



Austrian Cycle Theory: Saving the Wheat while Discarding the Chaff*

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Well into the 1930s, Austrian contributions to business cycles and economic coordination stood at the forefront of economic theorizing. What is now labeled the Austrian theory of the business cycle was articulated originally by Mises (1912), with significant subsequent elaboration by Hayek (1935).¹ While the Austrian-type formulations represented a robust research program during that period, those formulations pretty much disappeared from economics in the 1940s, remaining alive only on a periphery here and there.² The Keynesian hegemony, however, began to disintegrate in the late 1960s. Macro texts now commonly portray a menu of conceptual options that include Classical, Keynesian, monetarist, new Classical, and new Keynesian varieties of macro theorizing. Despite various restatements of the Mises-Hayek insights in recent years, the Austrian insights have experienced no renaissance within the universe of macro theorizing. A curmudgeonly response to this observation would be that this is because those insights now have no value to add to the understanding of macro phenomena, principally because they have been rendered obsolete by the advance of economic theory. Indeed, this response has been advanced by several respected economists who are familiar with and broadly sympathetic with Austrian approaches to other economic phenomena. Tullock (1987, p. 73) asserts that “the Austrian theory is not a serious contender [as a theory of depression].” Cowen (1997, p. 101) presents a 13-count indictment of general incoherence against Austrian cycle theory that can only be described as being intensely

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¹That Mises and Hayek were among the most creative economists of their time whose work foreshadowed many developments in economics in our time, with the resurgent interest in Austrian economics yet having little to do with these developments, is characterized crisply by Foss (1995).

²The Austrian theory of the cycle was called by monetary overinvestment theory in the well known work of Haberler (1964) (though it is more aptly titled a malinvestment theory). To be sure, there was a strong Swedish component to this so-called Austrian theory. Mises took Wicksell as his point of departure, and such Swedish authors as Erik Lindahl and Gunnar Myrdahl made major contributions along similar lines in the 1930s. Moreover, similar orientations toward business cycles were written in the 1930s by such non-Austrian authors as Walter Eucken, William Hutt, Friedrich Lutz, and Wilhelm Röpke.

more negative than even Yeager's (1986, p. 378) description of the Austrian theory as "an embarrassing excrescence."

Contrary to such authors as these, I have a much more positive appraisal of the potential value of Austrian cycle theory. The realization of this value, however, requires not continued reiteration with ever louder volume of the canonical formulations of the 1930s, but substantial revision and renovation. While there is validity in the formulations of long ago, there is also obsolescence. Austrian cycle theory was formulated within an early version of the choice-theoretic framework of general equilibrium that dominates contemporary macro theory. While such an analytical framework was the only one available at the time Austrian cycle theory was formulated, continued developments in that framework have rendered Austrian cycle theory incoherent, as the critics noted above recognize.

There is, however, an alternative schema for economic theory that points in the direction of a coordinationist macroeconomics, where macro theory becomes spontaneous order theory writ large.³ Austrian cycle theory is properly located within the framework of a coordinationist theory even though it was initially articulated within the framework of a general equilibrium theory. To draw an antinomy between these two types of theory is not, however, to identify a coordinationist theory with any kind of disequilibrium theory, for I see no point to explicitly disequilibrium theorizing, in distinction to nonequilibrium theorizing (Katzner, 1998). The relevant contrast is rather between a theory where order is incorporated into the assumptions of a model, as in all versions of general equilibrium macro theorizing, and a theory where order is an emergent tendency or possibility of a model. Austrian cycle theory has no place within the confines of a general equilibrium theory, for all such theories neuter the distinction between *ex ante* and *ex post* by transforming it into an exogenous shock. Austrian cycle theory rather belongs within the corpus of a coordinationist macro theory, where the distinction between *ex ante* and *ex post* is an endogenous, enduring, and eternal feature of the human drama.

Austrian cycle theory circa 1935

The primary forerunners of Austrian cycle theory were published by Böhm-Bawerk (1884–1889) and Wicksell (1898). Böhm-Bawerk supplied an analytical framework that articulated a structure of production where capital goods occupied different niches with regard to remoteness in time from the point of final consumption. The production of consumer goods is supported by a complex structure of capital goods that incorporates a time dimension that can be gauged by proximity to the point of final consumption. For instance, someone who establishes a laboratory to do research on plant genetics with a focus on edible plants would be located more distantly with respect to the consumption of food than would someone who builds a plant to freeze dry foods. The structure of production in a society, what Böhm-Bawerk characterized as its average period of production, is governed by people's time preferences in conjunction with the yield they can expect to receive in the future from

³In this respect, Witt (1997) notes an unbridgeable chasm between Hayek's work on business cycles and his later work on spontaneous order. Some other illustrations of efforts to develop a coordinationist macro theory without explicit Austrian pedigree are Leijonhufvud (1995, 1996) and Bryant (1994).

postponing current consumption.⁴ An economy would be described not by the circular flow of income that appears in all the texts these days, but by a kind of river where the volume of consumer goods that flow through the terminus depends on the inflows from tributaries, and where those inflows do not reach the terminus without the passing of time.

With the rate of interest governing the length of the structure of production, Wicksell distinguished two kinds of interest rate, a real rate and a loan rate. The real rate was a theoretical construct, and was the rate of interest that was consistent with equilibrium in the structure of production. The loan rate was the rate that was available on the market. Should the loan rate diverge from the natural rate, a process of adjustment would be set in motion, the eventual result of which would be the restoration of equality between the natural rate and the loan rate. For instance, should the real rate rise above the loan rate, perhaps because of technological innovation, a cumulative process of change would be set in motion that would end when equality between the two rates was restored. The initial impact of an excess of the real rate over the loan rate would reside in the bidding up of the prices of capital goods and input supplies, which would generate increases in money incomes, leading in turn to increased demands for consumer goods.

Between Böhm-Bawerk and Wicksell, the path to the Mises-Hayek theory of the business cycle was a short one. In this theory, the source of deviation between the two rates of interest resides in an expansion, or contraction, of bank credit. Hayek took as his analytical task the problem of explaining cycles from a point of departure represented by Walrasian general equilibrium. The initial impact of credit expansion into what was otherwise a setting of general equilibrium would be to drive the loan rate of interest below the real rate. With loans available on more favorable terms, the relative profitability of more roundabout activities would increase. This can be seen readily through simple present value computations. Consider two projects, both of which are expected to generate a net return of \$100 million. Project A will do so after five years, while Project B will do so after ten years. With a discount rate of ten percent, the respective net present values of those projects are \$62.1 million and \$38.6 million. Should the appropriate discount rate fall to nine percent, as through a decline in the loan rate of interest, the net present values will now be \$65 million for Project A and \$42.2 million for Project B. While the fall in interest has made both projects more profitable, it has increased the relative profitability of Project B. Whereas the net return to Project A increased by 4.7 percent, the net return to Project B increased by 9.6 percent.

In the Austrian formulation, an expansion in the supply of bank credit would lead to a lengthening in the structure of production due to its systematic effect in increasing relative profitability more strongly the further away in time resides the increased volume of consumer goods anticipated to emerge from those projects. At this point, the path of the Austrian theory comes to a fork. There can be two different reasons for an expansion in bank credit, with different consequences depending on the source of the expansion. Along one path

⁴I write this in full recognition that there is a good deal of controversy within Austrian circles over whether interest is based wholly on time preference, as Mises held, or whether it is also influenced by productivity, as Böhm-Bawerk held. I bypass this issue here both because some resolution is not necessary for my thesis and because any such effort would extend the length of this paper well beyond its limit. For the same reasons, I avoid any commentary about the period of production or roundaboutness, save to say that it can be a helpful heuristic device even if it cannot be assigned a coherent measure.

lies an expansion that is made possible by an increase in consumer saving. This would be represented by a fall in time preference, which would result in an increased demand for money balances, and which would be revealed to banks as a reduction in adverse clearings. In this setting, it would be profitable for banks to expand their offerings of credit, and the resulting lengthening of the structure of production would represent a movement of the economy to a new, more capital-intensive general equilibrium.

The alternative path generates an unsustainable and self-reversing cycle. In this instance, the credit expansion results from credit creation that is not supported by increased saving, such as would be illustrated by a central bank's creation of new reserves. The build up of bank reserves will once again induce an expansion in bank lending, leading to a lengthening of the structure of production. While resources are transferred from places in the structure of production close to final consumption into more remote locations, there has not been any decreased demand for consumer goods. Time preferences have not changed, so consumer desires to spend are unchanged. Yet the volume of consumer goods production, as well as of capital goods close in time to those consumer goods, contracts as resources are shifted into the production of higher order capital goods. With consumer goods becoming scarcer relative to consumer demands, the prices of those goods will rise. This leads to revisions in calculations of commercial profitability, with consumer goods and lower-order producer goods now increasing in profitability. This reverses the direction of movement of resources and results in a shortening of the structure of production. The initial expansion in the structure of production was not sustainable in this case, so that structure subsequently undergoes a contraction. Both the initial expansion and the subsequent contraction are set in motion by the initial monetary expansion.

The Mises-Hayek exposition of the cycle reached its final form in the mid-1930s, and contemporary expositions have been predominately restatements.⁵ Both economic theory and the institutional arrangements within which economic life is organized have changed greatly during the intervening years, and these changes pose challenges for several of the specific contours of Austrian cycle theory. With respect to institutions, the gold exchange standard has given way to a purely fiat standard. Central banks have become active and ubiquitous participants in credit markets. Governmental participation in economic activity has grown several times over. As western economies have metamorphosed from liberal democracies, where government resides in the economic background, into social democracies, where government is an active participant in most markets, a variety of occupations and businesses have arisen that specialize in forecasting the timing and extent of all kinds of governmental actions, including those of the central bank.

Economic theory has also changed considerably since the 1930s, often no doubt in response to the analytical material offered by institutional changes. That a theory that was formulated in the 1930s could stand revision and emendation at the end of the 1990s is surely a reasonable thing to expect. There are features of the traditional Austrian theory that should be revised extensively, if not discarded entirely. Even Wicksell wondered about the impact of expectations on the cumulative process. In these days of massive and incessant

⁵The best-known of these restatements is surely Rothbard (1963). Among other notable contemporary restatements are O'Driscoll, Jr. (1977) and Garrison (1989, 1991). For an effort to blend Austrian cycle theory with a Georgist focus on real estate, see Foldvary (1997).

financial observing and reporting, some effort to incorporate rationality into expectations is essential for any theoretical enterprise. The rudimentary theory of general equilibrium that was incorporated into the canonical formulation of Austrian cycle theory has been refined extensively, and with part of that refinement involving a strong shift of emphasis away from the stability of equilibrium, where the focus is on processes of change and adjustment, onto the existence of equilibrium, where the focus is on the possible existence of a set of prices that would clear all markets.

Traditional Austrian cycle theory is not now a serious competitor as an explanation or characterization of economic fluctuations. This is not to say that it could not become competitive through revision and emendation. There are some features of Austrian cycle theory that are as valid now as when the theory was initially formulated. There are other features that must be replaced because they have been rendered obsolete through some combination of theoretical and institutional development. There is wheat that is worth saving and there is chaff that must be discarded. In illustrating this claim in the pages that follow, I shall refer mainly to what is surely the primary criticism that has been advanced against Austrian cycle theory, which is that the Austrian theory assumes that entrepreneurs are foolish in that they do not act rationally in forming expectations. This criticism leads in turn to the suggestion that if there is any merit in Austrian cycle theory, it resides not in an explanation of booms and busts but rather in an explanation of structural shifts in the pattern of economic activity without aggregate implications.

Traditional Austrian cycle theory proceeded by trying to blend two conceptual frameworks that just don't mix, one is a framework where order is an emergent phenomena to be explained and the other is a framework where order is a postulate to which the theoretical exercise must conform. The emergent order framework is truly central to the Austrian orientation, and it is through a development of this framework that Austrian cycle theory is likely to have value in the future. A central feature of this framework is the recognition that money, like language, is a means of thinking, and that there can be no economic calculation without money. The real economy is accessible only indirectly through money-assisted inference. Related to this feature is a recognition that macro phenomena emerge out of complex interactions among individuals, which in turn, renders dubious all efforts to explain macro phenomena with reference to other macro phenomena.

In the traditional Austrian theory of the cycle, these features from a framework of emergent order are joined to a framework of postulated order that renders those central Austrian features impotent, particularly in light of the modern shift of emphasis in general equilibrium theory away from stability onto existence. Austrian cycle theory took the theoretical conventions of the 1930s as a starting point because there was no viable conceptual option. No techniques were then available to study processes for the generation of coordination. All that could be done was to assume such coordination as a point of analytical departure, even if this point of departure were subsequently to render impotent the more foundational points that money is an instrument of thought and that aggregate variables are not objects of choice but only emergent outcomes.

Economic theory is no longer so limited. Austrian cycle theory simply has no place within a framework of postulated order. Its proper home is within the confines of a framework of emergent order. The ultimate evaluation of Austrian cycle theory will depend on its

explanatory power within that conceptual framework, about which it is now too early to offer firm conclusions. Nonetheless, a consideration of some elements of such a framework would at least counsel against too ready an abandonment of Austrian cycle theory. In 1965 western Fairfax County, Virginia seemed to be a pitiful location for an airport. There was little by way of the complementary structure of residential and commercial activities that would render Dulles vibrant. This obviously is no longer the case. I would suggest in similar fashion that Austrian cycle theory looks weaker than it is because the supporting intellectual capital goods, in the form of a well articulated alternative to the choice-theoretic, general equilibrium style of macro is not presently well developed. When that supporting structure becomes more fully refined, the prospects are strong that Austrian cycle theory will be standing in relatively good form because it is consistent with the foundational, enduring qualities of traditional Austrian theorizing, even if its details may be modified by those impending developments.

The specific Austrian story of a shift in the structure of prices due to an expansion of credit is simply one particular way of recognizing that the central focus of macro theory should be on coordination, because macro variables are not objects of choice but only emergent outcomes. There are many specific ways that such a coordinationist focus can be implemented, the particular details of which will depend both on particular institutional formations and on the arsenal of conceptual tools that are available. Austrian cycle theory has much of value to offer to this coordinationist macro enterprise, even if it must be acknowledged that there are specific formulations from the 1930s that must be abandoned or reoriented. The problem with Austrian cycle theory is not that it is fundamentally flawed, but that the supporting structure of intellectual capital goods is incomplete. A cycle theory is but part of a more general theory of macro phenomena. The Austrian theory is nonsensical if it is imported into contemporary macro theory because contemporary macro theory is inconsistent with the emergent order foundation that is central to the Austrian orientation. The coordinationist, emergent order formulation of macro phenomena, which is the proper home for Austrian cycle theory, is currently in a greatly underdeveloped state.

Reason, rationality, and expectation

The primary line of informed criticism of traditional Austrian cycle theory is that it ignores some elementary requirements of rationality in economic life and modeling. The traditional exposition of Austrian cycle theory is certainly open to this criticism. This is seen most easily by starting from the Hayekian initial position of general equilibrium, and then comparing a general reduction in time preferences with a sudden expansion in central bank holdings of government debt. The fall in time preference leads to an increased demand for capital goods and a lengthening of the structure of production, as the increase in saving finances an expansion in capital investment. The increased holding of government debt by the central bank is likewise held to finance an expansion in capital investment, only in this case the saving that finances the investment is forced and not voluntary.

The comparative statics of these two cases seems clearly to presume that people possess but weak capacities to form expectations. The fall in time preference leads to a permanent shift in the structure of production, whereas the monetary expansion brings about

an oscillation in the structure of production, with an initial increase in roundaboutness subsequently followed by a decrease. The central bank's expansion of credit is treated as indistinguishable from a general increase in the desire to save. Both instances arrive as surprises, and the two types of surprise are indistinguishable from one another. This situation might have had plausibility when Austrian cycle theory was initially formulated. The collection of economic statistics was primitive. Central banks were committed to exchanging their notes for specie. There was no developed community of financial observers and Fed watchers.

Throughout the postwar period, however, we have become ever increasingly removed from that earlier time. Statistics, observers, and pundits are everywhere. A cycle theory that depends on the inability of people to distinguish, in the aggregate, between an increase in personal saving and an increase in central bank holdings of government debt must rightfully be dismissed on the grounds that it fails to incorporate any reasonable requirement of individual rationality in economic action. The aggregate data are widely and readily available. Austrian cycle theory is animated by a clustering of entrepreneurial error, and in the canonical statements that error would seem to reside in the inability of entrepreneurs to distinguish an increase in saving from an increase in central bank holdings of government debt.

Any such cognitive limitations is clearly untenable, particularly in light of the heavy emphasis placed on entrepreneurship in Austrian economics. A presumption of rationality in expectation is surely a requisite for any kind of Austrian theorizing. Perhaps more than any other set of economists, Austrians have stressed the forward-looking character of economic action. It is this feature that makes entrepreneurship so central to Austrian economics. It is through acts of entrepreneurship where the future is made. By contrast, the Lange-Lerner scheme of collectivist planning illustrated a version of adaptive expectations, in that it looked backward to what was already known and in existence. There is no way that such a planner could announce prices for what had not yet come into existence.

How is it possible to claim validity for Austrian cycle theory in the face of rationality in expectations? Such validity cannot be based on any claim that people cannot distinguish changes in saving from changes in central bank holdings of government debt. Rather, it must be based on some claim that this *ex post* distinction is irrelevant for the *ex ante* actions that generate the *ex post* observations. This requires a framework that allows for divergent expectations, in contrast to the homogeneous expectations that characterize a postulated order framework.

Austrian cycle theory can well incorporate rationality in expectations, indeed, must do so. This incorporation, however, must simultaneously be accompanied by a rejection of a theory of postulated order and its replacement by a theory of emergent order. Once this is done, expectations about aggregate variables become irrelevant, or at least insufficient, for rational conduct. A requirement of rationality in expectation is unquestionably a reasonable requirement to impose on an economic theory, and the traditional formulations of Austrian cycle theory fail in this regard. This does not render invalid the central Austrian insights, though it does say that the Austrian insights do need to be modified with new pieces of complementary intellectual capital.

What is surely most notable about people and their expectations, however, is their heterogeneity and not their homogeneity. This heterogeneity starts with biology, and from there

spreads throughout the social and economic universe. One aspect of this heterogeneity would be differences among people in their objects of expectation. Expectations combine reason and imagination, and are always focused on particular objects located in the future, and with people differing in their objects of expectation. Entrepreneurs who made their commercial choices based only on expectations about future price levels would be acting foolishly in the extreme. Future values of price indexes might be of strong concern to bond traders and other dealers in financial paper, but these activities comprise only a small part of the universe of economic activities and, moreover, such people would also have other objects of expectation as well. For someone who owns an auto repair shop and is trying to decide whether to expand his facility or to move to a new location where a larger facility is already in place, his expectation about the future general price level is surely far down his list of concerns, and may not appear at all. It would surely be the same for the vast preponderance of commercial decisions where people are making choices now to commit resources to particular uses, when the results will not be known until some future time. There would be many different particular objects of expectation, depending on the particular activity about which expectations are being formed.

We should expect an economy to be characterized by a plethora of objects of expectation, as well as there being differences among participants in the identity of the objects of interest to them. There would be no common object of expectation, an index of prices, that would govern and order the macro economy. Order within the macro economy would have to be explained against a backdrop of heterogeneity among people and their objects of expectation, and would reflect a theory of spontaneous order on a large scale. On the contrary, the postulated order form of macro theory invokes an aggregate price level as the navigational aid on which all market participants take their commercial bearings, because all individual objects of expectation are postulated to be consistent with the aggregate price level.

Emergent order, general equilibrium, and cycles

Nearly all macroeconomic reasoning that commands professional attention these days is based upon general equilibrium modeling. To be sure, different authors use different kinds of general equilibrium modeling. The new Classical formulations model economic relationships as perfectly competitive. Variations in employment are regarded largely as responses to what are believed to be transitory changes in real wages, under the presumption that the elasticity of labor supply is quite low with respect to permanent changes in real wages. Variations in unemployment are thus voluntary reactions to new information about transitory opportunities. In contrast, the new Keynesian formulations model economic relationships as imperfectly competitive, and thus generate various arguments as to how involuntary, Pareto inefficient unemployment can result. This is illustrated by a melange of models that include such notions as menu costs and efficiency wages, and which seek both to attribute variations in unemployment to stickiness in product and factor prices and to classify those variations as Pareto inefficient.

Regardless of the details of particular formulations, what is surely most notable about these formulations is the strength of their common attachment to general equilibrium modeling, where order is a postulate of the model rather than an unintended, emergent property. Controversies among new Classicals and new Keynesians over macroeconomics are clearly

instances of family feuds. This is not to deny that the feuds can be intense and the positions involved strongly held. It is merely to note that to an outsider to these feuds, the commonalities that unite the participants seem to run more deeply than the particular points that divide them.

General equilibrium theory can be a valuable vehicle for organizing thought about economic matters, even if it is not an adequate description of the character of economic life, precisely because it ignores the change, creativity, and cacophony that are natural elements of human life and the economic process. The central core of general equilibrium theory expresses elegantly the interconnectedness of economic life (as expressed by Yeager, 1998). General equilibrium theory shows clearly and cogently how any statement that one might make about the product side of the market translates directly into implications for the factor side of the market. Walras' Law that aggregate excess demands are identically equal to zero expresses a fundamental principle against which to check the clarity of thought on macro questions. Walras' Law does not deny the possibility of miscoordination, but only notes that miscoordination will always have a kind of symmetrical character.

The challenge is not to abandon general equilibrium but to move beyond it, and in a way that incorporates change and development while at the same time recognizing the constraints and limitations that the interconnectedness among people and their activities presents (as noted by Vaughn, 1998 in particular reference to Hayek). To be sure, it is often claimed that the objective of the modeling enterprise should be one of constructing a general equilibrium model that can generate data that look similar to actual time series. If the fit is good, so must be the model. One problem with this formulation, of course, is that goodness of fit is a matter of what the beholder wants to see. Even a good looking fit, moreover, whatever that might be, does not by itself commend to us the theoretical construction that was fitted.

For the humane and social sciences, an alternative, or perhaps complementary, standard to goodness of fit would be to require a congruence between the salient features of a model and our knowledge of human capacities and interests. This would require that economic models be populated by people we can recognize, and who perform tasks that are within their competence. It would also entail an injunction against hiding contrary arguments in black boxes that are padlocked with as-if statements.

Let me give an illustration of what I mean by this distinction. In his treatment of the Poisson distribution, Feller (1968, pp. 160–161) examines the distribution of bomb hits in London during World War II. With London divided into small areas of one-quarter square kilometer, the conditions for a Poisson approximation to the binomial distribution would seem to hold. For Feller anyway, the distribution of bomb hits across small areas in London generated a good fit by his reading of the Chi-squared criterion. A model that held that everywhere in London was equally likely of being hit by a bomb would thus be confirmed by this test.

But is this test of goodness of fit a satisfying basis for reaching the judgment that bombs were equally likely to fall anywhere? Is it consistent with what we know about human capacities and interests? Bombers during World War II had bombardiers whose task was to sight bombs against targets, determining when to release a bomb so it would hit the target on the ground. The task of the bombardier in a plane was similar to the task of a recoilless rifleman on the ground trying to hit a moving tank, or even of a hunter shooting at a deer. Even with the wire-guided weaponry available these days, not all shots or bombs hit their

target. They are generally close, however, and more so now than with the equipment of World War II.

Nonetheless, bombing during World War II was not a random matter of just flying to London, dropping bombs somewhere, and returning. There were targets and there was good reason to think that under good conditions good bombardiers could be fairly accurate, though with a variance that would be larger than what we would expect these days. To be sure, conditions are never good for bombardiers on bombing runs. Nonetheless, the distribution of bombing hits on London is fully consistent with a notion that the German air command thought that some areas within London contained more valuable targets than other areas and, moreover, under the circumstances did a reasonable job of apportioning their bombs. A marginal productivity theory for the distribution of bombs would surely seem more satisfactory as an explanation for the distribution of bombs than the purely random explanation. The reason for this judgment has nothing to do with goodness of fit, however, and has everything to do with the congruence between that observation and our ability to find a humane grounding for our model of the situation.

The distinction between postulated order and emergent order and its relevance for Austrian cycle theory, and macro theory generally, can be characterized by a comparison between two frameworks for the organization of the movement of large numbers of people. The postulated order of general equilibrium theory is suitable to explain the movement of troops on a military parade ground. The movement of the troops past the reviewing stand has been coordinated prior to the march. There can be no endogenous sources of surprise in this set up. Surprises can only be exogenous. A vehicle might break down. A horse might stumble or fall. A soldier might faint or die. Absent these exogenous shocks, the parade will proceed exactly as planned because the movement of all participants in the parade had been coordinated prior to the start of the parade.

The emergent order theory is suitable for explaining the movement of the spectators who are leaving a stadium after an event. There is no precoordination among the spectators. Some spectators will leave hurriedly to get ahead of the traffic jam they anticipate will soon form. Others will linger over a beer and hot dog, visit with friends, and leave after the traffic has begun to subside. Most of the spectators will leave at a normal pace, though heading in a variety of destinations. This exit will mostly be orderly, with only a small amount of pushing and shoving, along with an occasional cut or bruise as someone gets knocked about. It would be pointless to say that the exodus is accomplished "as if" it were coordinated in military fashion. The use of such a fiction is surely to parade ignorance as knowledge.

The coordinated movement of spectators is achieved through a variety of means. Such conventions as walking on the right and elemental courtesy assist in the coordination. So to do such things as traffic lights and police barricades. These rules and institutions provide the framework that generates the observed coordination, on the spot, so to speak, and not in advance. In this process, there will doubtlessly be coordination failures, false trades so to speak. Forms of capital gain and loss will be endogenous to the process of leaving a stadium. People who came together but sat in different locations may agree on a meeting place after the event. In most cases they meet up quickly and get to a particular restaurant before it becomes full. But not always. A spectator may have twisted an ankle on leaving, fallen down, thereby causing a traffic jam and inducing people to rush for other exits. As a

result, the planned meeting is delayed long enough so that the restaurant is already full by the time the friends arrive.

What does the distinction between postulated and emergent order have to do with the impact of an increase in central bank holdings of government debt and with the veracity of Austrian cycle theory? It is, of course, a strong empirical regularity that increases in money growth are accompanied by increases in real output in the short run. There are several ways to account for this regularity within the conventional context of an expectations-augmented Phillips curve, including informational asymmetries and price rigidities.

To sharpen the focus on the distinction between postulated and emergent order as it pertains to Austrian cycle theory, however, I will assume that price rigidities are absent and that there is full knowledge of the monetary expansion. Within the framework of postulated order, there has been no change in real variables and the monetary expansion will have no effect on the real economy. The conventional aggregative version of what I have just described is a Phillips curve that is vertical always, and in which the increase in central bank holdings of government debt present no opportunities for a profitable credit expansion because nothing has changed in real terms, in the aggregate.

Does it follow, within a theory of emergent order, that there is no scope for the monetary expansion to inject entrepreneurial errors into the economy? A theory of emergent order would start from the *ex ante* actions of participants and seek to explain the emergence of order through market interactions as mediated by an array of institutions and conventions. A credit expansion will take place if lenders and potential borrowers recognize opportunities for profitable trade, even if there are no such opportunities in the aggregate.

Consider a miniature economy with 100 lenders, each of whom had lent 100 units prior to a credit expansion. The credit expansion increases each lender's reserves so as to expand lending ability to 110 units. Under the postulated conditions, all lenders would put their increased reserves wholly into treasury bills and similar assets. The aggregate volume of loans would be unchanged. A theory of emergent order would seem to offer several avenues by which an actual credit expansion might occur. It will occur if there are individual contractual opportunities that appear profitable, and a claim that in the aggregate there are none, is irrelevant because the aggregates do not determine individual terms of exchange, but rather are aggregative reflections of myriad individual exchanges.

A claim that in the aggregate lenders cannot increase their volume of profitable loans does not mean that no loans will be made by rational, profit-seeking lenders. An *ex post* postulation of zero profits in the aggregate translates into an *ex ante* expectation of zero profits for all lenders only through the invocation of general equilibrium as a modeling constraint. Otherwise, there is plenty of reason to think that some credit expansion will result. For one thing, few people think of themselves as average or representative competitors in any field of endeavor. It may be generally believed that only a relatively few new opportunities for profitable loans will materialize. There is, however, no selection procedure that chooses those opportunities and matches them to lenders. In a process of open competition where most competitors think they are above average, it is surely plausible that an aggregation of *ex ante* commercial calculations will lead to an expansion in the volume of loans.

Furthermore, credit contracts are created in a historical sequence, and all of them are thought to be *ex ante* profitable. At any subsequent moment, however, there will surely exist credit contracts that now seem to be less profitable than potential contracts. A credit expansion would allow lenders to exploit genuine profit opportunities. Only in a framework

of postulated order, where the real economy is presumed to move down various marginal productivity schedules, would it be said that the particular credit contracts that were generated through credit expansion would be identical to the enterprises that went bust in the subsequent contraction. To be sure, I do not advance these illustrations as any kind of last word on this topic, but only as a way of illustrating the gulf that separates the conduct of individual participants in the economic process from aggregate outcomes of interaction among those participants, at least within the postulated order approach to macro theory.

Simplicity, complexity, and coordinationist microfoundations

There is no dispute these days that a good macro theory should be consistent and conformable with the central features of the micro economy. There is close to universal support for the principle that macro theory should rest on microfoundations.⁶ There are, however, two different ways that a principle of microfoundations can be put into practice. The existing literature seeks to postulate choice-theoretic foundations for macroeconomics. The maximization of utility by Robinson Crusoe is the paradigmatic model that guides the search for microfoundations. Macro phenomena are simply micro phenomena spoken of more loudly. For instance, individual firms are thought of as moving along supply and marginal product schedules, and it is the same for the aggregate economy.

The alternative to a choice-theoretic foundation for macroeconomics is a coordinationist foundation.⁷ While a choice-theoretic foundation might be workable for a small reclusive tribe here or there, for modern complex societies only exchange and its various extensions can provide a suitable framework for approaching microfoundations. Only in this way can there be an order of movement from simple to complex that corresponds with the distinction between micro and macro. Suppose you were standing in a balloon as it sat on the ground at an intersection in a city. From this vantage point, you could see numerous details of your immediate surroundings. You would recognize people's faces, license numbers on cars, and the items in storefront windows, but you would see nothing beyond that intersection. As the balloon lifted off, some of this individual detail would start to become less distinct, but you would also start to things that lay beyond the intersection below you. As you continued to ascend, you would continue to see ever less detail while getting better views of patterns, relationships, and connections. Regardless of the elevation of the balloon, you would be observing the same process, only from different vantage points.

It should surely be the same for micro and macro vantage points in economics.⁸ The economy is a dense network of transactions that no one can control or apprehend in its entirety in any great detail. If macroeconomics rested on adequate microfoundations, it would involve analytical constructs that were consistent with spontaneous order and related notions. To hold that the microeconomy is created through the development of networks

⁶For a lucid and penetrating survey of this literature, see Janssen (1993). Horwitz (forthcoming) presents a careful examination of the search for microfoundations from a perspective similar to that advanced here.

⁷All of the authors listed in footnote two would surely have adopted a coordinationist over a choice-theoretic foundation for macroeconomics, had they been presented with that choice.

⁸Lindahl (1939) adopted this type of distinction when he used micro to refer to individual subjects and macro to refer to any collection of subjects, as I was reminded in reading Currie and Steedmann (1990, pp. 72–107).

of transactions, and then to treat the macro economy in simple choice-theoretic terms is clearly a backwards movement, from more to less complex phenomena. The standard variables of macroeconomics, rates of growth, levels of employment, and rates of inflation, are not objects of choice for anyone, but rather are emergent outcomes of complex economic processes. Governments may do things that might influence the subsequent measures that are assigned to those variables, but this is a very different thing from choosing values for those variables.

Macro and micro would thus both be concerned centrally with the coordination of economic activities, and would do so within an analytical framework where economic outcomes are not objects of policy choice but emerge through interactions among participants within the economic process. False trading wreaks havoc with the calm facade of general equilibrium modeling. Yet it is surely a ubiquitous feature of reality. Furthermore, the interlocking character of networks of transactions means that the revision of plans at one node in a network will lead to some readjustments of plans at other nodes. Ups and downs, revisions of plans, and windfalls, both positive and negative, are an endemic feature of the economic process. They occur within the economy, and not outside of it as exogenous shocks.

Two types of cycles and the problem of policy

Traditional Austrian cycle theory treats cycles as undesirable deviations from normally stable conditions. The blame for this instability is generally placed on fractional reserve banking, particularly as supported by central banking, and with central banks often acting to support governmental fiscal policies. The remedies that have appeared in the Austrian literature seek to address these sources of instability in one fashion or another. Currency competition and free banking are at the forefront of most Austrian proposals for a program for economic stability.⁹ Other suggestions can be found in the Austrian literature as well, and there is also some controversy about whether fractional reserve banking should be permitted or should be replaced with a requirement of 100 percent reserves.

Space constraints prevent any consideration of claims about central banking and cycles here. There are, however, two claims that I would want to advance in closing: (1) variability in economic time series is not necessarily a sign of poor economic performance and (2) constancy in economic time series is not necessarily a sign of good economic performance. With respect to the first of these two claims, growth and fluctuations are both endogenous features of the capitalist process, as noted long ago by Schumpeter (1912, 1939). Observed variability in aggregate data might be a sign of avoidable and correctable miscoordination, but it can also be a sign of progress in an interdependent world with capital complementarity. There would thus be two types of cycles, one that was consistent with the orderly coordination of economic activities in a complex environment and another that emanated from disruptions to the processes of orderly coordination.

The second claim means that just because stability is observed in aggregate variables, does not mean coordinative processes are working as well as they might. It could mean only that people are able to adjust quickly to disturbances. Consider first of all a simple micro-level illustration of what I have in mind. A ceramist makes tile murals. Suppose by

⁹See, for instance, Hayek (1976), Selgin (1988) and White (1989).

working hard she can assemble 1000 tiles in a month. In one case, everything goes well and at the end of the month she has 1000 useable tiles to put into her murals. There are also many things that can go wrong in this process. The clay may dry too quickly and crack. The kiln temperature may not rise exactly as anticipated, with the result being that some glazes do not show the colors that were intended. As a result the ceramist has to divert some of her time away from making finished tiles into responding to the various exogenous shocks to her studio. For instance, rather than putting some clay tiles into a kiln to be fired, she may have to rehydrate that clay and start over. Because of these diversions required to respond to the shocks that disrupted her anticipations, she may be able to make only 700 tiles. But this does not mean that she is 30 percent unemployed. Rather it means that she has shifted into a different pattern of activity.

Suppose we analogize the ceramist's situation to standard macro formulations of shocks to the economy. The first instance is one of full employment equilibrium. In the second instance, her studio is hit with negative shocks that she had not anticipated. Yet full employment continues to exist, only with a different pattern of activities in the face of disruptions than when those disruptions are absent. Miscoordination implies errors in plans, at least as regarded from a posture of omniscience. A rise in the volume of miscoordination means that there will be some shift of human activity away from executing original plans into activities that revise or reorient plans that have proven unsatisfactory.

An economy can be represented by a network of human activity, some of which is engaged in executing original plans and some of which is engaged in rectifying plans that have judged to have been unsatisfactory. This distinction between types of activity is, of course, an analytical and not an empirical distinction. There is no way that a census could be taken to determine how much activity is devoted to executing plans and how much is devoted to revising plans that have been judged unsuccessful. Yet this analytical distinction follows from the claim that the degree of coordination is a variable that can be influenced, for good or for bad, depending on a variety of institutional arrangements and policy measures. An increase in the volume of miscoordination in a society will shift the pattern of activity in a society, but it need not alter the total volume of activity, and would represent a meaningful notion of waste instead, as noted by Hutt (1943).

In traditional Austrian cycle theory, micro disruption in the pattern of prices leads to boom followed by bust. Both the boom and the bust result from the reactions of market participants to nonsustainable price signals. There is no need to consider rationality in anticipations again at this point. Still, it does not follow that nonsustainable price signals must show up as variations in aggregate series through time. It is conceivable that miscoordination could increase without any impact on aggregate time series. Miscoordination induces revisions in plans. Labor is shifted from the execution of plans to the revision of plans. It is conceivable that this shift of labor can be accommodated within an unchanged aggregate volume of employment.¹⁰

Using a normative language, cyclical variability may be either good or bad. It depends on the source of the cyclicity. In like manner, the absence of cyclical variability can be either

¹⁰While I have used what might seem to be a labor market point of reference in this section, this is not really the case. The emphasis placed on the creation and revision of plans involves a shift of emphasis from labor markets to capital and enterprise, as compared with customary macro formulations.

a good thing or a bad thing. It depends on the degree of coordination that is present. A benevolent policy maker would seem to face an insoluble problem of knowledge. It would be necessary to be able to distinguish good cycles from bad, a task rendered even more difficult by a recognition that both features may be present at the same moment. It would also be necessary to know when aggregate stability is a sign of a smooth coordination of plans and when it rather means simply that there are no rigidities or inflexibilities to impede people's revision of plans.

The active promotion of stability in aggregate time series is neither per se desirable nor is it possible. Aggregate outcomes are emergent outcomes and not direct objects of choice. There is no sense to a policy aimed to prevent cycles, any more than it would be sensible to prevent traffic delays. What is sensible is to seek to preclude unnecessary cycles or disturbances to the coordination of economic activity. Policy for a coordinationist macroeconomics would be of the same genre as policy generally, and would be concerned with providing and maintaining a framework within which people can order their activities. The pursuit of a truly activist stabilization policy will be both impossible and mischievous. Appropriate macro policy cannot aim to achieve particular values for macro variables, for these variables are not objects of choice. Appropriate macro policy is indistinct from appropriate micro policy, and both involve the creation and maintenance of a constitutive framework within which people can generate orderly patterns of economic activity.

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