trends which attempt to recover part of Keynes' thinking. It is interesting to note that Modigliani, like Hayek and Friedman, was a winner of the Nobel Prize for Economics.

Here we will also take a parallel text which summarizes Modigliani's position: his Presidential Address to the American Economic Association nearly ten years after Friedman's<sup>12</sup>. By now we had a much more profound acceptance of the role of monetary policy, which is not surprising given the behavior of the world economy at that time. But he sees it as one of the tools of a stabilization policy that also makes use of others, particularly fiscal policy, in appropriate combinations. Modigliani's foundations for this argument, apart from the conceptual ideas peculiar to the school of thought with which he is associated, have precise historical elements. He states that the capacity of a policy aimed exclusively at mana-

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<sup>12</sup> Franco Modigliani, "The Monetarist Controversy or, Should We Forsake Stabilization Policies?", *American Economic Review* (March 1977).

ging aggregate demand (i.e. fiscal policy) would be upset by the presence of phenomena generated in the behavior of the level of aggregate supply, a situation that clearly existed at the beginning of the 1970s. Thus, not even the most effective aggregate demand management could counterbalance supply shocks, without leading to the coexistence of unemployment and inflation. Thus, other policies also have to be considered (i.e. monetary policy) as part of an appropriate design for dealing with a fundamentally different, and certainly more complex situation than that considered in Keynes' approach.

### **The Rational Expectations Revolution**

At this stage there occurred what is rightly considered the most important contribution to macroeconomic theory and policy in recent decades, and which radically changed the rules of the game from that moment on in all of the schools of thought described above, leaving an irrevocable mark on all of them. I refer to the Theory of Rational Expectations. Without being very arbitrary, we will choose Robert Lucas as its main exponent, for it is around the work of this University of Chicago professor, born in 1937, that discussion on this issue revolves most strongly<sup>13</sup>.

Lucas addresses the problem of explaining business cycles by starting from two fundamental premises. The first of these essentially takes up the classical approach describing by Keynesian models as purely *a priori*-*istic* and imitators of reality (although recognizing their power), and poses anew the need for an explanatory theory to enable results to be anticipated by positing changes in the situations conditioning them. Obviously this leads to an exploration of different equilibrium situations, starting from the different premises that generate them in a framework based on the outcome of individual optimizing actions by different economic actors.

So far this is a return to classical roots. It is in the second premise that the revolution occurs, by assuming that different agents use and process information in such a way that they can predict the future, free from systematic deviations. This is called rational expectations. The idea that the reaction of different agents to the information they have available is important, naturally was not strange to economics. Many models of market beha-

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<sup>13</sup> Among the many papers by Lucas we can mention the one in which he sets out his overall vision: Robert E. Lucas Jr., "Understanding Business Cycles" in Karl Brunner and Allan H. Meltzer (editors) *Stabilization of the Domestic and International Economy* (North Holland, 1977).

behavior had to adopt some hypothesis, normally based on arbitrary assumptions about combinations of past behavior, to try to explain certain phenomena. A seminal paper by John Muth in 1961<sup>14</sup> radically changed the approach by seeking rationality in the exploitation of information as a guide to conduct. The implications of his paper for macroeconomics were obvious, and not much more than a decade elapsed before the theory and practice of macroeconomics had to be redrawn. Its impact was so great that all current interpretations posit it one way or another, which is totally understandable in the light of its consequences. To start with, from this rational determination it is deduced that economic agents' behavior in predicting the conduct of the authorities, ends up invalidating it, thereby rendering the concept of active economic policy deeply questionable. And we should add that, in this framework, the capacity of econometric measurement is also placed in doubt as a result of a hypothesis whereby agents' conduct is affected by their correct perception of the behavior of the authorities.

### **The current state of macroeconomics**

We will now make a brief review of current theories on this issue, of course based on the above descriptions.

Firstly it should be mentioned that on the monetarist side it is Lucas himself who, using his analytical framework, assumes the task of validating Friedman's thesis<sup>15</sup>. If we accept the relative impotence of the authorities' actions because the public can anticipate them, the first obvious consequence is that the only chance of influence will come from actions that manage to fool the public; and the second, which generates its policy rule, is that it is preferable to have a stable rule to reduce fluctuations as far as possible, and so the Friedmanite recommendation is perhaps the most sensible one.

This position, which is quite popular, is again faced by the two broad currents of opinion that originated in the 1930s, but this time refined and purged by the impact of Rational Expectations Theory.

On the one hand, Walrasian-Hayekian thought is revitalized through so-called Real Business Cycles Theory which, within the classical tradition, denies that monetary actions can have any effect on income and

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<sup>14</sup> John Muth, "Rational Expectations and the Theory of Price Movements", *Econometrica* (July 1961).

<sup>15</sup> Robert E. Lucas Jr., "Rules, Discretion and the Role of the Economic Advisor" in Stanley Fischer (editor) *Rational Expectations and Economic Policy* (The University of Chicago Press, 1980).

employment and attributes the association observed to the phenomenon of reverse causation, i.e. to the response of the quantity of money to variations in income, via the monetary authorities. The policy rule is obvious in this case: minimum intervention<sup>16</sup>.

On the other side of the fence, Keynesian thought, by pointing to the rigidity seen in certain prices, has been revitalized through the so-called Theory of Nominal Rigidities and Contracts. The foundation of this is the observation that numerous legal acts express contractual magnitudes in nominal terms despite their real effects. The consequence for policy issues is that it is possible to design active policies<sup>17</sup>.

These three currents of opinion more or less adequately describe the current state of this topic. We will now comment on this situation and its consequences.

### A Few Reflections

An observation that immediately arises is the dispersion one sees in the interpretation of phenomena and the appropriate policies to pursue. This situation, although worrying in a discipline with such a profound impact on society, is not surprising in the context of the development of science; in fact one of the most important theories of the history of scientific knowledge, namely that of Thomas Kuhn, describes this clearly<sup>18</sup>. In this field we are living through a period where one paradigm has been superseded, and the search for its replacement has not yet enabled the next one to be clearly discerned.

The Keynesian model, which had brilliant formal expression in a paper published in 1937 by Professor John Hicks of Oxford University, and which we anticipated when mentioning Keynes' contribution, has not been bettered in terms of clarity and simplicity<sup>19</sup>. There is nothing in current frameworks which comes close to it in terms of translating conceptual

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<sup>16</sup> We will choose a paper by one of the exponents of this school, which presents a global view of it: Charles I. Plosser, "Understanding Real Business Cycles", *Journal of Economic Perspectives* (Summer 1989).

<sup>17</sup> We will choose a paper by one of the exponents of this school in which its foundations are analytically formalized: Stanley Fischer, "Long Term Contracts, Rational Expectations and the Optimal Supply Rule", *Journal of Political Economy* (February 1977).

<sup>18</sup> Thomas S. Kuhn, *The Structure of Scientific Revolutions*, second extended edition University of Chicago Press, 1970.

<sup>19</sup> J. R. Hicks, "Mr. Keynes and the 'Classics'. A Suggested interpretation", *Econometrica* April 1937.

schema into simple rules for interpretation and application. And despite the criticisms it has had to face during its fifty years of life, it still serves as a framework for ordering ideas and enabling the effects of different policies to be visualized.

This situation sets economics a task which is peculiar to the construction of human thought: namely, continuing a search to enable the next step in interpreting the reality to take shape. This requires the strong conceptual capacity of the monetary framework of rational expectations to be founded on greater explanatory power; the theoretical potential of real business cycle models, and their explanatory power, being derived from simple and robust frameworks of practical application; and the descriptive capacity characteristic of the analysis of nominal rigidities and contracts, finding strong theoretical underpinnings.

From these developments the next paradigm will no doubt emerge. Meanwhile, however, one should not imagine we are in a vacuum. On the contrary, certain guidelines of enormous conceptual and practical richness derive from the progress achieved.

The first of these, associated with the concept of rational expectations, is the fundamental importance of different agents' reactions to the information they have available to them, and thus the respect any policy must have for credibility, as a basic hypothesis of the relationship between authority and people. Secondly, the respect that should be held for the broad equilibria deriving from the functioning of market systems and relative prices. Ignoring this not only can lead to a failure to achieve the goals being pursued, but worse still can also provoke exactly opposite effects, as many experience have shown. Finally, the importance of an appropriate institutional context is obvious, either to permit greater efficiency and fluidity in the working of markets, or because it constitutes a powerful constraint in favor of correct conduct on issues of appropriate information and the achievement of the equilibria being pursued. Apart from obvious institutions, such as those of the labor market, by way of example we can add monetary and exchange market institutions whose importance is such that a large part of current economic policy discussion is focused on the way in which institutions such as central banks should be constituted.

With these observations we can conclude this section with an optimistic view of the potential of economic policies, provided they respect the lessons that have been learnt. It is clear that the current state of thinking does not allow us to validate extremes which either reject all capacity to influence or which assume an extremely high capacity for achieving public policy goals. Perhaps the most appropriate definition at this moment would

be policies that permit the functioning of market mechanisms, with due recognition of appropriate information conditions and in an appropriate institutional context. It remains to be said that a non-trivial part of this task consists of correcting the imperfections on which policy must be built, and which often represent the most serious difficulty to be faced, due to the inevitable costs associated with the process of restoring basic equilibria. It is here where the need for acceptance must be based on confidence, and facility of application must be based on adequate institutions. Having said that, experience shows that costs confronted opportunely and conscientiously are, of course, less than those that are incurred if the economic and, eventually, the political system collapse.

### **A Concrete Case<sup>20</sup>**

Finally, I want to share with you some reflections on the application of an economic policy that was designed in a consistent way in the second half of the 1960s, and in which I had the good fortune to be able to participate, along with other people. This policy aimed to control the endemic inflationary process in our country, while at the same time achieving a sharp redistribution of income in favor of the wage-earning sector. Both targets were understandable in the historical and political framework of that time, and therefore received strong social support, especially the second of them.

An analytical and descriptive paper of mine published in 1970 describes the basic model on which the design of this policy was based<sup>21</sup>. Interest in this paper stems from the fact that it provided an explicit exposition of the bases on which the practical proposal was built, which is important for lessons drawn from this experience.

The analytical tools used allowed a powerful analysis of available options to be made. My purpose here, twenty-five years later, will be to reflect on the analytical characteristics and policy consequences arising from this experience.

It was no mystery, then, that the effort would require a large dose of compatibility among policies for their simultaneous achievement. The question which arose was how to achieve that compatibility, a question which we will pose again today.

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<sup>20</sup> The analytical development of this section can be found in the Appendix.

<sup>21</sup> Jorge Cauas, "Stabilization Policy —the Chilean Case", *Journal of Political Economy*, July-August 1970.

With analytical tools that are less detailed than those used then, but eventually more refined and powerful, as they constitute fundamental pillars in the history of economic thought, it is possible to explore the situation in some detail.

Starting out from the hypothesis that labor market mechanisms determine nominal wages in relation to the inflation of previous periods, an attempt was made to find a variant which would make it possible simultaneously to achieve a systematic decline in the rate of inflation along with a rise in the level of the real wage.

If one uses, as analytical tools, neoclassical wage theory and the quantity theory of money, representing the two markets under analysis, we will also find in them possible instruments to use for achieving the goals. The first theory, complemented by the hypothesis of a productive structure with constant returns to scale, leads us to conclude that, starting from an equilibrium situation, the change in the total value of wages, including the change in employment, is equivalent to the change of the nominal value of output, i.e. its real increase plus the increase in prices, assuming the contribution of different factors is unchanged. If factor contributions change, for example in the case of labor, this effect will have to be added in to obtain the change in the total value of wages. Lastly, we should add that, assuming a constant production function, it can be deduced that the variation in the real wage must be equal to the change in the average productivity of the labor factor.

The quantity theory of money, in turn, tells us that starting from a situation of equilibrium, the change in the quantity of money is also equivalent to the change in the nominal value of output, assuming the velocity of money circulation does not vary, otherwise this fluctuation should be added, with the appropriate sign, to the aggregate value mentioned.

Following Tinbergen's analysis, the goal of achieving some desired variation in the nominal value of aggregate output should make use of an appropriate tool, which of course is the monetary tool, which requires making the change in the nominal wage compatible with a given variation in the level of employment. In turn, this nominal wage adjustment guarantees that the wage factor obtains a real increase equivalent to its productivity increase.

The above analysis also confirms Friedman's thesis that the authority has power only to determine nominal variations<sup>22</sup>. We will not repeat

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<sup>22</sup> Friedman's thesis is formalized in a paper summarizing his analytical view of this topic: Milton Friedman, *A Theoretical Framework for Monetary Analysis*, National Bureau of Economic Research, 1971.

here our earlier comments on this point, but only state that in conditions of high inflation, the rate of change of prices is a very important component of changes in the nominal aggregate, so it is here that one should focus attention.

This policy is consistent, and its chance of success is very high if applied rigorously. But the question arises as to whether it is possible to go further on the issue of income redistribution, which we will explore by positing that this time nominal wages can be used as an additional instrument for achieving this, maintaining the monetary policy derived from the previous case.

The theory here leads us to different situations:

The first of them is that adjustment occurs exclusively on the side of employment, making the wage of the employed population, higher in nominal terms, presumably lead to a higher wage in real terms, because the effect of policy is to at least maintain the productivity of the employed sector. It is clear that this is a politically unstable situation which leads one to think that there is a higher probability of adjustment by other means.

If we now assume a situation of rigidity in employment, the change in the level of global output, associated with a higher-than-equilibrium nominal wage, will be greater than that initially desired. If in this framework the initial monetary policy is maintained, the only possible adjustment is to force the financing of larger wage payroll through higher inflation, and this achieved by a rise in the velocity of circulation of money. The path by which one arrives at this answer is via the conduct of economic agents, whose inflation expectations in the wage context described pushes them into monetary conduct different from that desired by the authority, but one that is rational from their point of view. The analysis proposed by Lucas seems especially important here.

The result of this situation is the breaching of both targets, because in addition to a higher-than-desired inflation rate, the additional increase sought in real wages is thus invalidated. In this context, real output growth may be affected, inducing monetary behavior aimed at preventing this, and whose final dynamic result is the coexistence of inflation with economic stagnation, so characteristic of certain countries on this continent.

Of course there is a possibility of achieving both targets, but this depends on an increase in efficiency in the labor factor. Of course, in addition, this approach has to assume the use of other tools leading to productivity increases, or else education which increases relative efficiency. But the results of this are obviously long-term, which demands a certain maturity, the achievement of which, among other things, requires the con-



ditions mentioned above, i.e. confidence, consistency and an appropriate institutional framework.

Stripped of their technical language and structure, these conclusions are apparently trivial, but time and time again we find that approximation to reality leads to a simple and robust vision.

In the historical experience described above, significant progress was made and difficulties were lived through, which made it possible to make progress in achieving conditions for a deeper institutional and political maturity. This is the path that all of us, as human beings, are called on to acknowledge.

I will end by referring once more to Jünger: “Ideas (...) do not manage, however, to solve the big tasks of a new age. However refined the calculations made may be —and the result of such calculations should not be anything other than happiness—, something left over always remains, which detracts from any definitive solution”.

## **Appendix**

### **Wages, money and inflation**

The determination of real wages obtained from neoclassical theory, which equates its value to the marginal productivity of the labor factor:

$$(1) \quad \frac{W}{P} = \frac{\partial Q}{\partial L}$$

where,

W: Nominal wage level  
 P: Price level  
 Q: Real level of output  
 L: Level of employment

A Cobb-Douglas production function is posited which assumes constant returns to scale:

$$(2) \quad Q = L^A K^{1-A} \quad 1 > A > 0$$

where,

K: Capital stock

In this case we have that marginal productivity is proportional to average productivity:

$$(3) \quad \frac{\partial Q}{\partial L} = A \frac{Q}{L}$$

Hence, the level of the real wage is proportional to the average productivity of the labor factor:

$$(4) \quad \frac{W}{P} = A \frac{Q}{L}$$

From formula (2) it can also be deduced that average productivity per worker is a rising function of the stock of capital per worker:

$$(5) \quad \frac{Q}{L} = \left( \frac{K}{L} \right)^{1-A}$$

So, from formula (4) it can be deduced that the real wage level is also a rising function of the stock of capital per worker:

$$(6) \quad \frac{W}{P} = A \left( \frac{K}{L} \right)^{1-A}$$

If, starting from an equilibrium situation, one expresses formula (4) in terms of growth rates, written with the corresponding small case letters we have:

$$(7) \quad w - p = (q - 1) + a$$

where,

w : Rate of change of the nominal wage

p : Rate of inflation

q : Rate of change of real output

l : Rate of change of employment

a : Rate of change of the wage coefficient in the production function.

Formula (7) tells us that the change in the real wage ( $w - p$ ) is equivalent to the change in average productivity ( $q - l$ ), plus the variation in the coefficient of wages in the production function.

The monetary situation is studied through the quantity theory of money

$$(8) \quad M V = P Q$$

where,

M : Level of money

V : Velocity of circulation of money

Again starting from an equilibrium situation, we have the following relation in growth-rate terms:

$$(9) \quad m + v = p + q$$

where,

m : Rate of change of the quantity of money

v : Rate of change of the velocity of circulation of money.

Now, assuming constant returns in the function of production ( $a = 0$ ) and a constant velocity of circulation of money ( $v = 0$ ), relations (7) and (9) give the result that the variation in the total level of output ( $p + q$ ) will be equivalent to the variation in the total level of salaries ( $w + l$ ) and the change in the quantity of money.

$$(10) \quad p + q = w + l = m$$

If one takes the change in employment as given, and one determines the variation in wages, for example by linking this to the change in prices during the previous period, then in its cost aspect the variation of the total level of output will be determined, without it being possible break it down into real and price components.

With this level defined as a target, we have that the available instrument is a monetary instrument, which assumes a certain variation in the nominal quantity of money. In other words, a single target has been paired with a single instrument, and it has been assumed that the conduct of wages

will be compatible with the equilibrium of the whole system. In this case, real wages will grow at the same rate as average labor productivity:

$$(11) \quad w - p = q - l$$

Figure 1

Rate of change of nominal output.
Rate of change of nominal wage.
Rate of change of the quantity of money.

Now let us suppose that a higher target for the variation of the real wage is being pursued than in the previous equilibrium, and that the tool to be used to achieve this is a higher level in the variation of the nominal wage, keeping the target for price changes and the monetary instrument as above.

$$(12) \quad w' > w$$

As can be seen in the figure, the only way of making this situation compatible is through a smaller variation of the level of employment, given that relation (11) continues to be fulfilled:

$$(13) \quad p + q = w' + l' = m \qquad w' > w; l' < l$$

In this case, which assumes that the initial composition of the change in the level of the nominal income is unchanged, we have that the real unit wage increase has been obtained at the cost of the level of employment, forcing up productivity in the employed sector:

$$(14) \quad w' - p = q - l' > w - p$$

Now, if the previous level of employment is forced upwards, the picture will change towards a situation where adjustment occurs through a bigger variation in the nominal level of output, which, assuming a constant initial rate of change of the quantity of money, would be determined by a

change in the velocity of circulation. The latter, in turn, should suggest a change in inflationary expectations. The relations this time are given by:

$$(15) \quad (p + q)' = w' + 1 = m + v \qquad w' > w \quad v' > 0$$

From the point of view of the real wage, the result is not clear. If it is argued, for example, that the rate of change of the real output does not alter, we will have:

$$(16) \quad p' + q = w' + 1 = m + v'$$

In the best of cases, therefore, one reaches the conclusion that the real wage cannot be managed beyond the increase in average productivity, because inflation erodes this goal.

$$(17) \quad w' - p' = q - 1 = w - p$$

The situation is worsened, of course, if the monetary authority tries to influence the process by changing its policy. The dynamic in this case leads to a highly likely framework of accelerating inflation with stagnation, or a fall in output and employment, without the desired effects on the real wage.

Of course the possibility of increasing real wages does exist and is given by other tools relating more to the theory of growth and social investment, both with effects only in the long run. For example, if we deduce rates of change from equation (6) under the hypothesis of constant returns in the production function, we have that real wages grow as a function of the increase in the capital stock per worker, without disturbing the other targets, leading us then to the issue of the need for higher savings rates to achieve this:

$$(18) \quad w - p = (1 - A)(k - 1)$$

On the other hand if we look at equation (7), we have that the real wage can be raised beyond the average rate of productivity growth in the short run, if the labor factor improves its position in the production function, thus bringing us to the education and training needs for achieving this.  $\square$