

**From adaptive to rational expectations:
the empirical, methodological and theoretical reasons of a fundamental change
of perspective in macroeconomics**

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As is well known, in the 1970s macroeconomics was characterized by a radical change in the way expectations were modelled, as the prevailing hypothesis of expectations formation rapidly shifted from the hypothesis of adaptive expectations (AEH) to the hypothesis of rational expectations (REH). This change determined a radical shift of perspective in macroeconomics, favouring the rapid rise of new classical economics, the first macroeconomic school that adopted the REH, and the demise of traditional Keynesism that resisted its introduction. Since the early 1980s, also the most influential Keynesian school (new Keynesian macroeconomics) adopted the REH. After this rapid transition, often called “rational expectations revolution”, the debate between classical and Keynesian schools of macroeconomic thought continued on the common terrain set by the REH approach. Notwithstanding the crucial role played by this epoch-making shift from the AEH to the REH in the history of macroeconomics, its causes and consequences have been insufficiently analyzed. This paper aims to contribute to fill this gap.

The sudden shift from the AEH to the REH was determined by a host of factors between which we distinguish empirical reasons induced by the history of facts, theoretical reasons related to the suggestion by Arrow and other mathematical economists of a fully-fledged version of the general equilibrium model under uncertainty, and methodological reasons related to the shift from the conviction that the general equilibrium model required dynamic foundations (as was suggested by Walras in its analysis of tâtonnement and was systematically argued by Samuelson in his Ph.D thesis: *Foundations of Economic Analysis*, 1947) to the conviction that dynamic foundations are unnecessary after Debreu provided rigorous axiomatic foundations to general equilibrium theory in his *Theory of value* (1951).

The reasons related to the history of facts are relatively easy to assess. The AEH was introduced in the 1960s to cope with the moderate and cyclical inflationary episodes of the time connected with the, then popular, stop-and-go policies. However, the acceleration of inflation since the late 1960s and the oil shocks of the 1970s determined sudden shifts in inflationary expectations that could not be accounted for by backward-looking and gradually adjusting adaptive expectations. The forward-looking instantaneous adjustment of expectations implied by the REH looked much more consistent with contemporaneous facts and favoured its success.

From the point of view of the history of economic thought, the shift of the foundational reference from the deterministic version of the general-equilibrium model to its version under uncertainty set the ground for a more realistic hypothesis of expectations formation consistent with the model. The shift from perfect foresight to RE added to the realism of the hypothesis without contradicting the main pillar of general equilibrium theory: substantive rationality. In fact the REH allows for *ex post*

errors of predictions, though only stochastic and therefore consistent with the postulates of substantive rationality (in particular that of intertemporal coherence). On the contrary, the AEH implies that the economic agents make systematic errors and correct them only asymptotically in sharp contradiction with the postulates of substantive rationality.

As for the methodological reasons of the shift from the AEH to the REH we observe that a serious problem with the REH, that was often underlined at the beginning, is that it assumes that the economy is always in equilibrium so that it is not possible to provide dynamic foundations to it. In other words, if we assume the REH we cannot provide a proof that the equilibrium is stable and the convergence is sufficiently rapid to justify the complete neglect of disequilibrium dynamics. In addition, in this case we have to neglect the systematic errors that characterize disequilibrium dynamics and the process of learning that aims to eliminate, or at least reduce, them. This huge obstacle to the acceptance of the REH was removed by the methodological argument, that however remained almost completely implicit in the debate, that the axiomatic foundations of general equilibrium theory provided by Debreu are sufficient and remove the necessity of dynamic foundations, since the empirical soundness of the models based on it is considered to be better assessed by statistical and econometric tests.

The main thesis of this paper is that the convergence of, and interaction between, the evolution of facts, economic thought and methodology explains the rapid demise of the AEH and the sudden success of the REH. However, each of these determinants raises unsolved issues that question the sustainability of the success of the REH. In addition the common reference to the REH of the classical and Keynesian macroeconomic schools restricts the terrain of debate between them and prejudices its outcome on many crucial issues. In the final part of this paper these problems are discussed and the possible ways out are synthetically assessed. The main conclusion is that it is time to free macroeconomics from the tyranny of the REH.