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Review Essays

Institutions, Emergence, and Macro Theorizing: A Review Essay on Roger Garrison's *Time and Money*.

In the mid-1930s, the approach to macro phenomena associated with Ludwig von Mises and Friedrich Hayek figured prominently in the macro analytics of the time, as noted in the contemporary surveys by Alec Macfie (1934) and Gottfried Haberler (1937). Within two decades, however, the Mises-Hayek formulation had disappeared from the analytical radar screens of macro theorists. This disappearance, moreover, cannot be attributed to any kind of gross explanatory failure on the part of that framework relative to the other frameworks that were present. The Mises-Hayek framework predicted the eventual bust of the inflationary boom of the 1920s, as Murray Rothbard (1963) explains. The severity of the Great Depression, moreover, can be generally reconciled with the Mises-Hayek framework. Among the means for doing this are to take into account the secondary deflation that was set in motion by the initial contraction and the negative supply-side shocks that were generated by the Hoover-Roosevelt efforts to socialize or syndicalize large segments of the American economy.[1]

Garrison's central claim in *Time and Money* is that the state of macro theorizing lost valuable insights and sources of influence with the disappearance of the Mises-Hayek orientation toward macro theorizing. In the 1930s, Keynes and Hayek were both major figures on the macro-theoretical landscape. In the mid-1950s, Keynes's ideas were still at the forefront but Hayek's had been replaced with the monetarism associated with Milton Friedman. Garrison argues that macro theorizing has never recovered from the Keynesian ascendancy and the Hayekian disappearance, and in *Time and Money* he seeks to promote the professional recovery of what was lost.

Garrison approaches this act of recovery by inserting the Mises-Hayek orientation onto the stage of macro theorizing as it existed circa 1960. In terms of *dramatis personae*, the macro stage at that time was dominated by J. M. Keynes and Milton Friedman. It is on this stage that Garrison inserts F. A. Hayek. He does this by articulating three models of macro theorizing, with the book organized around the presentation and elaboration of these three models. These models Garrison describes as labor-based or Keynesian macro, money-based or monetarist macro, and capital-based or Austrian macro.

We agree with Garrison that the relegation of the Mises-Hayek orientation to side show status was a loss for macro theorizing. Yet we do not think that *Time and Money* will set in motion a rearrangement of the main stage of macro theorizing. The universe of macro discourse circa 2000 is dramatically different than the universe that existed circa 1960 or circa 1940. Garrison's strategy is to restate the Mises-Hayek formulations with modest embellishment. Garrison seeks to recover what was lost, but does not try to build anything new. We think the market for recovered intellectual artifacts is justifiably thin. We do not think there will be any return to the halcyon years of Mises and Hayek. Any Austrian return

to the main stage of macro theorizing will require new efforts at conceptual construction. These efforts would not deny the value of Mises and Hayek for their time, but would bring new analytical formulations and techniques to bear on macro theorizing. What is required is not an effort to recover what was lost, but an effort to create the contemporary analytics that might have been created had Austrian macro theorizing continued to evolve since 1940 with the same robustness that it exhibited before 1940. The Austrian tradition in macroeconomics does not need to be restated; it needs to be rescued from historians of economic thought and reformulated as a new research program.

We shall first present Garrison's framework for macro analysis, after which we shall describe why we doubt that the formulations presented in *Time and Money* will evoke an Austrian revival among macro scholars. In the subsequent two sections we sketch briefly two possible directions for an alternative line of macro formulation that moves beyond the Mises-Hayek formulation, though in a friendly and not antagonistic fashion. One of these directions involves the incorporation of institutions into macro theorizing in place of the fictions that are currently invoked. The other direction involves the assimilation of macro phenomena to emergent theorizing. Both of these directions find precedent in Mises and Hayek and both are now receiving increasing scholarly attention.

Garrison's Macro Trichotomy

Macro theorizing circa 1960 was dominated by the dichotomy between Keynesianism and monetarism. Keynesians held that aggregate demand was volatile, due primarily to the sudden surging and waning of animal spirits that rendered investment spending unstable. The promotion of stability required that government offset such autonomous changes in private spending. Monetarists denied that private spending was volatile. They argued that the demand for money was relatively stable, with any instability resulting from government's mismanagement of its control over the supply of money.

Garrison claims that this dichotomy should have been a trichotomy, with the third participant being the Mises-Hayek or Austrian macro theoretics. This trichotomy, moreover, is said to reflect an underlying trichotomy in the possible forms of macro theorizing. One possible form of macro theorizing is *labor-based* macro, to which Garrison assigns Keynesian macro. The analytical focus is on labor, and the bulk of analytical effort is directed at explaining variations in the volume of employment through invoking various forms of nominal and real rigidity that clash with notions of continuous market clearing. A second possible form of macro theorizing is *money-based* macro, which Garrison identifies with monetarism. The analytical focus is on money, and the analytical effort is directed to explaining how macro instability arises out of monetary instability. The third possible form of macro theorizing is *capital-based* macro, which Garrison identifies with Austrian macro. The analytical focus is on capital, and the analytical effort is directed at explaining how monetary instability can generate maladjustment throughout the entire capital structure of the economy. Garrison proceeds by setting forth the capital-based framework first, and then comparing this framework with the labor-based and money-based frameworks. He allocates about half his space to capital-based macro, with the remaining space allocated about equally between labor-based and money-based macro.

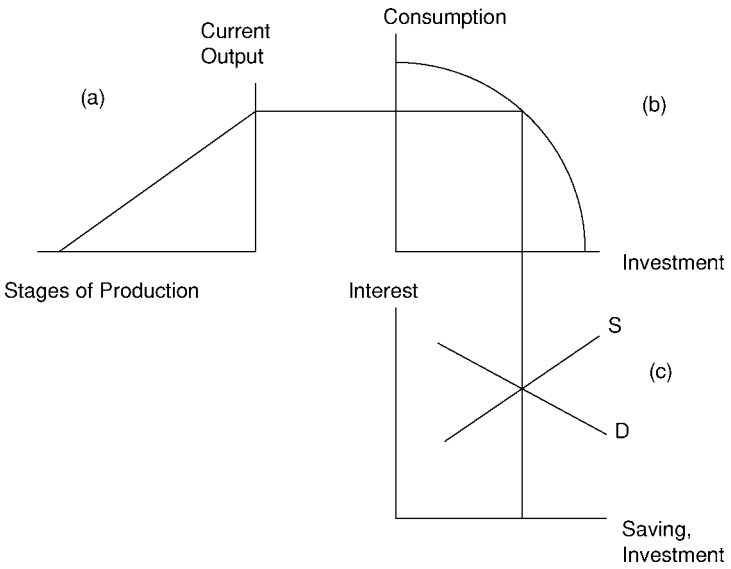

Figure 1. Garrison's central macro model.

The central analytical construction of *Time and Money* is Garrison's capital-based macro equivalent to Hicks' IS-LM rendition of Keynesian macro. What Hicks did for Keynes, Garrison. seeks to do for Hayek. This construction appears first as figure 3.7 (p. 50), the elements of which were assembled in the preceding pages, and which is repeated here as figure 1. Panel (a) of this capital-based macro model is the familiar Hayekian triangle. The production of consumer goods is supported by various capital goods in the earlier stages of production, with the slope of the Hayekian hypotenuse reflecting the rate of interest. Panel (b) shows a standard production frontier, where the amount of consumption is given by the structure of production shown in Panel (a). Panel (c) describes the market for loanable funds, and shows an interest rate that generates the amount of investment and saving that is consistent with the structure of production shown in Panel (a). Just as an equilibrium can be described in the IS-LM model, so can an equilibrium be described in the capital-based macro model. There will be an interest rate at which saving and investment are equal. This equality locates a particular point on the production frontier. The amount of consumption portrayed by that frontier, along with the rate of interest, establishes the base and slope of the Hayekian triangle.

From this capital-based macro model, Garrison undertakes a number of analytical exercises. The primary exercise involves a comparison between a fall in the rate of time preference within an economy and an expansion in bank credit. It is easy to perform comparative static exercises on figure 1, just as they can be performed on IS-LM models. A lowering of the rate of time preference, for instance, would flatten the Hayekian triangle in Panel (a). Current output would be lower, which would generate an alternative allocation between consumption and investment in Panel (b), with more investment and less consumption. This would show up in Panel (c) as an outward shift in the supply of saving and a fall in the rate of interest.

There are no significant surprises in Garrison's macro model, for it is a straightforward presentation of the standard Mises-Hayek formulation. In contrast to a fall in time preference, a credit expansion provides the same initial impulse to the economy. The rate of interest falls, the demand for investment goods increases relative to the demand for consumer goods, and the structure of production lengthens. Consumers, however, have not reduced their demand for present relative to future consumption, so the initial lengthening of the structure of production is financed by forced and not voluntary saving. In consequence, that initial lengthening will be reversed. This reversal will come about through consumers bidding up the prices of consumer goods, which will make the production of consumer goods more profitable than would have been the case had time preferences fallen.

Garrison exposits clearly and crisply the Mises-Hayek macro framework as it was set forth in such works as Hayek (1935, 1941). Just as one could perform macro analytics with Hicks' IS-LM apparatus, so could one perform macro analytics with Garrison's three panel summary of the Mises-Hayek framework. Garrison also adds novel insights, as in extending the standard credit expansion illustration to incorporate such recent developments as the growing collectivization of commercial risk. Despite this bit of novelty, there are no analytical formulations in Garrison's presentation of capital-based macro that would have surprised a reader from the mid-1930s.

Recovering the Past while Losing the Future

There is no doubt that Garrison does a fine job of translating Austrian-style macro theory circa 1940 into the style of macro analytics circa 1960. He is truly a master of this material. What we do doubt, though, is that *Time and Money* is the right vehicle for bringing Austrian-style macro back onto the main stage of macro theorizing. His trichotomy is more muddying than clarifying. His analytics give no reason for macro theorists to abandon the formulations with which they presently work because those analytics provide no alternative positive heuristic to attract macro scholars. Garrison's ultimate failure is that he does not explore what it is that he and other Austrians believe make Hayek's mode of analysis substantially different from similar models that have been advanced and rejected within the profession since the 1960s.

What are we to make of a mental map that holds that macro theorizing is dominated by no longer used labor-based and money-based models, both of which are inferior to the capital-based macro that was relegated to the macro hinterland after 1940? Garrison's desire to expand the macro dichotomy into a trichotomy might perhaps have resonated better with macro theorists circa 1960 than we think it will resonate now. The dichotomy between Keynesianism and monetarism was then being vigorously pursued by macro theorists. Even at that time, however, reasonable questions might have been raised about how much value added the Austrian contribution might bring to the monetarist effort. The two seemed largely to arrive at the same place, save only that the Austrian path of getting there was more roundabout. Indeed, Garrison treats Austrianism and monetarism as closely related, only he claims that Austrianism is deeper or more foundational.

Garrison's trichotomy suffers from two significant flaws. One is that such a neat taxonomy does a poor job of reflecting the complex landscape of macroeconomics as it exists today.

Neither classical Keynesian nor Monetarist conceptions dominate modern macroeconomics any longer. The archaic quality of the trichotomy makes the analysis inadequate for navigating or judging modern macroeconomics. Moreover, even if Keynes and Friedman were still beacons in modern macroeconomics, the taxonomy characterizes its figureheads poorly. It is, after all, surely the case that Keynes and Hayek were both ultimately capital-based macro theorists, for their theoretical formulations were both centered on the relationship between saving and investment, what Axel Leijonhufvud (1981) calls the Wicksell connection. Keynes and Hayek differed only in how they executed their capital-based theoretical visions. Where Keynes saw erratic animal spirits, Hayek saw the calm façade of Walrasian general equilibrium disturbed only by monetary manipulation. If economists are to be grouped according to whether they are better placed in a capital-, labor-, or money-based category, Keynes and Hayek clearly both belong in the capital-based category, despite their radical differences in social philosophy.

The central point of contention in the first decade or two of the postwar period was the relative strengths of variability in investment spending and in the supply of money as sources of macro instability. Where the Keynesians argued that instability was driven by variability in investment spending, the monetarists argued that monetary instability was the prime source of macro instability. The Hayekian capital-based macro would have taken the monetarist side of this debate against the Keynesians, due, however, not to some differences between capital-based and labor-based macro. Both approaches were capital-based, only one claimed the capitalist process to be smooth and continuous while the other claimed it to be jerky and discontinuous. There is no necessary mapping from Garrison's trichotomy onto various degrees of belief about the natural stability of capitalist processes. Efforts to address those stability properties are not generated *ipso facto* by choices among Garrison's trichotomy. Something more is at issue, and is missing from Garrison's formulation, and is a point to which we shall return later.

As noted above, Garrison's portrait of the options for macro theorizing becomes even more problematic circa 2000. To be sure, the capital-based theoretics of Keynes has morphed into the labor-based theoretics of New Keynesianism. New Keynesian macro fits Garrison's notion of labor-based macro even if J. M. Keynes's vision of macro market failure was surely of a capital-based sort. On the other hand, the money-based macro of monetarism has morphed into the capital-based macro of New Classicism. This happened in two stages. First, the monetarism of Milton Friedman evolved into the New Classical monetarism associated with Robert Lucas (1975). Within ten years, rational expectations had transformed New Classical macro into real business cycle theory (Long and Plosser 1983), where macro variability came to be explained through variability in the net return to investment.

Garrison's trichotomy provides more smoke than illumination. He seeks to support capital-based macro as superior to labor-based or money-based macro. Only he rejects Keynes's capital-based macro. He likewise rejects the capital-based macro of New Classicism. He calls for capital-based macro, and yet rejects the two most prominent forms of capital-based macro of the past half-century. More than this, he expresses an affinity with monetarism and with New Keynesianism, the former being money-based macro and the latter being labor-based macro. It would seem as though Garrison does not pay attention to his own trichotomy. If the evaluation of macro theories is not to be governed by whether

they are centered on capital, labor, or money after all, it is reasonable to wonder just how they are to be evaluated and why it is that Garrison invokes this trichotomy.

All three nodes in Garrison's trichotomy adopt general equilibrium modeling as one component of their micro-foundations. Hayek's initial work was explicitly based on Walrasian foundations, and New Classical and New Keynesian models likewise adopt a Walrasian foundation. New Classical and New Keynesian models likewise adopt rationality in expectation, whereas Garrison rejects rationality in expectation, though not emphatically, and without offering any alternative kind of formulation. New Classical theorists claim that markets clear instantly, while New Keynesians claim they clear glacially. Garrison's Austrian formulation allows markets to clear much faster than glacially though somewhat slower than instantly. In short, Garrison's version of Austrian macro would seem to render it a mellow version of New Classical macro, perhaps New Classical Light. Or, alternatively, it could be New Keynesian Light. Our central claim in any case is that *Time and Money* does not present a trenchant theoretical framework that would arrest the analytical attention of contemporary macro scholars of a disinterested or impartial spectator type. A 1960s-style restatement of a 1940-style analytical framework would seem a sure recipe to consign Austrian macro theorizing to suffer a severe and continuing crisis of identity and to keep that theorizing in its side show status.

This crisis of identity brings to mind the initial creation and subsequent rejection of Robert Lucas's (1975) Austrian-like model—a development that Garrison ignores. This model was based on the idea that monetary expansion could mislead entrepreneurs and cause malinvestment. This model bears strong resemblance to the Hayekian credit expansion model. Indeed, Lucas originally believed his model to be inspired by Hayek. The Austrian credit expansion model has much in common with New Classical models. Indeed, it is a model that describes how a *representative investor* reacts to changes in macroeconomic variables. The basic solution concept to this model is Walrasian. Investors form expectations of future profits and choose types of investments based on the interest rate at a given supply of money. When the money supply and thus the interest rate in the loan market changes, investors substitute out of one type of investment into another. In the model, the interest rate becomes a poor signal so the resulting investment becomes inconsistent with equilibrium among the expenditure plans of consumers. The adjustment process back to equilibrium causes a temporary downturn in employment and spending. The model follows the familiar micro-foundations formula: a change in an aggregate variable is analyzed in terms of its impact on a representative agent in order to explain resultant changes in other aggregates. The Austrian credit expansion model was essentially a prototype of the micro-foundations approach that emerged in the 1970s, and which is assessed carefully and critically in Maarten Janssen (1993). In their essential features, the Lucas and Hayek models say similar things: changes in nominal variables can cause real effects because any representative agent may misread the ensuing signals.

Lucas subsequently backed away from his claim that his work bore a family resemblance to Hayek's. The combination of general equilibrium modeling, rationality in expectation, and market clearing rendered incoherent the monetary misperception model. Hayek's credit expansion model is isomorphic with Lucas's monetary misperception model, which would seem to render the credit expansion model incoherent as well. Or else it would require

some alternative conceptual formulation, as distinct from mere criticism, that would give coherence to the credit expansion model after all. The implicit critics of Hayek's model, above all, must be answered in order for Austrian macroeconomics to return to the main stage of contemporary macroeconomics. But Garrison ignores the whole of macroeconomics since the 1960s, and the proxy criticisms of monetary misperception the profession offered Hayek via Lucas.

There is valuable and necessary work to be done in probing the conceptual distance between Hayek and Lucas. This is a distance that Lucas certainly became aware of when he backed away from earlier claims about the similarity between his work and Hayek's. What would come out of this probing, we think, would involve a rejection of Garrison's central claim that "macroeconomics in the Austrian tradition owes its uniqueness to the Austrian capital theory on which it is based" (p. 33). Acceptance of this claim must render Austrian macro an anemic version of New Classical macro. Any hope for a more robust version of Austrian macro requires rejection of Garrison's claim. In saying this, we do not deny the value of Austrian theorizing about capital. To the contrary, we accept its general outlines. What we would reject is the uncritical embrace of the Walrasian orientation that was central to Hayek's initial effort and which is central to Garrison's effort. It is not the presence or absence of some Böhm-Bawerkian orientation toward capital that makes the pivotal difference for economic modeling, it is the Walrasian or non-Walrasian character of economic modeling. What is surely unique about the Austrian tradition, though not only the Austrian tradition, is its focus on uni-directional historical or evolutionary processes, where order is an emergent property of human interaction and not something that is stipulated in advance by a theorist who invokes the assistance of some fictive auctioneer. In order to distinguish Austrian macroeconomics from its discredited New Classical counterparts, it is precisely this unique perspective that must be teased out and explored.

We see two possible avenues along which Austrian themes might be injected into macro theorizing, thereby possibly moving Austrian-style macro back into the main stage of macro theorizing.[2] One of these avenues explores the generation of the institutional framework that makes such macro order possible. While such institutional analytics could be assimilated to general equilibrium modeling, the second avenue would seek to assimilate macro phenomena to emergent theorizing. Both of these avenues, moreover, are currently attracting substantial scholarly attention and both have roots in formulations of Mises and Hayek, as Nicolai Foss (1994) notes. It would seem only natural for Austrians to seek to regain their leadership in these areas, which, if successful, would almost surely place Austrian macro back on center stage as well.

The Institutional Framework for Macro Equilibrium

The bulk of economic reasoning has evolved as a form of dialogue between an invisible hand metaphor and a positivistic attitude toward truth claims. The invisible hand metaphor claims that the observed macro outcomes reveal the workings of an invisible hand. Where some analysts claim that the invisible hand works swiftly and accurately, others claim that it works slowly and mistakenly. Which is the more accurate claim is to be revealed through empirical examination based on models of the "as if" operation of the invisible hand. What

matters in this approach is not some notion of realism in the modeling of the phenomena under examination but simply the goodness of fit between the model and the data.

It is, of course, nonsensical to require a model to conform to reality, for then it would not be a model. At the same time, however, it is surely reasonable to look for models that conform to what we believe to be the salient features of the social process under examination. The Walrasian framework of general equilibrium assumes that no economic activity takes place until the auctioneer announces all economic plans to be consistent. This is a model of assumed or stipulated coordination. The empirical question is then how closely do the data generated by reality appear to conform to that model of stipulated coordination.

This Walrasian framework is a gigantic fiction that cannot be rendered real by even the highest mountain of confirmatory econometrics. Social processes obviously cannot be separated into some assembly stage where plans are pre-coordinated by an auctioneer, and some subsequent action stage where those plans are pursued, and where they may be disrupted by exogenous shocks. The Walrasian format fits the activities of a marching band. In the assembly stage, the conductor lines up the members of the band, just as the Walrasian auctioneer achieves coordination. In the action stage, the band members simply march and play their instruments according to plan, subject only to such exogenous shocks as a flautist tripping over a shoelace that had come untied.

One possible approach to Austrian macro would be to seek to develop an alternative to the Walrasian fiction, though one that is equally capable of explaining the data with which reality presents us. This would be some form of institutionally oriented macro, in contrast with the allocationist centered macro that dominates contemporary theorizing. The Austrian framework requires that order, and disorder as well, be an emergent property of social interaction. It then becomes necessary to seek to give explanations of observed patterns of order and disorder in ways that conform to what we know about human capabilities as these are mediated through various customs and institutions. What would come out of this is an explanation of how people generate supporting institutions through their interactions, which allows the econometrics to confirm the Walrasian fiction (or to fail to confirm, as the case may be).

Infinite horizons and overlapping generations are macro models that allow a representative agent model to explain certain kinds of durability that otherwise would seem to lie outside normal, longevity-related time horizons. This is a fictive device that often generates good fits. An institutionally grounded macro would seek to explain how it is that people through their interactions generate institutions and customs that lead to these outcomes despite finite life spans and questionable degrees of altruism. For instance, private property and freedom of contract combine to render it equally rational for people regardless of their age to invest in trees for eventual commercial harvest. It is these institutions more than some fiction about intergenerational altruism and infinite horizons that generates the observed outcomes.

The commercial world presents us with a wide and rich variety of institutions and practices that people have generated through their interactions. Such an institutionally-based macro would cast a different light on issues of private and public ordering from that which comes out of the various allocationist-centered forms of macro. It would recognize that the institutional framework that governs human activity is generated through complex process that are not now well understood, and which involve interactions between processes of private and

public ordering. It is these institutions, both formal and informal, and not some fictive auctioneer that is responsible for the macro patterns that we observe. There would seem to be plenty of scope for developing an approach to macro theory that placed institutions in the analytical foreground and allocations in the analytical background.[3]

Macroeconomics as a study of equilibrium as a product of and producer of institutions is surely a natural outgrowth of Austrian intuitions. The credit expansion model is really a study in the effects of an unforeseen breach in the institution of tight money. Hayek's work in political economy is further largely centered on the perverse coordination effects of abrupt institutional change by policy makers. The development of a general theory of how (1) institutions develop in the face of policy (sometimes to perverse effect) on a macroeconomic scale and (2) how equilibrating behavior is affected by political institutions would represent both an important contribution to current macro theory and a natural extension of Austrian claims.

Such theorizing, moreover, is already well underway, as exemplified nicely by Peyton Young's (1998) effort to explain the emergence of institutional frameworks within which economic relationships are governed. The central concern of this growing body of literature is to explain how global order emerges out of limited and localized interactions among people. It is surely notable that Young's epigraph page features a long quotation from Hayek (1945). It is equally notable that Austrian contributions have been missing from the subsequent development of this literature. The absence is particularly puzzling because the primary analytical techniques that have propelled this literature, evolutionary games and stochastic dynamical systems, are particularly suitable vehicles for exploring these classical Austrian themes, vehicles, moreover, that were not available two generations ago when these Austrian themes were first articulated.

Emergent Order and the Macro Ecology of Plans

While Austrian macro adopts the same Walrasian point of departure as other schools of macro theorizing, Hayek had largely abandoned his Walrasian point of departure by 1960 as he turned away from general equilibrium theorizing toward spontaneous order and evolutionary theorizing. In doing so, he came to adopt a style of argument and analysis that would surely have had more in common with Keynes's animal spirits than could ever have inhabited any Walrasian-type model, as has been noted, for instance, by Ulrich Witt (1997).

The microeconomic perspective embodied in the spontaneous or market process strands of the Austrian tradition conflict with the Walrasian tenor of its macroeconomic analysis. The credit expansion model is more stylized than some Austrians would like to admit. Although the model poses the macroeconomic problem as one of coordination whose success varies with institutional arrangements, it does not fully reflect the microeconomic intuitions that have come to characterize Austrian reasoning. An Austrian macroeconomics that reflected more fully the claims of its microeconomics would not manifest itself in any sort of Walrasian perspective.[4]

An alternative macro research program would assimilate spontaneous ordering processes to the study of the interaction and coordination of heterogenous plans over resources and through time. Such a research program would begin with a characterization of plans as things that make a claim on some resources over some course of time. Each of these plans

is predicated on an expectation about the feasibility of its claims. Productive plans, for instance, ultimately are rooted in expectations regarding the willingness of factor producers to hand over resources as inputs into the production plan, and the willingness of consumers to hand over resources at some point(s) in time in exchange for the product. Consumptive plans are predicated on expectations about the willingness of future employers to hand over resources, and producers to accept them at some rate. Any plan, narrow or broad, can be characterized in this fashion: as a time sensitive claim on a package of resources, predicated on an expectation about the feasibility of the specified use of these resources.

The macroeconomy would be construed as an ecology of plans. It would be the composite of all of these plans, across all resources, prospective or existent, as far along the temporal horizon as the plans make conjectures. Macroeconomics would study how these many and disparate plans do or don't coordinate with one another. The degree of coordination that is attained among those plans is achieved in continuing and piecemeal fashion assisted by institutions, both formal and informal, and not in unison as orchestrated by some mythical auctioneer.

Plans that are discoordinated must ultimately adjust or die according to institutional rules. Entrepeneurial plans must die when they are predicated on poor expectations about consumer demand or factor availability at given prices. Consumption plans must be frustrated by employees when they are linked to employment by businesses that make imperfect production decisions. New plans over the designated resources must replace discoordinated plans at every instant in which learning occurs, as expectations become perfected with regard to any given set of resources over any given interval of time. And this process of perfected coordination, which must arise again and again as new resources emerge and new time periods appear on the feasible horizon, characterizes the market process, which itself responds not to some auctioneer's cries but to the institutionally-structured cries of the multitude of market participants.

Such an approach to macroeconomics could be called enterprise-based macro, to reflect the centrality of the ecology of plans. Commercial planning is largely the domain of enterprise. All such plans obviously must involve people, so are based on labor. They are impossible without capital, so they are also based on capital. And they involve economic calculation, which is impossible without money and the prices that money makes possible.

An enterprise-based approach to spontaneous order macro would involve nonequilibrium or emergent modeling.[5] Which particular approaches might prove productive is itself something that would only emerge through time. The choice is clear in any case. Either coordination must be assumed as an analytical starting point or it must be explained as a property of some emergent process. General equilibrium theory assumes coordination as a point of departure, and then tries to give this a veneer of reasonableness by invoking an auctioneer to make it sound remotely plausible. Tractability, of course, is always a concern, and classical modes of analysis had tractability on their side. But this is no longer the case, as developments in computer science and artificial intelligence have expanded the scope for emergent modeling in many tractable directions, as have the analytical formulations noted above. There is now a rapidly developing literature that covers such topics as modeling about plans and interference among plans and the development of nonclassical logics to deal with information and knowledge that are redolent with Austrian concerns.[6] That an emergent

approach to macro modeling will soon emerge is a safe bet. The Austrian contribution to that effort and influence over it remains to be determined.

It is difficult to deny, however, that what is ultimately interesting in Austrian macroeconomics is precisely what is interesting in Austrian concepts of microeconomics. Strip away the Walrasian microfoundations, which are no longer unique, and you will find ghosts of intuitions about heterogeneity among people, plans reaching towards one another, and institutions binding those plans and people. This is where the contribution of the Austrian imagination lies, and it should be brought to the forefront of Austrian efforts to explain the macroeconomy. A general analytics of coordination and spontaneous emergence is the great, unwritten, contribution implicit in the Austrian tradition. This is a contribution, moreover, that will be written in any case, regardless of the extent of direct Austrian participation, as illustrated by Jason Potts' (2000) recent treatise on micro theory, in addition to such works as those cited above.

Concluding Reflections on Forts, Towns, and Research Programs

The development of a robust school of thought resembles an information cascade, as Wagner (2003, forthcoming) notes. While there is no recipe that would enable someone to construct such a school or cascade at will, there are some common features that all such successful schools and cascades possess. Perhaps primary among these are a rich and complex agenda that allows many scholars to participate in the generation of scholarship by playing off each other's constructions while at the same time providing illuminating insight into the phenomena under examination. But what are the characteristics of the constitutive framework of schools of thought that promotes or hinders the development of such scholarly traditions?

We would suggest that there is considerable merit in reflecting on research programs as forts or towns, as we think this reflection is germane to the future professional standing of Austrian macro theory. A fort is a closed society that involves a disjunction between who is inside and who is outside, which in turn requires rules and processes for distinguishing between insiders and outsiders. A town is an open society. People may enter or leave as they choose, depending on how attractive they find the town. Robust towns would be modeled as being strong attractors, whereas forts would not.

Most economic theorizing follows the model of competing towns. There are New Classical towns and New Keynesian towns, but there is no litmus test that people must pass to gain entrance. Someone who thinks that a fix-price model is generally superior to a flex-price model simply wouldn't want to live in a New Classical town, but there would be no litmus test that would have to be passed for residency. Indeed, residents of those towns don't worry about what is true or false doctrine, and are quite content to let doctrine evolve wherever the competition among its residents takes it, as illustrated nicely by the initial acceptance and subsequent rejection of Lucas's monetary misperception model.

Austrian economics through the 1930s also followed this town model, as illustrated by a lack of self-consciousness about who was inside and who was outside. A good deal of contemporary Austrian thought, however, seems to follow the model of the fort. One must make references, favorable ones at that, to Mises and Hayek. One must make references to fragmented and dispersed knowledge, yet at the same time one must refrain from trying

to bring formal models to bear on the illumination of how social processes operate in the presence of such knowledge.

We raise these perhaps curmudgeonly points in closing because they are relevant to our projections about the future professional standing of Austrian-style macro theorizing. We think two conditions are necessary if Austrian theorizing is to perform once again on the main stage of economic theorizing. One relates to the primary macro issues we have raised above. The other relates to these closing remarks that are perhaps more about the sociology of knowledge and the social construction of points of attraction. We are strongly skeptical that significant points of attraction can be created within a fort, even if that fort is simply a virtual fort that is identified not by its walls but by the stylized expectations its residents have about such things as appropriate conduct with respect to citations, questions, methods, and the like.

Time and Money, unfortunately, embodies this problem. The past thirty years of macroeconomic discussion is virtually ignored and so is the future trajectory of the profession. In numerous ways economic theorizing has come increasingly to reflect what have been classical Austrian themes, though using analytical techniques and forms that were not available to theorists two generations ago. Capital theory is once again at the forefront of macroeconomic theorizing. Evolutionary models of markets are being developed and are considered by many to be the future of microeconomic theory. New institutional economics is now a flourishing subfield in the mainstream, challenging many of the mainstream's theoretical faults. The new directions in Austrian macro theory which we suggest above are aimed at mining these connections.

If Austrians wish to join the discussion of contemporary macroeconomics, they must let contemporary macroeconomics join the Austrian discussion. This means necessarily that the Austrian tradition will be subject to transformations as it grows, incorporates the better ideas of modern macroeconomics and becomes more robust to its critics. If the tradition is viewed as a fort, this transformation will be viewed as a corruption. But if the tradition is viewed as a town, it will be viewed as healthy infusion of new ideas. This is both the price and reward of participating in a living tradition.

Notes

1. On the secondary depression see Gottfried Haberler (1976); on the negative supply-side shocks, see Robert Barro (1979) and Robert Higgs (1997).
2. Some of this is sketched in Wagner (1999).
3. For an Austrian-friendly treatise on institutions, see Kaspar and Streit (1998). More generally on institutions and allocations in relation to analytical foreground and background, see Nathan Rosenberg's (1960) essay on Adam Smith.
4. For a treatment of Austrian microfoundations see Horwitz (2000).
5. See Katzner (1998) for an exposition of nonequilibrium modeling.
6. See, for instance, Devlin (1991) and Allen et al. (1991) and the literature cited therein for illustrations.

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Who's Afraid of Irrationality? A Review of Herbert A. Simon's '*An Empirically Based Microeconomics*' (Cambridge: Cambridge University Press, 1997).

We all know what it takes to be rational, don't we? Rationality is everything which conforms to the purposefulness of human rationality, as Ludwig von Mises demonstrates in