

# The Rationality of ‘Rational Expectations’

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The flood of papers, articles, and essays on rational expectations in the last years has been extraordinary. Most senior citizens in the community of economists have left the discussion to their younger colleagues, partly because the rigorous arguments of the protagonists seemed forbidding, partly because they “liked” the conclusions at which the proponents had arrived even if they suspected the conclusiveness of the argumentation. I have at last resolved to speak out and present the reasons for my doubts. As one who many years ago assigned to “induced revisions of expectations” a central role in economic adjustment, I am not a newcomer to the theory of expectations.

## I. Equilibrium of Expectations

If economic agents’ expectations of future events or of the future consequences of present actions differ, their plans and courses of action are liable to be incompatible with one another. Some or all of the agents concerned must sooner or later find this out. Disappointed or pleasantly surprised, they will be forced or induced to revise their expectations and plans. The state of mutual compatibility of all plans and courses of action pursued by all economic agents is called “equilibrium of expectations”. As long as this state is not reached, the sequence of surprises and revisions of expectations must continue. The equilibration in question may be regarded as a process of compulsory learning.

The process of equilibration of expectations is, of course, nothing separate from the working of other models of group equilibrium. It is part of the “mechanism” at work in the processes leading to the equilibrium of the industry, the equilibrium of the market, and the general equilibrium of the economy as a whole; and also in the microfoundations of aggregative

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\* On January 30, 1983, the international community of economists lost one of its most distinguished members. Professor Fritz Machlup died little more than a month after his eightieth birthday. Some days before his death he sent us this paper.

equilibrium. Only because the theorist wants to place special emphasis on particular aspects of the adjustment processes does he single out the theme of the "converging expectations" for examination in greater detail.

In my analysis of sellers' competition, published in 1952, I placed much emphasis on "induced revisions of subjective expectations," induced by the inevitable learning experience of the market participants. The point is that expectations are not formed by "wild and unpredictable imaginations" but ordinarily by intelligent consideration and reconsideration of observed changes.<sup>1</sup> My analysis of a "Model Sequence of Price Adjustment," in which I "described" the consecutive induced revisions of expectations in a process of equilibration of an industry (after a disturbance of the group equilibrium by increased demand for its product), was preceded by this statement:

"The real problem within the scope of a theory of competition is the adjustment of subjective price expectations to such changes of market price as are expected by the economist to result from certain changes in market demand or cost conditions and from the subsequent entries (or exits) of firms into (or from) the industry. In other words, the relevant problem at this point is the adjustment of subjective price expectations as a part of the whole process of adaptation which is supposed to lead eventually to the equilibrium of the industry, that is, to the above-mentioned 'group equilibrium'."<sup>2</sup>

I have reproduced this paragraph chiefly because of the allusion to the imaginary firms' subjective expectations getting adapted to such changes as are expected by the economist to result from changes in market or cost conditions. We shall see a little later that this idea of economic agents' expectations adjusting in conformance with the economic theorist's expectations plays a role in what has come to be called (infelicly) the "rational expectations" hypothesis.

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<sup>1</sup> The quoted words are from a section under a subheading "Objective Changes and Subjective Expectations;" they were included in the following lines:

"If sales expectations changes without any rhyme or reason and if the revisions of expectations, which become necessary whenever sellers find their past expectations disappointed, were without any recognizable relationship to changes in the objective data, then economic equilibrium analysis would indeed be of little use. We should never be able to state the probable consequences of certain changes in consumers' demand or certain changes in production technique, because everything would depend on the wild and unpredictable imaginations of the sellers. If we can, however, assume that the revision of sales expectations will, by and large, proceed in an orderly fashion and according to intelligible principles ... then the general equilibrium theorist need not give up..."

*Fritz Machlup*, *The Economics of Sellers Competition* (Baltimore: John Hopkins University Press, 1952), pp. 206 - 207.

<sup>2</sup> *Fritz Machlup*, *Sellers' Competition*, p. 280.

## II. Economic Man and Rational Expectations

If one does not know the special connotations grafted on the notion of rational expectations by some imaginative cultivators of sophisticated conceptualization, one may think that it hardly needs saying that economic man, the rational maximizer of utility, makes his decisions always on the basis of rational expectations.<sup>3</sup> He knows what he wants, he knows what means are required to attain the various ends, and he knows what means are at his disposal to be rationally allocated among these ends. If he is in business, he knows how he can rationally adjust to new information, how he can rationally obtain better information, how he can rationally balance the cost of additional information with expected benefits to be derived from it, and how he can rationally balance expected risks with his aversion to being exposed to risk. Such a rational man's expectations cannot help being rational in terms of his own tastes and insights. If no more is demanded of his capabilities, one cannot reasonably question that economic man is programmed to have always rational expectations, which, of course, implies that he may have to revise his expectations continuously as new information is obtained.<sup>4</sup>

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<sup>3</sup> I am using the term "rational" expectations under protest, since rational and correct are quite different things. Economists who had read *Max Weber* – and at one time every educated economist was supposed to have done so – have agreed that rationality meant consistency with one's preconceptions and prejudices, right or wrong. (American Indians were perfectly rational if they, on the basis of their beliefs, performed a rain dance when they wanted rain, and they entertained "rational expectations" when they expected their rites to have the desired effect.) *John Muth* may be charged with an infraction of terminological discipline when he misused the term "rational" to denote "correct" expectations (or expectations in conformance with those of some economic theorists of the neoclassical school). See *John F. Muth*, "Rational Expectations and the Theory of Price Movements," *Econometrica*, Vol. 29 (July 1961), pp. 315 - 335. *Muth's* misappropriation of an accepted word of art was then approved and imitated by *Robert E. Lucas*, *Robert J. Barro*, *Thomas J. Sargent*, and dozens of others. Battling against the continued use of the misnomer would be fighting a hopeless cause. I feel compelled to record my protest, but I have to join the perpetrators of the terminological malpractice if I want my discussion of their hypotheses to be understood.

<sup>4</sup> The rational-expectations postulate – "that private economic agents gather and use information efficiently" – "treats informational activities the same as any other activity that economic man undertakes. In this context, efficiency means that the amount of resources private agents devote to gathering and using information is such that the marginal alternative cost of these resources equals the marginal benefit from the information". *Herschel I. Grossman*, "Rational Expectations, Business Cycles, and Government Behavior," in *Stanley Fischer*, ed., *Rational Expectations and Economic Policy* (Chicago: University of Chicago Press, 1980), p. 10. – *Stanley Fischer* calls this postulate "the weak form" of rational expectations, namely, "that individuals form expectations optimally on the basis of the information available to them and the cost

More ambitious “requirements” are stipulated for what *Stanley Fischer* calls the “strong form” of rational expectations. The added postulate is “that individuals’ subjective probability distributions are the same as those implied by the models in which they are presumed to be the agents”.<sup>5</sup> Or, in the words of *Herschel Grossman*, the added (and rather strong) assumption is “that the information that is potentially relevant for private agents includes both knowledge of the specification of the structure of the economy itself and knowledge of the past and current data that this structure identifies as consequential”.<sup>6</sup> Even those of us who allow the theorist to construct his ideal types any way he likes, may object: economic man ought not to be endowed with superhuman abilities, at least not if we want him to serve, in applied economics, as a heuristic instrument for explaining observable reality. What the strong postulate of rational expectations implies is the efficient working of feedback loops among private economic agents, governmental agencies, and economic theorists who miraculously agree on all diagnoses of the economic state of affairs and on all prognoses of developments induced by actions of private economic agents and public agencies.

Going behind the professional jargon used in the preceding paragraph, we may try to explain what is superhuman and miraculous in the assumptions inherent in the strong form of the postulate. In applications of the postulate of rational expectations to the analysis of the effectiveness of monetary and fiscal policies, the analysts treat the actions of the public authorities not as independent variables but as endogenous variables dependent on information about real output and employment (or, alternatively, about interest rates and changes in price indices). These determinants of policy are the results of the actions of masses of private economic agents; but the reactions of the authorities will now join the flow of information reaching the private agents, who will “rationally” revise their expectations and, consequently, their own decisions and economic conduct. But will the rational revision of expectations not be based on the “propable consequences” attributed to the public policy, and will the attribution of consequences of public policies not vary according to the theories, naive or sophisticated, held by the agents? Since few economists agree on the consequences of any macroeconomic policy-mix adopted by the authorities, how can one reasonably assume that the private agents, however well informed, can entertain predictable expectations?

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of using that information.” *Fischer* holds that this “has become and will remain the leading theory of expectations.” See his essay, “On Activist Monetary Policy with Rational Expectations,” in the same volume, p. 212.

<sup>5</sup> *Fischer*, p. 212.

<sup>6</sup> *Grossman*, in *Fischer*, p. 10.

The methodological device of endowing an ideal type of any person (economic agent) with capabilities few real persons can possess is defensible, and indeed appropriate, as long as the construct in question is helpful (or, in the words of *Karl Popper*, has “proved its mettle”) and is not selfcontradictory. A purely fictitious construct can serve in “as if” explanations of a large class of recorded observations; that is to say, a sufficient number of real world people act as if they were constituted like the unrealistic ideal type. If an ideal type, however, is inconceivable, because some of its essential properties contradict one another, then its use will be judged to be ill-conceived. I am leveling this charge against the ideal type of an economic agent who forms “rational” expectations on the basis of economic interpretations of data on the presumption that these data will induce or will have induced government behavior that will produce determinate economic results. Even if one admitted the “possibility” that all private and public economic agents shared the same economic theory and had in their respective minds the very same “model,” connecting all its variables in an identical “structure” – an assumption so fantastic that I would admit it only for the sake of the argument – one could not reasonably go so far as to assume that all agents would also learn to know the numerical “parameters” for the variables.<sup>7</sup>

All this still sounds excessively convoluted, and some readers may appreciate a brief sketch of the particular use of the strong postulate of rational expectations.

### III. Anticipated and Unanticipated Monetary Policy

The thesis for the support of which the strong postulate of rational expectations has been used is, roughly stated, that anticipated monetary policy

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<sup>7</sup> The strong hypothesis of “rational expectation” can be divided into four or five separate assumptions: the sameness of past experiences, the sameness of models in the minds of the agents and in the writings of the theorists, the sameness of the structures of these models, the sameness of new information reaching all agents, the sameness of the numerical parameters assigned to the variables included in the models. The attitudes of adherents and critics of the “rational expectations” hypothesis to these assumptions range from full acceptance via partial acceptance to modified or absolute rejection. To some extent these differences depend on whether the hypothesis allows a process of *Bayesian* learning over time or insists on the likelihood that “rational expectations move directly to the equilibrium value of the model without specifying an adequate process to produce the result.” See *Richard M. Cyert* and *Morris H. DeGroot*, “Rational Expectations and Bayesian Analysis,” *Journal of Political Economy*, Vol. 82 (January/February 1974), p. 523. These authors stress the learning process: “... even if all firms do not initially have the same priors, the feedback from the market will tend to modify the priors to the extent that similarity becomes a reasonable assumption at some point. Thus, we will postulate the same prior probability distributions for the decision makers in our models” (p. 522).

has no real effects. "Real effects", in this statement, stands for effects upon physical output and employment. "Monetary policy" stands for any mix of monetary and fiscal policy that cannot dispense with appropriate (complementary) changes in the supply of money. The stress on "money supply" is merely incidental to the fact that most representatives of this way of reasoning are monetarists; instead of money supply, the thesis could be formulated in terms of total spending or effective demand. "Anticipated" stands for predictable on the basis of available information and accepted interpretation. The thesis as a whole relates to the short run. (That real output in the long run is independent of a one-time increase in the quantity of money, or even of an increase in the annual rate of money creation, is probably one of the least disputed propositions in economics.) At issue is whether an increase in spending is likely to produce a higher level of real output and employment in the short or medium run, say, over a period of two to five years.

The issue arose when, in the late 1960s and the 1970s, the *Keynesian* recipe of creating employment through increased deficit spending failed to work, when confident forecasts of rates of real output, employment, and price indexes proved wrong, and when the presumed trade-off between price inflation and unemployment (in line with the *Phillips Curve*) was seen to be an illusion; in other words, when increases in spending resulted chiefly (or only) in price inflation and hardly (or not at all) in reductions of unemployment. These disappointments had to be explained, and one of the explanations was that monetary expansion had succeeded in inducing more production only as long as that expansion was not generally expected; anticipated money creation would pull up prices but not real output. The most plausible argument was in terms of the "shift of the *Phillips Curve*". If the authorities were willing to tolerate a higher rate of price inflation in order to ensure a lower level of unemployment (and a higher rate of real output), such movements along the trade-off curve would in due course lead to expectations of continuing price inflation at the higher rate, and these expectations would shift the entire curve to the right. This shift would be such that the now tolerated high rate of price inflation would not buy a higher employment level, but only the "natural rate of unemployment," determined by the structure of the economy, such as given technological conditions, given relative prices and, especially, given relations between the prices of labor and the prices of products (that is, real wage rates). Hence, according to this theory, attempts to use monetary expansion systematically to reduce unemployment rates below the "natural rate" are doomed to fail. Only if actual monetary expansion exceeds the anticipated rate can employment be temporarily increased; as soon as expectations catch up with the

actual rate of monetary expansion, the economy will be back at the undesirably high level of unemployment but at the elevated rate of price inflation.<sup>8</sup>

Economists have long been acquainted with the phrase of the “neutrality of money”. It was an ambiguous phrase. Some understood it to mean that money was merely a veil over the real economic structure but would not change it. Others understood it as a precept, an objective of sound monetary policy, to control the quantity of money in such a way that it would not distort the real structure of the economy. In the second sense of neutrality, it was taken for granted that money circulation, by being expanded or contracted, or by being expanded too fast or too slowly, could easily be non-neutral, causing real output to change in a nonsustainable way. Such changes could be in magnitude or composition of total output, or both. Theories of nonneutral monetary policies that cause industrial fluctuations (business cycles) by inducing unsustainable changes in the structure of production explained the distortions as results of wrong signals. These signals were given to economic agents by market prices rates of interest. In particular, deviations of market rates of interest from “natural rates of interest” were attributed to destabilizing monetary policies.<sup>9</sup>

There are similarities as well as differences between these “old” monetary theories of the business cycle and the “new” theories of unanticipated changes in the rate of money creation. They are similar chiefly in their contention that presumably stabilizing monetary policy is in fact often destabilizing. *Hayek*, for example, held that a policy of increasing the money stock for the purpose of stabilizing the price level in an economy supplying increasing amounts of output would, if the new money was injected through bank lending, result in an unsustainably high rate of investment expenditures: it would end in a retrenchment, associated with capital losses and unemployment.<sup>10</sup> Several of our contemporary monetarists hold that a policy of increasing the rate of money creation for the purpose of raising and stabilizing the rate of employment would be partly unsuccessful and partly

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<sup>8</sup> This refutation of the theory of the trade-off between price inflation and unemployment goes back to Milton Friedman’s writings. See, for example, his Presidential Address before the American Economic Association, “The Role of Monetary Policy,” *American Economic Review*, Vol. 58 (March 1968), pp. 1 - 17.

<sup>9</sup> The major authors of business-cycle theories based on nonneutral monetary expansion were *Knut Wicksell*, *Ludwig von Mises*, and *Friedrich von Hayek*. – The similarity was noted by several recent writers. See, for example, *Brian Kaplan*, “Rational Expectations and Economic Thought,” *Journal of Economic Literature*, Vol. 17 (December 1979), pp. 1422 - 1441.

<sup>10</sup> *Friedrich A. Hayek*, *Prices and Production* (London: Routledge, 1931, 2nd and revised edition, 1935). Also *Monetary Theory and the Trade Cycle* (London: Jonathan Cape, 1933).

destabilizing. To the extent that the increase would be expected, it would not succeed in raising output and employment but would only raise prices; to the extent that the increase in money creation would be unanticipated, that is, in excess of the expected increase, it would lead to a temporary increase in output and employment, both these magnitudes returning to the previous level when expectations catch up with the actual monetary expansion. Both theories, the *Hayekian* and the modern monetarist, attribute the destabilizing nonneutrality of money creation to systematic error, misinformation, false cues. *Hayekian* theory points to unnaturally low rates of interest and correspondingly high demand prices of durable assets, caused by the excessive supply of bank credit. Modern monetarists point to the "forecast error" due to the unanticipated boost to the rate of money creation and/or unexpected rise of the price index.<sup>11</sup> (The increase in employment due to this "error" is, for advocates of expansionary macroeconomic policies, not deplorable but desirable; they do not accept the judgment that the higher employment rate is not sustainable.)

Although the theory of rational expectations was first used in an explanation of microeconomic adjustment, its major "application" nowadays is in discussions of monetary policy. Monetarists employ the theory to prove that demand management is not the cure for unemployment that is was purported to be during the decades when *Keynesian* policy prescriptions dominated macroeconomic theory and political discussions. That monetary expansion is impotent as a means to induce "real" economic expansion if people have learned that it will be resorted to whenever the rate of employment is regarded as too low, can be understood without the "rigorous" argument of "rational expectations". It is not necessary that everybody has learned what to expect from increased money supply and increased effective demand; it is enough if the largest industrialists and labor leaders have learned that the consistent use of the policy rule "full employment through more spending" is apt to lead to rising prices and rising wages. To be sure, inflationary expectations play an essential role in making official spending policies ineffective in promoting employment; but for this insight the hypothesis of "rational expectations," based on everybody using all available information and interpreting it in conformance with "the" correct economic model is not needed. Indeed, "the fundamental simplicity of the ideas involved has become obscured by overly rigorous development".<sup>12</sup>

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<sup>11</sup> *Stanley Fischer*, *Rational Expectations*, p. 220.

<sup>12</sup> *Rodney Maddock* and *Michael Carter*, "A Child's Guide to Rational Expectations," *Journal of Economic Literature*, Vol. 20 (March 1982), p. 49. This article shows (on p. 48) in a brief footnote the (supposed) progress from "adaptive expectations,"



#### IV. Irrational Implications of Rational Expectations

The “weak” assumption of the formation of “rational” expectations is quite reasonable: a rational decisionmaker will consider all information that he can get without undue cost provided that he believes it, or believes that many others (say, competitors in selling or buying) believe it, and provided further that, according to his lights, he regards it as relevant. “His lights” may, of course change, over time, as he learns from experience, his own and other persons’. The “strong” assumption of the formation of “rational” expectations is far more complex and, in fact, self-contradictory. It is assumed that the rational expectation-revisor will consider all “information” (including the most ancient and outdated) that is “available,” will interpret this information the same way as all other agents on the basis of the same theories of interactive and reactive responses on the part of his contemporaries, including governments and other policy-making authorities, and will eventually (perhaps very soon, indeed, possibly without delay) arrive at the same conclusion as everyone else, a conclusion not surprisingly designated as the “rational-expectations equilibrium”.

Members of this school or movement and their still unconvinced fellow-analysts speculate about the “existence,” the “uniqueness,” and the “stability” of this equilibrium; about the path towards it, which means the process of gradual “convergence” of initially divergent expectations; about the “structure of the functions” that specify the rational-expectations equilibrium; and about the “parameters of the variables” in the relevant equations.<sup>13</sup> Among the most serious and most questionable issues; in my opin-

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where “people just simply adapted to past errors,” to “rational distributed-lag expectations,” based on “the very best econometrically predicted estimates of prices derived from analysis of all past price information,” and finally to “rational expectations” with all their “overly rigorous developments” [of unnecessary assumptions and intricate arguments].

<sup>13</sup> I acknowledge the help received from reading many essays and papers. Among them are the papers presented at a Seminar on Rational Expectations, held by the American Enterprise Institute on February 1, 1980, in Washington and published in the *Journal of Money, Credit, and Banking*, Vol. 12 (November 1980, Part 2), especially the papers by *Robert E. Lucas, Jr.*, “Methods and Problems in Business Cycle Theory,” pp. 696 - 715; *William Fellner*, “The Valid Core of Rationality Hypotheses in the Theory of Expectations,” pp. 763 - 787; *Arthur M. Okun*, “Rational Expectations-with-Misperceptions As a Theory of the Business Cycle,” pp. 817 - 825; and *Gottfried Haberler*, “Critical Notes on Rational Expectations,” pp. 833 - 836. Further enlightenment was provided to me by the papers prepared for the Conference on Expectation Formation and Economic Disequilibrium, held at New York University on December 4, 1981, especially the following: *Roman Frydman*, “Individual Rationality, Decentralization, and the Rational Expectations Hypothesis”; *Robert M. Townsend*, “Equilibrium Theory with Disparate Expectations: Issues and Methods”;

ion, are the “infinite regress” in taking account of other decisionmakers’ and policymakers’ reactions to any moves made as a result of the successive revisions of expectations; secondly, the assumption that everybody, civilian or official, interprets all available information on the basis of the same model or theory; and thirdly that everybody assigns the same parameters to the variables included in that model or theory, although these parameters are unknowable since they will emerge only as an end-result of ongoing interactive processes. The infinite regress in an endless chain of responses and adaptations, though rather unbelievable in a “model” of understandable human behavior, is not fatal to the theory if it is assumed that the magnitude of consecutive revisions of expectations decreases rapidly and becomes insignificant after a while. It would be an asymptotic approach to “equilibrium”. The commonality of the relevant economic theories held by all persons involved – buyers and sellers, lenders and borrowers, employers and workers, cabinet members and opposition leaders, finance ministers and bank governors, *Keynesian* demand managers and *Friedmanite* monetarists, *Marxian* socialists and *Hayekian* libertarians – is an assumption unacceptable even as a heuristic fiction. The common knowledge of unknowable parameters, to be established only as an outcome, not as an input in the formation of expectation is a logical impossibility.

The cited examples of irreconcilable contrasts among theories entertained by different schools of thought may seem too absurd, making a caricature of the postulated commonality of the theories basic to the “rational” interpretation of information in the light of a “commonly accepted” model of reasoning. Yet a set of two brief propositions essential to the formation of expectations regarding the effects of public-policy actions can make it clear that the assumption of generally shared models of economic processes is untenable even as a tentative hypothesis. I choose these propositions from monetary theory, because it is chiefly the area of monetary policy and monetary developments in which the rational-expectations hypothesis is applied.

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*Alan Kirman*, “On Mistaken Beliefs and Resultant Equilibria”; *Margaret Bray*, “Convergence to Rational Expectations Equilibrium”; and *Edmund S. Phelps*, “The Trouble with ‘Rational Expectations’ and the Problem of Inflation Stabilization.”

In an unpublished paper, *Margaret Bray* and *David M. Kreps*, “Rational Learning and Rational Expectations” (Research Paper No. 616, Graduate School of Business, Stanford University, 1981) held that only “irrational learning” will lead to diverging and “incorrect” beliefs, whereas “rational learning must entail convergence of beliefs” and this convergence will be “to correct beliefs ... if the model is sufficiently regular” (p. 2). The use of the verb “must” indicates the tautological character of the exercise. My point is that this kind of “rational learning” cannot exist and should be “assumed” only in attempts to demonstrate the inherent contradictions.

Proposition A: An increase in the (basic) money supply, or in the rate of increase of the (basic) money supply, will lead to, or be associated with, a decline in the short-term rate of interest.

Counterproposition A': An increase in the (basic) money supply, or in the rate of increase of the (basic) money supply, will lead to, or be associated with a rise in the short-term rate of interest.

Proposition B: A rise in the short-term rate of interest will lead to a decline of commodity prices.

Counterproposition B': A rise in the short-term rate of interest will lead to a rise of commodity prices.

If twohundred years of statistical observation and theoretical argumentation have not led to a consensus among the specialists regarding these relatively simple causal or functional relationships, how can one reasonably assume that all economic agents, public or private, will arrive at identical "rational" expectations of the effects of monetary policy?

There is an alternative version of the strong hypothesis of uniform rational expectations, a version that does not hold that the model of the convergence of expectations is descriptive of typical human reasoning and acting, but holds merely that the hypothesis has only predictive, not explanatory value. That is to say, the whole apparatus of a "rational-expectations equilibrium" is only an "as if" instrument of predictive macroeconomics. Protagonists of the school are not agreed on this point. But even if they were modestly agreeing that the hypothesis cannot serve explanatory purposes but is still usable as a tool of prediction, helpful to authorities in charge of managing real demand, output, and employment, I see no good reason to rely on it. It is true, of course, that people ordinarily learn from experience; but we do not know how quickly they learn and just what they learn. In some countries it took decades until people learned to adjust to continuing price inflation; in other countries it took them only a few years to catch on; and in a few countries people have become so sensitized to the threat of monetary expansion that they anticipate the feared effects, transforming thereby a possible lag into a decisive lead. The advice to rely on statistical averages (reaching as far back as our time series allow) seems rather naive and cannot possibly be helpful in arriving at short-run predictions of changes in nominal or real terms. As a matter of fact, such averages could never lead to a "rational-expectations equilibrium".<sup>14</sup>

<sup>14</sup> *Roman Frydman*, "Individual Rationality, Decentralization, and the 'Rational Expectations' Hypothesis," in *Roman Frydman and Edmond S. Phelps*, eds., *Individual Forecasting and Aggregate Outcomes: "Rational Expectations" Examined* (Cambridge: Cambridge University Press, 1983).

## Zusammenfassung

### Die Rationalität von „Rationalen Erwartungen“

Während das Konstrukt „Gleichgewicht der Erwartungen“ und die Begriffe „induzierte Änderung von Erwartungen“ sowie „Annäherung von Erwartungen“ nützlich für die Analyse von Regulierungsprozessen sind, hat sich die strenge Form von „rationalen Erwartungen“ als unhaltbare Hypothese erwiesen. Es geht nicht darum, daß vorweggenommene Änderungen in der Wirtschaftspolitik keine Auswirkungen auf die Produktion haben, sondern die Erklärung ist nicht akzeptabel, daß man die Hypothese aufstellt, gleiche Interpretationen aller erhältlicher Informationen auf der Basis identischer Theorien würden von allen Wirtschaftssubjekten und -analytikern vertreten werden.

Die Hilfsannahme, daß sowohl öffentliche als auch private Wirtschaftssubjekte rational begründete Erwartungen von statistischen Zeitreihen ableiten können und sich auf statistische Durchschnittswerte verlassen würden, ist gleichermaßen irrational.

## Summary

### The Rationality of 'Rational Expectations'

Whereas the construct "equilibrium of expectations" and the notions of "induced revisions of expectations" and "convergence of expectations" are useful in the analysis of adjustment processes, the strong form of "rational expectations" is found to be an untenable hypothesis. That anticipated changes in policy may have no effects on production is not questioned, but the explanation by hypothesizing identical interpretations of all available information on the basis of identical theories entertained by all agents and analysts is unacceptable. The auxiliary hypothesis that economic agents, public and private, can derive rational expectations from consulting statistical time series and relying on statistical averages is equally irrational.

## Résumé

### La rationalité des «anticipations rationnelles»

Si la construction «stabilité des anticipations» et les notions de «modification induite des anticipations» ainsi que d'«approche des anticipations» sont utiles à l'analyse de processus de régulation, la forme rigoureuse d'«anticipations rationnelles» s'est avérée hypothèse insoutenable. Cela ne signifie pas que les changements anticipés de la politique économique n'ont aucun effet sur la production, mais l'on ne peut considérer acceptable l'hypothèse selon laquelle tous les sujets et analystes économiques donneraient la même interprétation de toutes les informations accessibles sur la base de théories identiques.

L'hypothèse accessoire tendant à prouver que les sujets économiques tant publics que privés sont capables de déduire des anticipations rationnellement motivées de séries statistiques chronologiques et se fieraient à des valeurs statistiques moyennes, est pareillement irrationnelle.