

BOOMS, BUBBLES, AND BUSTS
THREE ESSAYS IN BUSINESS CYCLES AND THE HOUSING CRISIS OF 2008

by

Geoffrey S. Lea
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Committee:

Pete J. Boettke Director
Richard E. Wagner

Phyllis Kletzer Department Chair
Richard E. Wagner

& Zygmunt Program Director

Phyllis Kletzer Dean, College of Humanities
and Social Sciences

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Fairfax, VA

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By

Geoffrey S. Lea
Master of Arts
George Mason University, 2006
Bachelor of Arts
Hampden-Sydney College, 2004

Director: Dr. Peter J. Boettke, University Professor
Department of Economics

Fall Semester 2010
George Mason University
Fairfax, VA

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Dedication

To Deborah Raymond Lea
April 17, 1951 – January 17, 2005

Multās per gentēs et multa per aequora vectus
adveniō hās miserās, māter, ad īferiās,
ut tē postrēmō dōnārem mūnere mortis
et mūtā nēquīquam adloquerer cinerem,
quandoquidem fortūna mihi tētē abstulit ipsam,
heu misera indignā māter adēmp̄ta mihi.
nunc tamen intereā haec, prīscō quae mōre parentum
trādita sunt trīstī mūnere ad īferiās,
accipe filiō multum mānantia flētū
atque in perpetuum, māter, avē atque valē.

-adapted from Catullus 101

Acknowledgments

Adam Smith did us the favor, in *The Wealth of the Nations*, of pointing out that each one of us is “...at all times in need of the cooperation and assistance of great multitudes, while his whole life is scarce sufficient to gain the friendship of a few persons.” The analogy to civil society remains even for the smaller task. An exhaustive list of the many hundreds—even thousands—of people who have helped me bring this project to fruition would constitute a work longer both in length and in time of production than the present dissertation, much overdue as it is. Such a recounting would also take me well beyond the point of acknowledging my debts and into self indulgence as I proceed to list of the names of the people I’m fortunate to have known. My task here is to mention and acknowledge those debts to few persons who stand so clearly above the rest.

As this is an academic work, it seems appropriate to begin with teachers. I can list among the greatest teachers in my life my own parents, Michael and Deborah, and my brother, Chris. From my earliest memories, they have fostered and encouraged my intellectual pursuits with unwavering support. There is no exaggeration in calling them the foundation of all my education and the source of so many of the gifts and blessings in my life. I’m humbled when I try to define or calculate all the lessons they have taught me or helped me to learn.

Outside the home, I have been blessed with outstanding educators, as well. When I think back to why I chose to become an economist, the answer is quite simple: Tony Carilli. Carilli was my first teacher in economics and will forever be, in the epithet Buchanan reserved for Knight, “my professor.” I would not be where I am today without the economics he taught me and the palpable, infectious love he showed for our discipline. Also in college I enjoyed the privilege of absorbing the love of learning and the art of teaching from a host of remarkable influences. Chief among them are James A. Arieti and John Brinkley, both classicists, historians, and philologists. All told, these three constituted around half of my entire undergraduate education and they have enriched my life beyond my capacity to describe. In addition to these, I must also mention Ron Axselle, Martin Claggett, Mary-Beth Hardy, Ralph Hattox, Justin Isaacs, Shirley Kagan, Barry Kreisa, Amos Laine, James Simms, and Ken Townsend.

Without the work and inspiration offered by the members of my committee, there would be no acknowledgements to write here. To Peter Boettke and Richard Wagner I owe an intellectual debt I cannot even begin to reckon. So thoroughly have their contributions to my education shaped the way I see the world that I’m scarcely able to remember how I thought before I knew them. Their arguments, insights, and turns of phrase have come to occupy more and more of the way I teach the subject, view the world, and interact with students. My hope is that I perform a fraction of the service to others that they have to me.

The final member of my committee, Virgil Storr, has been an inspiration from the beginning of my time in graduate school, when he would take time out of his non-academic job to come make us better economists at the paper workshop. Beyond my committee, I was, of course, the beneficiary of the faculty at GMU, among whom I consider Bryan Caplan, Dan Klein, David Levy, and Russell Roberts extraordinary positive influences on my formation as an economist.

One of the greatest joys of moving from school into professional life is that professors begin as teachers and become friends and colleagues. Even better, though, may be when friends become colleagues and professors, and it is to this group that I now turn. Stephen Miller was my predecessor in working with Bryan Caplan and he remains a source of inspiration and peculiar insight. Jennifer Dirmeyer and Emily Skarbek were classmates through nearly the entirety of the first three years and it's a singular delight to see their academic careers blossoming. Lastly, and especially, I must acknowledge Daniel D'Amico and Adam Martin. As with Boettke and Wagner, I find it difficult to separate what is originally "me" from what has been contributed by Dan and Adam. This list has been short, and that is because I wanted to keep it to those who so clearly stood out. The fact is that many of my colleagues and classmates deserve mention and notice; I regret that I wasn't closer to more of them. Perhaps the only benefit of taking so long to finish this task has been the opportunity to get to know so many amazing people along the way.

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Finally, and naturally, the thanks go to my immediate family—once again—especially my brother and my father. In the years after my mother’s death, the three of us have spent more time at a greater physical distance than any time before that. But I cannot help but think that in many ways, we’re closer than ever before. The two of them have unending patient and supportive through the years and I owe them a debt that could never be repaid. The same could be said of the support and care extended to me by the rest of my family: grandparents, uncles, aunts, and cousins. They have been tireless cheerleaders, confident in my ability to accomplish my goals, especially during times when those goals seemed so far off.

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Abstract

BOOMS, BUBBLES, AND BUSTS: THREE ESSAYS IN BUSINESS CYCLES AND THE HOUSING CRISIS OF 2008

Geoffrey S. Lea, PhD

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Dissertation Director: Dr. Peter J. Boettke

Over seventy years after The Keynesian Revolution and the ascendancy of macroeconomics, a survey of the theoretical landscape shows answers in some areas and questions looming still in others. Within the span of the last decade, the fields of economic growth and development have undergone what might be called an institutional counter-revolution, where questions once shakily answered by aggregate production functions, optimal or “golden rule” savings rates, and convergence estimations are now being fruitfully addressed by institutional explanations. On the other hand, the modern business cycle landscape is mired in competing approaches, each grounded in a specific set of behavioral and institutional assumptions, which, taken together, produce equilibrium conditions at either full employment or some level of involuntary unemployment. These gains made in the fields of growth and development may in fact serve as a guide for the remaking of business cycle theory.

Drawing on a Kohn’s (2004) distinction between a “value paradigm” and an “exchange paradigm,” this dissertation puts forward a rudimentary vision of an “emergent” macroeconomics in line with many of the insights developed by the older “coordinationist” approach

of O'Driscoll (1977) and Leijonhufvud (1981), primarily with respect to discoordination business cycle theory and their explanation of macroeconomic fluctuation. This emergent macroeconomics rests firmly in the exchange paradigm, where macroeconomic theorizing is both methodologically and theoretically better grounded. The first essay traces the history of growth theory and development up to the recent institutional counter-revolution, making the case that the institutional approach fits better with an exchange paradigm than a value paradigm. After a brief, critical analysis of modern business cycle theory, it develops an emergent business cycle theory by resurrecting Say's law of markets as an institutionally-rich theory and one that comports better to the exchange paradigm. The second essay considers Austrian Business Cycle Theory in light the general theory outlined in the first chapter, particularly the application of the law of markets and an emphasis on the exchange paradigm over the value paradigm. By recasting the Austrian theory in this new theoretical landscape, certain aspects of theory are further emphasized, while others are left aside, resulting in a theory of institutional causes and consequences of the business cycle. The third chapter turns to the housing and financial crisis of 2008 as a testing ground for the ability of this emergent approach to business cycles to explain real-world macroeconomic phenomena.

1 Introduction

There are macroeconomic questions, but only microeconomic answers.

- Roger Garrison

Sometimes the questions are complicated and the answers are simple.

- Theodor “Dr. Seuss” Geisel

Macroeconomics consists of theories of long-run change and dynamics, topics generally recognized as the purview of the fields of economic growth and development, and short-run dynamics and fluctuations, business cycle analysis. Standard textbook treatments at the undergraduate level are devoted almost entirely to various causes of the business cycle and a host of policy responses. Only after the exhaustion of this body of thought is growth considered. Indeed, the treatment of growth sometimes bears only a passing resemblance to the theoretical models of the business cycle that had previously been offered.¹

In addition to this mild theoretical schizophrenia, macroeconomics rests on top of a number of other sub-disciplines of economics. Closely related and intertwined are the theoretical fields of monetary economics, international economics, and comparative and institutional economics, as well as the more empirically-inclined fields of country-to-country cross-sectional and time series econometrics and the more qualitatively oriented economic history. Typically, these secondary fields are counted as a part of macroeconomics because they help to shed light on the questions posed by trying to understand growth, development, and business cycles. The result, then, is an overlapping mesh of theoretical constructs and the interactions that further theoretical models suppose among the former. In light of these

¹One argument for this divide is that the different time horizons involved in business cycle and growth theory necessitate and explain different equilibrium conditions. If this is the case, then why do these two disparate fields constitute macroeconomics, why not formally separate the business cycle from long-term growth and development?

multiple, interrelated layers in the structure of macroeconomics, difficulties will certainly plague any attempt to remake an approach to macroeconomics.

The head quotes at the beginning of this chapter bear a decided similarity in structure. Since Lucas (1976), the desire for microfoundations has been a driving force of macroeconomic model building. The quotation offered by Garrison, a prominent Austrian macroeconomist, recognizes the essential validity of the microfoundations research program. Naturally, Garrison would offer different microfoundations from those that Lucas or Mankiw might offer, and the resulting macroeconomics would look quite different. Each of these disparate approaches to modern theorizing rests on some form of the same basic claim that macroeconomic questions are too complicated to answer directly and, therefore, theorists might find a better way to tackle such complicated questions with simpler answers, through microfoundations.

It would be difficult to offer evidence against the fact that in the thirty-plus years since the statement of the Lucas Critique, the development of microfoundations has been the clarion call for all new research. The result of this intellectual reshuffling is increasingly choice-theoretic driven macroeconomic models. In one version, wage rigidities cause for macroeconomic disequilibrium and are explained by efficiency wages or differences between insiders and outsiders in postulated microeconomic labor markets. Alternatively, economists marshal different preferences in the fundamental labor/leisure trade-off to explain lower total amounts of employment and output but through an equilibrated, choice-theoretic microeconomic model. Or on a third front, drops in output and rising unemployment is made intelligible in light of a discoordination brought on through monetary policy and a concomitant divergence between market and natural interest rates.

The question remains to be answered as to whether these explanations are indeed simpler, as “simpler” would always have to stand in comparison to the theoretical structure

they are to replace. Nevertheless, they are all decidedly more microeconomic in nature than many of the models that formed the core of macroeconomics in the 1950s and 1960s. Yet this recognition does little to address the question of whether they are in fact simpler. Furthermore, if microfoundations in a choice-theoretic macroeconomic models outperform in both analytical clarity and descriptive or prescriptive empirical examination, their simplicity may well be irrelevant compared to the macroeconomic models they are intended to replace. A second question, one less often asked, is whether the foray into microfoundations, as it has proceeded, represents a significant step forward for macroeconomics, or is it a mere diversion into the methods and minutiae of microeconomic model-building? In answering this, the more important question, it is necessary to consider both the nature of macroeconomic phenomena and the underpinnings of the call to microfoundations.

Economics, whether one speaks of macroeconomics or microeconomics, is a social science and its onus is to explain the causes and effects of social phenomena. Following Hayek (1967),² these social phenomena are those that emerge from the actions and interactions of individuals. This insight is not something new to the twentieth century; it was at the forefront even at Smith's time.³ When Menger wrote his book on methodology, *Untersuchungen* or *Investigations*, he emphasized over and over again the importance of understanding the emergent and social reality of these phenomena.⁴

It is not sufficient merely to speak of the existence of social phenomena, there is also a question of the relevant degree of abstraction. An economist can describe action and interaction, drawing out the emergence of social phenomena from the former, but the degree of abstraction is not necessarily the same between microeconomics and macroeconomics. In approximating these differing degrees or types of abstraction, economists have drawn on

²See Chapter 17, "What is 'Social'?—What does it Mean?"

³Consider once again work highlighted by in Hayek (1967), especially chapters 4, 6, 7, and the aforementioned 17. One other important point of note is a treatment of Smith in chapter 19 of Hayek (1978a).

⁴Menger (1883) discusses this connection in Part Three, "The Organic View of Social Phenomena" and Part Four, "The Study of History Throughout the Ages."

the distinction between the disciplines of praxeology and catallactics. On the other hand, though to some degree mirroring the distinction between praxeology and catallactics, Meir Kohn (2004) emphasizes an important distinction between a value paradigm and an exchange paradigm.⁵ Certainly, the action and interaction happen both in the processes of valuation and exchange, but there does not seem to be a symmetry of importance of these two paradigms to microeconomic and macroeconomic theorizing.

At first blush, the value paradigm seems at home in microeconomics, with the core of microeconomics, price theory, being the twin examination of consumer choice over budgets and utility functions as well as producer choice over budgets and production functions. Relative prices, taken as exogenous and given to the consumer, work with a given utility function to determine the proper allocation of resources over n consumption goods. In producer theory, a given production function is transformed into isoquants and the relative prices of products determine costs of production and final sale prices of the produced goods determine a unique equilibrium amount of factor inputs and output of the produced good. In both of these spheres, the core of the theory is built on choice-theoretic questions of valuation relying on a given set of variables, among those being market prices, that themselves would be more appropriately conceived as having been determined through exchange. Microeconomics functions as a value paradigm by abstracting away from those salient portions of its foundation that are exchange-oriented.

The microeconomics dwelling more appropriately within the exchange paradigm remains open-ended. Consider, as examples, three archetypical microeconomic exchange models: Edgeworth boxes, Ricardian comparative advantage theory, and Heckscher-Ohlin trade

⁵Just as the distinction between praxeology and catallactics predates Kohn's writing, this distinction itself, between value and exchange paradigms, can be found in other, previous sources. Kohn himself acknowledges Buchanan, who speaks of a distinction between "the theory of exchange" and the "the theory of resource allocation" (Buchanan 1964, p. 214). Further, Kirzner (1973, 1985), draws attention to the differences between entrepreneurial action and simple maximizing behavior, which implies a difference between optimization and maximization on the one hand, and entrepreneurial activity in the context of open-ended exchange on the other hand. See, especially, Kirzner (1985) chapters 3 and 4.

models. In the Edgeworth box, utilities overlap creating a contract curve along which any bundle would be Pareto optimal, but these hypothetical trades are supposed, rather than through a process of actual trade. In both of the other cases, Ricardian or Heckscher-Ohlin, endowments and/or productive possibilities determine which good, given a relative price vector, is to be produced by either trading partner in order to produce exchange outcomes. Without utility space, money prices, and actual exchange, the welfare considerations and precise outcomes of these models remain open-ended. A question remains: are these truly exchange models, or simply overlapping optimization? It constitutes a feat of imagination on the part of economists to recognize these models as legitimately exchange in anything but a purely formal sense.

One might give microeconomics a pass on exchange, since its purview is more appropriately that of valuation and optimization. But what of macroeconomic models and the emphasis on microfoundations? To what degree do many of these macroeconomic models merely push the microeconomic-friendly value paradigm into a world of macroeconomics? This would not be a great problem if there symmetry between microeconomics and macroeconomics. The value paradigm, limited though it may be, has shed a tremendous amount of light on optimization and the organizational aspects of microeconomic orders. Nevertheless, questions concerning the limits of the value paradigm in illuminating macroeconomic phenomena bear serious consideration.

Catallactics, a theory of exchange, cannot exist without some underlying praxeological foundation, since all exchange is foremost the actions of two or more individuals. Likewise, a macroeconomics without reference to a microeconomics runs the serious risk of being without a solid theoretical ground. Just as it is intellectually problematic to treat exchange as overlapping optimization, economists who model macroeconomic realities as the aggregated or amplified results of microeconomic models do violence to the open-ended nature of phenomena correctly understood as exchange-based, not valuation-based.

At this level of inquiry, the questions are predominantly methodological, yet methodology is most important at times when theoretical progress appears to be foundering. Consider Menger's position:

It may happen in a field of knowledge, for some reason or other, that accurate feeling of the subject matter has been lost. It may happen that an exaggerated or even decisive significance is attributed to secondary problems of the science. . . In a word, the progress of a science is blocked because erroneous methodological principles prevail. In this case, to be sure, clarification of methodological problems is the condition of any further progress, and with this the time has come when even those are obligated to enter the quarrel about methods who otherwise would have preferred to apply their powers to the solution of the distinctive problems of their science (Menger 1883, xvi).

While not a *Methodenstreit* of the same scale, a small revolution may be necessary for the progress of macroeconomics. Macroeconomic theory must be grounded again in the exchange paradigm, where institutional variables and considerations take the foreground and where allocation and distributional considerations take the background. This dissertation explores the implications of grounding business cycle theory in the exchange paradigm.

Chapter 2 presents an overview of the parallel development of two macroeconomic agenda, economic growth and business cycles. Economic growth theory has undergone a transformation from the choice-theoretic, representative agent formulations of Solow and Samuelson (1953) or Solow (1956, 1957), which fit better within the value paradigm, into more open-ended, exchange paradigm theories such as Romer (1986) and the resulting endogenous growth literature. The result was a marriage of partially *ad hoc* theorizing, since open-ended models lack the analytical traction of bounded, closed, and convex optimization problems, with an increasingly atheoretical empirical research program in economic development. Out of this chaos in the late 1990s emerged a renewed emphasis on institutions and comparative economic systems, sparked by the merging of these various growth theories with the more empirically based development economics, largely influenced by the study of transition economies in the early to mid 1990s. The solution to the compounding theoretical

problems of economic growth was to reassert institutional complexity as framing the space in which exchange takes place and out of which macroeconomic outcomes emerge.

While growth theory has to a significant degree begun to reflect the primacy of institutional considerations to a body of theory grounded in the exchange paradigm, the theory of business cycle is currently floundering in the morass of competing theoretical apparatus. Despite a general acceptance of the necessity of microfoundations, each of these intellectual enterprises is simply derived from different presuppositions. The result is much like the *ad hoc* theoretical base to growth theory observed in the 1990s, whereby any given theory can be presented based on certain assumptions about market clearing (or not clearing) and individual optimization (or not optimization). These theoretical positions are then bolstered by empirical findings that demonstrate the tractability of the microfoundations-based macroeconomic model.

Unlike the eventual development of growth theory into taking account of institutional considerations, modern business cycle theory has not yet come full-circle to an institutionally-rich conception of the business cycle. This was not always so; the classical model of the business cycle, based on Say's Law of Markets, or "*théorie des débouchés*," held that cyclical variation in output and employment was due to the inefficiency or inability for entrepreneurs in markets to adjust to the failures of perception that would inevitably spring up. The cause of the business cycle is a miscalculation of production in light of expectations for consumption, but the promulgation of the disturbance always moved along institutionally contingent lines. In this respect, Say's Law forms not only a rejection of standard aggregate demand theories of business cycle, but offers a lens for properly perceiving and understanding the process by which impulse and propagation mechanisms work through an economy with binding institutional characteristics.

Chapter 3 turns from general business cycle concerns toward the Austrian theory of the

business cycle. While initially an institutionally-contingent theory as developed by von Mises (1912) and Hayek (1933, 1935, 1939), modern Austrian business cycle theory has developed into formulations more at home in the value paradigm than the exchange paradigm. Garrison (2001) represents the furthest development along this line of thinking into a series of simultaneous graphs through which exogenous changes propagate to form the business cycle.

While certainly in line with the tradition of the Austrian theory of the business cycle, and while resting on firm microfoundations, this presentation suffers from much of the same institutional deficiencies from which other modern business cycle theories suffer. Instead of a truly endogenous process of growth, expansion, error, and correction, the modern Austrian theory relies on the stipulation of an exogenous shock, in the form of credit expansion and proceeds along a mechanistic route through the course of the cycle until the economy returns, once again, to rest. This depiction, like all value paradigm formulations, is theoretically cogent, but is lacking as an apt descriptor of observed phenomena.

Instead of the value paradigm, Chapter 3 proposes to situate Austrian business cycle theory in the exchange paradigm and examines what changes would result in the formulation of the mechanisms by doing so. Instead of relying on credit expansion as a impulse to the cycle, the looseness or tightness of monetary policy become institutional considerations and affect the environment within which entrepreneurs must make decisions. In addition, an exchange paradigm will allow for the endogenous creation of disturbances apart from monetary policy, such that fiscal policy or changes to the regulatory environment may create systematic errors in entrepreneurial judgment. The result of this inquiry is a slight re-imagination of the Austrian theory, still firmly grounded in the process of coordination and discoordination but properly attuned to institutional considerations.

Chapter 4 seeks to apply the theoretical approaches in Chapters 2 and 3 to an empirical question, namely the causes of the housing crisis of 2008. Chapter 4 argues that the claim for monetary policy as both necessary and sufficient for the creation of the housing boom is over-stated. A look at housing growth trends shows an acceleration that began in 1995 and did not cease until 2006, when the housing market peaked and many homes began to fall in value. Yeager's theory of monetary disequilibrium (Greenfield and Yeager 1983; Yeager 1986; Horwitz 2000) is used to look at changes in money supply compared to proxy money demand. Only during the period 2004 to 2006 was money supply growing while money demand was falling, implying a definite expansion in credit, but this relatively short period is unable to explain the rapid growth in housing starts that had been going on for a decade. Turning from monetary policy to the regulatory environment, Chapter 4 postulates that institutional changes in the real estate market, particularly in the mortgage market are stronger explanations for the housing boom than credit expansion, even though the latter was an important contributing cause.

Taken together, this dissertation attempts to change the way in which economists view the important questions in macroeconomic theory as well as which answers to those questions will be considered compelling. Modern macroeconomics has already seen a revolution in the way in which economic growth and the theory of economic development are formed, a revolution marked by the resurrection of institutional importance. Business cycle theory, while generally considered different—if not apart—from the theory of economic growth, must be recognized to exist firmly in the exchange paradigm and as such must account for the institutional environment in which its agents interact.

2 Whither Macroeconomics?

More than ten years ago, I made the complaint that, to someone coming from L.A., macroeconomics seemed to have taken a turn very similar to the movies: more and more simple-minded plots but ever more mind-boggling special effects.
- Axel Leijonhufvud (1998, 215)

Modern economic theory fits rather poorly into two subdivisions, microeconomics and macroeconomics. The former, microeconomics, attempts to explain economic phenomena from the most individualistic of consumer choice and firm production all the way up to market clearing in one or more industries. The latter, macroeconomics, carries the task of explaining the output, employment, and monetary characteristics of regional, national, or perhaps even supra-national economies. While the boundaries of microeconomic models rarely extend beyond industries in relative isolation, macroeconomic models are burdened with the difficulty of explaining the movement of all industries at once. So different these tasks seem that one might ask whether the same body of thought, much less a single academic discipline, could have room for both.

When Adam Smith wrote his famous book *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), he did not bother to tell his reader where the microeconomics began and the macroeconomics ended. Nor did Jean-Baptiste Say, David Ricardo, either Mill, or anyone else of what may be called, retrospectively, the “classical school” of economics. To these thinkers, and indeed for many of those who would follow them, economic theory was not so divided as the modern distinction between microeconomics and macroeconomics would let on. Rather, the whole of economic thought formed a more or less cohesive body of inquiry, where individual choices of consumers and producers would interact and produce

the outcomes that would drive the engines of economic progress. It was only in the twentieth century, and specifically in the wake of John Maynard Keynes's *The General Theory of Employment, Interest, and Money* (1936) that economists began to differentiate between macroeconomics and microeconomics.

As Keynes's title suggests, the agenda for macroeconomics consists of studying and interpreting the causes of output, employment, and monetary aggregates for whole economies, as well as informing policy decisions with regard to these variables. One might further break macroeconomics down into the study of economic growth and development and the study of the business cycle. The former is concerned with the causes of long-term growth in the levels of output observed in an economy. The latter deals with more short-term fluctuations in the output and other indicators in the same economy. Since Keynes's time, there has been an uneasy tension between these two aspects. Keynes's theory was predominantly one of economic fluctuation, the latter of the two branches of macroeconomic theory. Given his particular circumstances, namely the onset of global depression in the 1920s and 1930s, Keynes saw the primary task for economists to diagnose and cure the ailments felt by economies around the world. Keynes's own view was that the generally classical theory of growth and long-term progress was still valid, but that due to a number of possible causes, economies could become "stuck," creating pervasive and lasting involuntary unemployment. In the years following *The General Theory*, the divide between business cycle and growth theory only increased until the two paths had diverged. Despite this, parallels remain concerning their development and may pave the way to reuniting them in a single theoretical approach.

The chapter proceeds by first examining growth theory from the days of Keynes to the present and highlights how growth theory has undergone a metamorphosis away from theoretical formalism toward increasingly appreciative and institutionally-informed analysis. The second section pursues the same examination of business cycle theory, finding that business cycle research has followed a strikingly similar path to growth theory and is currently

mired in the same bog growth theories were before the turn of the twenty-first century. The third section offers an analytical narrative for the dual development of growth and business cycle theory and points toward a way toward their reconciliation.

2.1 The Development of Growth Theory

Growth theory finds its roots in the soil from which political economy and economics grew. A healthy proportion of Smith's treatise is devoted to questions of growth; topics include laying out the causes and effects of the division of labor, considering the implications of capital accumulation, various ruminations on the relationship between town and country, and lastly the institutional environment in which each of these is to take place. What might be called Classical growth theory proceeded along the lines as explored by Smith. Ricardo's *Principles of Political Economy and Taxation* (1817) shifted the emphasis decidedly toward questions of division of labor, specialization, trade, and capital accumulation, concomitantly diminishing the emphasis on historical and institutional concerns. From Ricardo, Smith's rough sketch of a three-resource economy received elaboration and formalization.

Pre-Keynes, there are two other significant developments in the theory of growth: Schumpeter's (1911) *Theory of Economic Development* and the broadly Institutional and Historical approaches in America and Germany, respectively. Schumpeter's theory is much like the Classical modes of thought that preceded him, except that Schumpeter highlighted an explicit agent of economic change, the entrepreneur, whose position in the process of economic growth and development was as an engine of innovation. The Institutionalist and Historicist schools stand as a rather sharp contrast to the classical and Schumpeterian approaches in that they both gave primacy to social, historical, and institutional factors over the theoretical explanations offered by more classical approaches. In so doing, these economists eschewed the claim for certain universal governing principles of economic growth in favor of contingent or particular explanations. At the time of Keynes's *General Theory*, the growth literature could be divided into two broad approaches, a Classical approach

including British and French economists of the eighteenth and nineteenth century ending with a more refined formulation in Schumpeter, and a second, radically different approach of the American Institutionalists and German Historicists.

The origins of modern, post Keynes growth theory are found in Harrod (1939) and Domar (1946), producing what is now called the Harrod-Domar growth model. Building on Harrod's models of the accelerator and an applied Keynesian multiplier, Harrod-Domar growth theory postulates long-term economic dynamics through the interaction of changes in aggregate supply and aggregate demand (Hagemann 2009, 67). A relationship of steady-state growth, which Harrod called the "warranted growth rate," exists in balancing the rate of growth of aggregate demand with the rate of growth of productive capacity, *i.e.*, aggregate supply. Should there be too much investment in the Harrod-Domar model, such that aggregate supply is growing faster than aggregate demand, firms will cut back on investment to lower the growth of aggregate supply; however, since investment is a key component of aggregate demand, aggregate demand will also fall in this case, thereby increasing the gap between aggregate demand and productive capacity. On the other hand, should aggregate demand growth be higher than the growth of productive capacity, entrepreneurs and businessmen will cut back on investment, thus lowering aggregate demand, but lowering productive capacity in the next period, as well, perpetuating the inequality (Hagemann 2009, 70–74). This slim margin of error, styled by Solow as "balanced on a knife-edge" where growth of aggregate demand equals the growth of aggregate supply, all but destroyed the possibility for steady-state growth (1956, 65).

The connection from Harrod-Domar to Solow is not as obvious as it might seem, as Punzo (2009) demonstrates. The transition, as he sees it, lies in something of a paradigm shift from Harrod-Domar to Solow (1956, 1957). He explains:

... modern macromodeling of growth phenomena grew out of the general equilibrium approach as much as from the attempt of what I call *classical macrodynamics* to construct a general theory explaining cycles and growth on the basis

of a unique set of principles. To accomplish such an ambitious project, the marriage of macrodynamics with Keynesian aggregative analysis was temporarily thought to be useful (Punzo 2009, 88 emphasis original).

Harrod-Domar represents this very early fusion. Punzo uses the term “classical” precisely because these early formulations were not marked by the hallmark of the neoclassical paradigm: choice-theoretic models (2009, 92n). Solow’s model, being neoclassical, has this distinguishing characteristic, but that is not all that separates it from Harrod-Domar. The goals of Solow’s model were to provide uniqueness and stability to the formation of steady-state growth, factors crucially missing from Harrod-Domar and the knife-edge equilibrium. Put simply, in order to produce a substantial improvement on Harrod-Domar, a theory of growth would have to account for the existence of a full-employment equilibrium growth rate, as well as a tendency toward this equilibrium Punzo (2009, 89–90). The problem with Harrod-Domar, Punzo argues, lay not with their particulars but with their overall approach.

Prior to the 1950s and the emergence of a neoclassical growth theory, business cycles and growth theory were seen as having to be unified at some level; they were both theories of fluctuation, merely existing on different periodic frequencies. This paradigmatic pronouncement forms the cornerstone of what Punzo calls “classical macrodynamics.” One of the great works in the literature of classical macrodynamics is Frisch (1993) and the concepts of impulse and propagation. Standard treatments of growth and business cycle of the time treated impulses as exogenous shocks and propagation mechanisms as dampening these impulses through time as an economy moved back toward some postulated long-run growth trend.¹ Harrod, drawing on his work with accelerators and being in line with a budding Keynesian view of macroeconomic instability, turned this formulation on its head; impulses may still be seen as shocks but the propagation mechanisms produce no tendency back toward equilibrium and the long-run growth rate. Outside intervention, through policy

¹This position is considered the orthodox view challenged in Nelson and Plosser (1982) and formed the background of non-Keynesian business cycle theory both before and after Keynes.

perhaps, may be necessary to right the trend of economic performance.²

The attempted marriage of growth and business cycle theory seems doomed from the start. Endogenous propagation mechanisms either dampen the effects of initial impulses, thereby muting and underscoring business cycle research but shoring up long-term growth; else, the lack of endogenous dampening propagation effects amplify the importance of the business cycle, but make the prospects of any steady-state full-employment equilibrium impossible. Punzo summarizes:

The previous pages argue that the neoclassical theory of growth was an answer to the failure of a research program to attain its self-assigned task, to construct an all-encompassing theory of economic dynamics modeled after physics. Such failure was, eventually, the unexpected result of its having been trapped in the marriage of convenience with the one-dimensional Keynesian model, where there was no room for long-run dynamics, hence for such phenomena as technological change and innovation, that is, the Schumpeterian tradition. (Punzo 2009, 103)

Solow’s neoclassical model breaks with the “classical macrodynamics” paradigm in two key respects. First, Solow’s model does not account for the business cycle, existing, as it were, at a level of abstraction or over a time horizon such that periodic disturbances will even out and only long-term trends will persist (Punzo 2009, 99). Second, by adopting a production function as a basic building block of the model, Solow’s apparatus could make technological progress both exogenous and continuously expanding. Only with this assumption would a steady-state of growth, *i.e.*, a constant rate of growth—as opposed to a constant state with zero growth—result (ibid, 100). These two approaches, abandoning business cycle and short-term fluctuation and the adoption of a choice-theoretic modeling technique constitute the *neo* in the neoclassical model of growth.

With technological growth, population growth, and a discount rate of capital as exogenous parameters, the variable of “choice” in the Solow model is the savings rate. The

²On its own terms, with only structural parameters in a one-dimensional model, such as Harrod-Domar, there is very little reason to favor this formulation over stability, or vice versa. Only by opening up the theorizing to other considerations, such as institutions, which inform the behavior of the people comprising these relationships, could one make a case in favor of one framework over the other.

problem to be solved in a Solow growth model is finding the level of savings that matches these exogenous parameters and a stipulated aggregate production function. It is a small step of inquiry from this question to a broader question of an optimal savings rate that led to utility maximization. This savings rate was termed the “golden rule” rate after an article by Phelps (1961). Phelps postulated that a golden rule savings rate would be one that allowed for future generations the same level of consumption as that enjoyed by the present population. Too low a rate and the present generation would consume too much of the capital stock, leaving future generations worse off; too high a rate and they would be sacrificing present consumption unnecessarily. Only a “golden rule” savings rate leaves both the present generation and others equally well off.

Cass (1965) and Koopmans (1967) formed the foundation for what came to be known as the Cass-Koopmans model of optimal growth theory, drawing not only on Phelps, but also on work by Koopmans (1960), Koopmans et al. (1964), and Diamond (1965). Much of the work after Phelps and leading up to the Cass-Koopmans formulation turned on questions of infinite utility streams, not only the ability to deal with the uncertainty and risk of future utility payouts, but also questions about the discounting that present generations would have to undergo in order to “optimally” allocation consumption and savings as they relate to a stipulated social welfare (or utility) function. While a substantial branch of the theoretical literature in the 1960s and early 1970s, by the late 1970s Cass-Koopmans and optimal growth theory was falling out of vogue. Empirical research was still largely going down Solovian rabbit holes and the practical concerns of optimal growth theory, if there were any, would best be applied to economic development. By the 1980s, “new” growth theory was emerging as a challenge to Solow’s hegemony in the theoretical landscape and optimal growth theory was set aside to be picked up in a different form by real business cycle Punzo (2009, 101–102).

In the 1960s while golden rule and optimal growth theory were in their nascent stages,

Kenneth Arrow published a paper that would become an early part of endogenous growth theory. Titled “The Economic Implications of Learning by Doing,” Arrow’s piece marks an early separation from the Solow paradigm in explicitly formulating a process for the endogenization of technological progress. The argument is simple: by removing technology to an exogenous variable, theorists were in essence making time one of the key explanatory variables in their empirical estimates of intertemporal and international economic growth Arrow (1962, 155–156).³ If, on the other hand, the process of knowledge accumulation happens for a given economy, the fundamental production function-based theory of arrangement goes undisturbed, it is merely that the technological variable has changed the nature of the production function. As a crude proxy for the amount of learning, which is based on experience and diminishes at the margin, Arrow proposed total investment (ibid, 156-157).

Romer (1986) and Lucas (1988) built slightly different versions of an endogenous growth theory on the general framework found in Arrow, where individual firms likely face constant returns to scale, but the economy as a whole faces generalized increasing returns. In Arrow, Romer, and Lucas, the increasing returns are due to an un-captured externality from the generation of more and more knowledge or “experience.” The primary difference between Arrow and these later theories lies in the implications for increases in only capital or labor in isolation. As seen in Romer (1986, 1994), there could be increasing returns to either labor or capital itself; not only is the technological growth variable now endogenous, it directly augments the contribution of labor and capital in the production function.

Endogenous growth presents a problem for economic theory because, when applied to an economy-wide production function, it implies increasing returns. The difficulty with this result is that increasing returns to scale, on the level of the firm, implies falling average cost and a concentration of production in one firm, *i.e.*, natural monopoly. This result runs

³Thirty-two years later, Paul Romer includes the following, “No economist, so far as I know, has ever been willing to make a serious defense of the proposition that technological change is literally a function of elapsed calendar time” (1994, 12).

contrary to the assumed perfect competition of all firms in the neoclassical growth model, invoked to apply Euler's theorem and the proof of factor payments equal to marginal contributions. Indeed, early formulations of Romer's endogenous growth model relied on imperfect competition,⁴ as the prospect of increasing returns made perfect competition impossible. Stated differently, endogenous growth was a scary theoretical prospect for economists because it broke the rules under which standard theory-building had been conducted for well over thirty years. Among the implications this had for economic research was the removal of theoretical convergence across countries.

One of the hallmarks of the Solow model was the result that for any two given countries with identical technological possibilities (and therefore identical production functions) the same population growth rate and similar savings behavior, they will eventually converge to the same levels of capital to labor, as well as consumption and output per capita. Furthermore, even if countries varied in saving behavior, but still had identical technological opportunities and the same population growth rate, they would converge to the same steady-state growth rate of output and consumption per capita (even if the *levels* of those variables were different, their growth rates would converge to the same steady-state rate). In other words, if labor and capital could cross borders, such that the population growth rate (due either to fertility or immigration) and technological capabilities growth rate (human and physical capital, and perhaps technical knowledge) would equate across countries, all economies should eventually converge to identical output- and consumption-per-capita growth rates. This "convergence" hypothesis has been a major empirical challenge of the Solow exogenous growth model, and it has fared notoriously poorly in empirical tests. Romer reviews some of the literature on convergence and offers acknowledgement of this empirical debacle as a motivating drive for work on endogenous growth theory (1994, 4–11).

Of course, endogenous growth theory itself was not without empirical challenges. Mankiw

⁴Romer (1994) offers this theoretical departure as one stylized myth of how endogenous growth came to be.

et al. (1992) showed that an augmented Solow function, which includes human capital, does well explaining observed economic growth rates. The tacit claim was that it is not necessary to resort to endogenous growth with increasing returns to actually explain the empirical record of economic growth. Further, they conclude:

The augmented Solow models says that differences in education, and population growth should explain cross-country differences in income per capita. . . Future research should be directed at explaining why the variables taken to be exogenous in the Solow model vary so much from country to country. We expect that differences in tax policies, education policies, tastes for children, and political stability will end up among the ultimate determinants of cross-country differences. (Mankiw et al. 1992, 433)

Mankiw, Romer, and Weil were able to use an augmented Solow model to explain cross-country differences in income per capita and their findings did help draw the debate on convergence slightly closer to a positive conclusion, as their work and Barro (1991) both found that controlling for savings and population, poorer countries tend to grow faster than larger ones. Nevertheless, there remains an unexplained residual even in Mankiw et al. (1992); Barro (1991), a residual that cannot be accounted for by the factors of the augmented Solow model. It is this residual that Romer argues endogenous growth theory actually explains. The second concluding claim, that future research should attempt to answer why variables vary so much from country to country would become the focus of empirical research in economic growth and development.

Barro (1991), in addition to lending evidence for the convergence hypothesis, sparked modern cross-country econometric analysis. As early as 1992, however, Levine and Renelt had concluded that controlling for a number of policy conditions and institutional variables, the results of cross-country econometric regressions were extraordinarily fragile, such that small changes in specification of the model would lead to huge swings in estimators and significance. Throughout the course of the 1990s, myriad empirical studies were published examining the differences between countries, not merely testing for the existence of convergence or conditional convergence, but also factors about what actually causes economic growth and development. With various data sets, theoretical models, and econometric

techniques on display, a growing problem was the inability for any type of consistent and credible answers to the deep questions.

The output of this literature more resembles grasping at straws than the methodical execution of a productive research agenda. By the mid-to-late 1990s, nearly any observable, quantitative, or binary qualitative (*e.g.*, Spanish colony? 1=yes, 0=no) variable was being considered for its explanatory power. An illustrative example is Sala-i Martin (1997)'s humorously titled "I Just Ran Two Million Regressions," where he relaxes the typical threshold for statistical significance and empirical robustness in the attempt to disprove the Levine and Renelt "nothing is robust" hypothesis. He finds, quite the contrary, a number of classifications of variables are related. They include geographic area, religious makeup, political stability, overall economic organization, investment sources and structure, colonial origin, and natural resource richness Sala-i Martin (1997, 181-182). The problem, of course, is that these results—and the hundreds of other empirical studies carried out during this time period—only show relation and then only averaged across hundreds of countries, rich and poor alike.

Just before the turn of the century, Temple (1999) surveyed and reviewed the literature on new growth (endogenous growth) both pro and con, coming to a number of conclusions:

Poor countries are not catching up with the rich, and to some extent the international income distribution is becoming polarized. Countries do converge to their own steady states, but at an uncertain rate . . . A key reason why growth rates differ across countries is that macroeconomic stability differs across countries . . . Democracies do not do noticeably better than autocratic regimes, but countries that extend economic freedoms and protect property rights grow faster . . . Government spending on infrastructure is beneficial. Openness to trade also appears to be a good thing, although we do not yet know enough about the conditions under which this is true. (*ibid*, 151–152)

Despite nearly a decade of empirical work on the subject, the conclusion at the time of Temple (1999) was inconclusive as to whether endogenous or augmented Solow really did a better job answering the questions about convergence and levels of economic growth across

countries. At the same time as these empirically-driven, econometric debates were raging, change was brewing in related fields of economic thought.

The twilight years of the late 1980s and early 1990s saw the collapse from within of Eastern European and Russian socialist systems and the transition of these liberated economies into closer and closer contact with the rest of the world. The process of economic transition and the field of economic thought and analysis that grew up to answer questions arising from this transition would come, through time, to revolutionize economic growth and development. At the fall of the Soviet Union, most former Soviet republics were, by Western standards, underdeveloped and going through the same agonizing process of economic growth and development the third world had been for decades. Prior to this time, there was a tenuous divide in the economic disciplines of studying the dynamics of “first” versus “second world” (*i.e.*, socialist republics), which commonly was called comparative economics, and that of studying the emergence of economies in the “third world,” or economic development. Economic growth, formally speaking, applies to first, second, and third world countries alike, as its general purpose was to understand and explain the process of all economic change through time.

With the collapse of Soviet system, much of the divide between these three disciplines was lost, as well. The work of two example scholars (and their co-authors) demonstrates this merging together of disciplines; these two are Andrei Shleifer and Daron Acemoglu.⁵ Both Shleifer and Acemoglu have a background in more mainstream macroeconomic research programs, as examples Murphy et al. (1989a,b,c) and Acemoglu (1993, 1996). The two pursued different research tracts before converging on related work in development, transition, and growth. Shleifer published on corporate governance and the theory of finance, for example Shleifer and Vishny (1997) parallel to his work on transition. Acemoglu’s early career and even into the 2000s has been marked by a focus on labor market relations and

⁵The following accounts rely heavily on Blachard (2001) and Shimer (2007).

human capital formation, a literature surveyed in Acemoglu (2002).

The connection to institutional considerations began quite early in the 1990s. Murphy et al. (1991, 1993) both turn on the allocation of entrepreneurial talent, a theme developed from work by Baumol (1990), also an influence on Acemoglu (1995); Acemoglu and Verdier (1998), whose discussion closely resembles that of Murphy, Shleifer, and Vishny.⁶ From this shared starting point, each brings his particular bent to the motivations for studying institutions and growth.

Shleifer's experience with transition amplified his work on corporate governance—and the governance structures in which corporations function—and a primary question for transition economies is how to attract foreign investment and financial capital. His papers with Vishny and Frye (Shleifer and Vishny 1993; Frye and Shleifer 1997) on corruption highlight the first of these considerations, while La Porta et al. (1997, 1998) address the concerns of institutional environment for finance. By the late 1990s, Shleifer and co-authors were working on questions directly related to institutions and public governance structures, *e.g.*, Hay et al. (1996); La Porta et al. (1999), and by the early part of the twenty-first century, he had found what would become a major research program in legal origins and their effects on growth and development (Glaeser and Shleifer 2002; La Porta et al. 2004, 2008; Gennaioli and Shleifer 2007a,b, 2008).

Following themes of his earlier work on human capital formation, technological change, and macroeconomic dynamics, Acemoglu and Zilibotti (1997, 1999, 2001) were attempts to explain cross-country growth rate and level differences without reference to underlying institutional considerations. Following the turn of the century, Acemoglu would undertake two separate but related research programs that would delve into this unanswered residual. The first of these paths began in the early years of the twenty-first century as collaborative work

⁶Interestingly, Murphy et al. (1993) cite an manuscript by Acemoglu written in 1992 that would go on to be published as Acemoglu (1995).

with James Robinson. In a series of papers, Acemoglu and Robinson (2000a,b, 2001b,a) and Acemoglu (2003b, 2006), Acemoglu and Johnson establish a line of inquiry concerning the problems in political theory of credible commitment and the transitional difficulties of political reform. Even if, for instance, one were to know what political institutions were necessary to help with growth, there would still be problems of effecting these programs without being able to overcome the relevant political hurdles. The other of these paths, examined alone in (Acemoglu 2003a) and with Johnson and Robinson (2001; 2002; 2003; 2005b), is an attempt to provide theoretical and, more emphatically, empirical answers to the question of how important institutions are and just what institutional environment best contributes to growth.

Of course, Shleifer and Acemoglu were not the only scholars active in the converging of these disciplines, nor, obviously, did this process begin with their research in the 1990s. Rather, Shleifer's and Acemoglu's work demonstrate part of a change in the way that many economists approached questions of growth and development. As John Bates Clark award recipients and heavily cited authors, their work helped to redefine the discussion and established the boundaries for the cutting-edge of research. This change, however, had been going on various branches of economics: public choice and political economy, law and economics and the economics of property rights, new institutional economics, and economic history. By the middle of 2000s, books (de Soto 2000; Olson 2000; Parente and Prescott 2000; Baumol 2002; Harper 2003; Rodrik 2003; North 2005; Acemoglu and Robinson 2006; Greif 2006; Rodrik 2007; Powell 2008) and articles (Djankov et al. 2003; Glaeser et al. 2004; Rodrik et al. 2004; Acemoglu et al. 2005a) abound expounding and expanding the lessons learned. At the close the first decade in the twenty-first century, Shleifer (2009) looks back at the growth and development of economies all over the world in the two and a half decades since the fall of the Soviet Union, declaring the triumph (relatively) free-market policies "The Age of Milton Friedman."

The path from Harrod-Domar to what Boettke et al. (2005) call “the new comparative political economy” saw the severance of business cycles and growth theory and the separate development of each line of inquiry. Growth theory progressed along increasingly formalistic and empirically-driven lines from the dual contribution of Solow (1956, 1957) through optimal growth theory and the debates over the theoretical traction of and empirical usefulness of endogenous or “new” growth theory. Lastly, in the years following the collapse of Soviet centrally-planned economies, a merging of insights from the technical economic growth literature and the serious study of institutions produced a generalized approach to development.

In the next section, a similar approach is taken with respect to business cycle theory, tracing out the process of its changing face in the decades after the Keynesian Revolution.

2.2 A Random Walk with Business Cycle Theory

The following discussion of business cycle theory begins with the days of a Keynesian orthodoxy in the late 1950s and early 1960s. As discussed in the previous section, the work on neoclassical growth as begun by Solow and Samuelson (1953) and completed theoretically and empirically with Solow (1956, 1957), marked the end of “classical macrodynamics” and the marriage of growth and business cycle theory. In its place was the styled neoclassical synthesis of macroeconomics rooted in Keynesian business cycle analysis and stabilization policy and neoclassical microeconomics, while growth theory existed as its own, largely independent venture.

Prior to the rise of monetarism, the Keynesian system rested on a amalgam of three relationships. First, there was the relationship between output and the price level characterized by aggregate demand and aggregate supply, the former of which was based predominantly on the dynamics of IS-LM analysis pioneered by Hicks (1937). Second was the inverse relationship between output and unemployment, first proposed as an empirical relationship by Okun (1962) and subsequently referred to as Okun’s Law. Third was an empirical, inverse

relationship between inflation and unemployment noticed and documented first by Phillips (1958), but stated in its definitive Keynesian form by Samuelson and Solow (1960). Taken together, these three relationships imply a closed system of comparative statics with an attractive theoretical completeness; empirically, they are based on primary macroeconomic indicators measured by national income accounting, a facet that contributed to the popularity of this framework among economists.

Against this backdrop Friedman offered the first major mainstream challenge. While orthodox Keynesianism was not without detractors—nearly from its inception—Friedman’s challenge to Keynesianism was the first to do so almost entirely on the latter’s own turf. Beginning with Friedman (1956) and followed by Friedman and Schwartz (1963a), what would come to be called the “monetarist” assault on Keynesianism grew out of both theoretical and empirical questions about the IS-LM relationship and the means of stabilization policy.

On the theoretical front, Friedman (1956) questioned the factors that make up money demand, particularly the role Keynesian economic theory had put on the speculative demand for money and the concomitant importance of the liquidity trap. In essence, Friedman re-asserted stability of money demand—contra the volatility of money demand presumed by Keynes—foremost by considering the various substitutes for money that would dampen the interest rate elasticity of money demand. This theoretical point had two effects on the standard Keynesian IS-LM framework: first, by expanding the number of factors that influenced money demand, the interest rate elasticity of money demand fell, making the LM curve steeper; second, by including a durable consumption goods whose demand may be highly sensitive to interest rate changes in consumption (which could, therefore, no longer be purely autonomous) the IS curve was made flatter, or more interest rate elastic. These largely theoretical considerations implied a major reversal in policy prescriptions from the

Keynesian status quo; whereas older Keynesian models predicted less effectiveness for monetary policy than for fiscal policy, by simply changing the interest rate elasticities of IS and LM curves, Friedman's new monetarist perspective predicted precisely the opposite.

Empirically, Friedman and Schwartz (1963a,b) established for many economists the primacy of monetary policy as a tool of stabilization. Friedman and Schwartz demonstrated that lags in the rate of growth of the money stock tended to correspond to contractions in output, and further, that during the largest contractions over the period studied, money stock growth was negative. Perhaps most compelling of these empirical observations was the period 1929-1933, the opening years of the Great Depression. While not the only potential causes for contraction, the evidence they presented was sufficient to convince many economists that monetary policy—particularly the influence of the money stock on nominal output—is quite important for economic stability.

Friedman's theoretical and empirical challenges to the Keynesian hegemony certainly made waves, but they did not mark a complete departure from many of the central components of the system. For instance, Friedman's changes to the understood relationship of interest rates and the elasticities of the IS and LM curve are important revisions, but they do not constitute a call to abandon the intellectual apparatus entirely. Of the three pillars of the orthodox Keynesian framework, this initial salvo did not threaten a single of the postulated relationships. In this respect, one might consider Friedman's initial responses, Monetarism version 1.0, something more akin to Keynesianism version 2.0, rather than a new, "monetarist" system. Fundamental rethinking of the Keynesian apparatus would come with questions concerning the Phillips curve.

The challenge that would sever monetarism from Keynesianism came in the form of the expectations-augmented Phillips curve. In separate, independent work Phelps (1967, 1968)

and Friedman (1968) both arrived at the conclusion that there could be no stable, long-run trade-off of unemployment and inflation. The problem, as Friedman argued it, was that employers and employees negotiate with one another not just in nominal terms, but also in real terms, meaning that there was some acknowledged difference between the wage offered and its purchasing power. The logic of a stable trade-off between unemployment and inflation implies that either employers, employees, or both have missed this connection. Friedman's solution was to augment the short-run Phillips curve with a built-in expectation of inflation. In a given period of time following a monetary policy adjustment, there, one might "buy" higher employment with inflation, but workers will come to realize this and adjust their inflation expectations. Two principles follow from this. First, even if the only expectations that individuals form are considering the economic climate from the previous period, there will still no longer be a stable trade-off between inflation and unemployment. Second, in light of the first point, should policymakers wish to keep unemployment low with expansionist policy, the rate of increase will have to accelerate to keep up with rising inflationary expectations. Taken together, these drastically undermined the possibility of using inflationary policy to keep unemployment low. By doing so, Friedman had driven a wedge between the budding monetarists and orthodox Keynesian position.

Friedman (1968) removed the notion of a long-run Phillips curve relationship from the policy arena, but it had two other, potentially more important effects, as well. First, Friedman also proposed the idea of a natural rate of (un)employment, which corresponded to the clearing of the labor market in real wages and was determined predominantly by supply-side, long-run variables like the size of the workforce, technological variables, and the institutional environment. By overtly referring to such a concept, Friedman shifted the emphasis of business cycle thinking slight back toward considerations of supply, even though aggregate demand management remained a primary concern. Second, Friedman's invocation of steady, even backward-looking expectations would give rise to a radical reconsideration of the expectations theory used in macroeconomic modeling. Even the slight

change to adaptive—as opposed to conventional expectations, animal spirits, or waves of optimism and pessimism—recast the economic anthropology at the center of the Keynesian system. These three effects, the expectations-augmented Phillips curve, a natural rate of employment, and the explicit recognition of a stable expectation theory, when coupled with the insights about money demand and the changes to the standard IS-LM framework constitute a substantial departure from the Keynesian orthodoxy. Taken together, they constitute what might be called Monetarism version 2.0, which is no longer a form of altered Keynesianism, but something resembling a coherent school of thought on its own. Monetarism 2.0 would, in turn, form the basis for the new classical revolution beginning with Lucas.

While new classical economics had many key contributors, few can rival the contribution of Robert Lucas, who, through a number of papers established the archetypical position of new classical economics relying on a few key points: rational expectations, market clearing, and “monetary surprise.” Rational expectations, as a hypothesis of economic behavior, was introduced by Muth (1961), who postulated that agents in the models—or individuals in reality—will continually gather information relevant to their plans in the attempt to make their plans as successful as possible. The net result of this process is that the agents’ understanding, or mental model, will not differ systematically from the underlying model itself. In the standard modern treatment, rational expectations merely requires that agents acquire and use intelligently all information relevant to a variable of interest. These formalities notwithstanding, of particular importance to macroeconomic modeling is that rational expectations implies that the expectations held by the agents in the model are endogenous. This very simple point lies at the center of what would come to be known as, after Lucas (1976), the “Lucas Critique.”

The presumption of market clearing was brought back into macroeconomic modeling by new classical economics. Taken together with rational expectations, which implies that

individual agents are optimizing (though the particular meaning of optimizing remained open-ended), these two presumptions constituted much of the methodological presumption that so separated new classical macroeconomics from its Keynesian and monetarist forebears. As a modeling technique, new classical economists introduced representative agents as a key feature of their explications; while representative agents had been employed extensively in the “golden rule” and “optimal growth” literature associated with the Cass-Koopmans model, its appearance in new classical models marked a departure from the norm in business cycle analysis.

Lucas (1972), one of the very first explications of new classical economics, exhibits most all of these salient characteristics. In this famous paper, known affectionately as the ‘Lucas islands’ model, representative firms produce a good and sell it from island to island. They base their production decisions on derived demand, which they have to estimate from the price they observe. Having only rational expectations—and not perfect information—they can suffer from misinterpreting price changes due to demand changes from price changes due to monetary policy. Because the agents have rational expectations, they will try to guess what portion of a price change is due to which cause and errors will be randomly distributed around the proper amount, such that agents are still optimizing given their information set. If markets tend to clear and agents optimize, how can there be a business cycle? Lucas (1975) explains that the business cycle will be due to monetary or fiscal shocks to the economy, which would otherwise be growing steadily along a trend of long-term growth. Monetary shocks could manifest themselves as any difference between actualized inflation rates and those expected by agents in the economy, giving rise to the phrase “monetary surprise” model of the business cycle.

The interesting conclusion from these models is that only unanticipated changes in the share of the price change due to inflation v. demand will have a discoordinating effect.

While put forward in Lucas (1972), this argument received much more thorough treatment in Sargent and Wallace (1975, 1976). Applied to macroeconomic policy, this outcome implies that correctly anticipated policy will be almost completely ineffective, and only unanticipated policy can influence real factors in the economy. In effect, this cripples the possibility for stabilization policy, as agents in times of recession or bust will expect some type of fiscal or monetary shock to try to offset the cyclical variation. However, since agents are expecting this policy, a policymaker hoping for a given effect would have to compensate for the expectations of the agents. This results, as Friedman (1968) did, with acceleration in the predicted policy variable and the impracticality of counter-cyclical policies.

New classical economics, through a number of theoretical—and more importantly, methodological—changes completed the revolution begun by Friedman (1956, 1968) against the Keynesian system. The new classical research program had changed the rules of theorizing. Rational expectations and representative agent modeling (essentially Walrasian general equilibrium modeling) were the signs of having taken the Lucas critique seriously. The final two developments in the mainstream of business cycle theories, real business cycle and new Keynesianism, share this methodological pedigree, though they depart on most other accounts.

Whereas new classical macroeconomics merely pulled away from the literature that came before it, real business cycle ran in the opposite direction. From its inception in the early 1980s, particularly with seminal works by Kydland and Prescott (1982) and Long and Plosser (1983), real business cycle completed the argument found in the new classical revolution. By fully incorporating rational expectations and the logic of market clearing, monetary disturbances were minimized, leaving behind only real factor supply shocks (such as resources, technology, tastes and preferences, etc.) to disrupt output and employment levels. Modeling the economy as a representative firm/household that responded optimally to given exogenous changes completed Lucas's enterprise of building a truly equilibrium model of cyclical fluctuation.

Following Frisch (1993), business cycles tend to work through impulse and propagation effects. In some respect, the fundamental disagreement between Keynes and his “classical” forebears was over the speed and tendency for propagation effects (perhaps price or wage adjustments) to respond to shocks. The “classical” view was that adjustments and other propagation effects would quickly return output and employment to the long-term trend, something resembling a natural rate. Keynes held that this was obviously not the case—how could the unemployment observed all over the developed world in the 1920s and 1930s be reconciled with this?—and cast doubt on the tendency back toward the long-term trend without intervention and stabilization policy. Harrod, noted above, built on this concept with his work on accelerators, postulating that, more likely, the propagation mechanisms may in fact exacerbate the initial shocks away from trend. The revolution, if one may call it such, begun with monetarism and carried forward into new classical theory, attempted to re-establish theoretic claims for and empirical evidence of tendency for propagation mechanisms to return to trend. Lucas (1975) postulates a monetary surprise model for impulse and explains the functioning of adjustments to return, such that at each stage of the cyclical variation, equilibrium is maintained. Real business cycle inherited the legacy of Lucas but proceeded even more radically.

Nelson and Plosser (1982) redefined the business cycle entirely; instead of impulse away from a trend and propagation mechanisms dampening the shock until progress along the trend was restored, Nelson and Plosser postulated that cyclical movements follow a random walk caused by exogenous shocks and the trend is merely the drift kept in place by propagation (that is, adjustment) effects. Economies move along a defined growth path, which cannot be considered a trend line in the same way that there is a postulated trend growth rate in Keynesian, monetarist, or new classical conceptions of the theory. Shocks of various types, sometimes in the form of supply-side and sometimes demand-side, upset this growth path and move the economy to another growth path, which is maintained by propagation

mechanisms, which are the adjustments made by firms and households in response to the impulse shocks. Essentially, Nelson and Plosser took the “cycle” out of business cycle, instead formulating the movement of aggregates and indicators as a process of adjustment to the changing characteristics of reality, asserting equilibrium at every point, the logical extension of the work begun by the new classical research program.

The approach of real business cycle is to hold that new classical economics had discovered a more correct understanding of the workings of the economy but merely did not take the arguments far enough. New Keynesian economics, on the other hand, ceded the methodological and theoretical insights of new classical economics while still holding to aggregate demand failure and the ability for activist monetary and fiscal policy. Mankiw and Romer (1991) survey the early literature and basic approach. While accepting the need to build on stable microfoundations, with optimizing agents, new Keynesians do not accept the presumption of market clearing. Indeed, a substantial portion of the new Keynesian literature revolves around demonstrations of how individually optimal behavior may generate rigidities, either nominal or real, in prices or wages that prevent full market clearing. New Keynesian economics finds an intellectual ally in the microeconomics of market failure—*e.g.*, externalities, asymmetric information, adverse selection, behavioral anomalies—much the way that new classical economics found an ally in standard neoclassical price theory. The two approaches to macroeconomic theorizing are merely these microeconomic bodies of thought blown up to a macroeconomic scale; indeed, the explicit modeling technique employed is more often than not a representative agent or game theoretic formulation.

Substantively, new Keynesian economics is a marriage of new classical and Keynesian (early monetarist, as well) theories. From the new classical economists, new Keynesians get a methodological commitment to sound microfoundations, individual optimization, the endogeneity of expectations, and the impulse/propagation understanding of stylized facts of the business cycle; from Keynesians, they inherit a healthy doubt concerning the ability

of propagation mechanisms to restore the economy to the long-term trend after a given impulse.⁷ New Keynesians do not, opposite Keynes himself, necessarily emphasize the inherent instability of the economy; rather, like new classical economists, the debate is not over the existence of shocks, but over the ability of the un-regulated economy to adjust correctly and quickly. Despite this similarity with new classical economists, new Keynesians do not see recessions or downturns as the efficient operation of an economy in equilibrium; rather, recessions and other downturns exist as stable equilibria due to the incentives faced by economic agents but as inefficient because of the inability or sluggishness of real and nominal variables to adjust to the changing underlying circumstances. In other words, new Keynesian economics is market failure macroeconomics *par excellence*.

With a heavy emphasis on the failure of prices or wages to adjust fully to coordinate economic activity, new Keynesian economics has a strong tie to Monetarism version 1.0 (Keynesianism version 2.0), especially with respect to policy. Believing, as monetarists do, that the money supply has a strong sway over nominal variables in the short-run, new Keynesians often look to disturbances in monetary variables to explain the emergence of slack in the economy and concomitant idle resources (especially labor). As a restorative action, they apply the logic of monetary policy to grease the process of adjusting prices or wages in order to restore a more efficient equilibrium. Though this mechanism appears to sound like the monetary surprise models found new classical economics, it differs in a crucial regard. In the new classical model, the problem was in determining the proper share of a price change due to demand versus inflation; incorrect guesses and surprises about the money stock would lead to error and the generation of the cycle. While new Keynesians do not rule out such signal-extraction problems, their emphasis is in the unwillingness or inability of individuals to adjust properly to the impulse from the money stock change. For these reasons, new Keynesians, while sharing the modeling techniques and methodological commitments of new classical economics, are closer theoretically to old monetarists, such

⁷In this respect, they are closer to new classical economists than even real business cycle theorists are.

that they may more accurately be called “new monetarists” than new Keynesians.

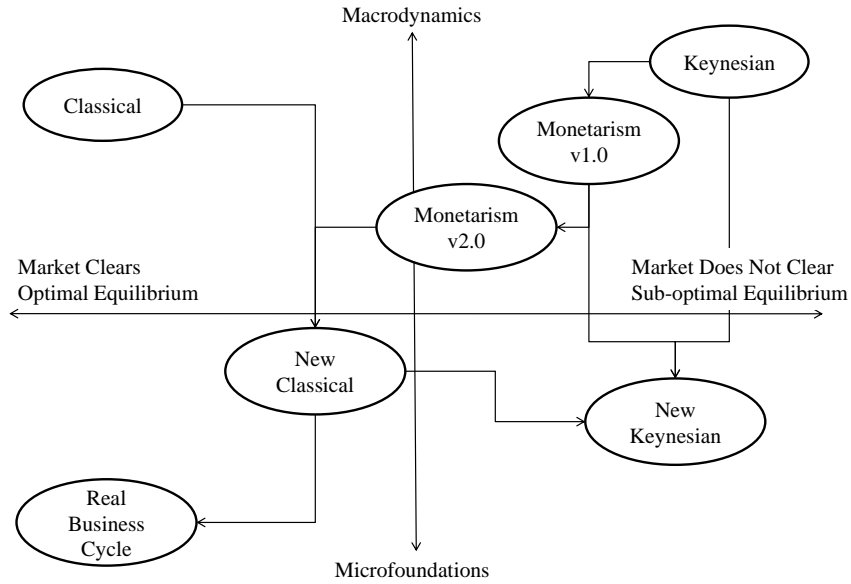


Figure 2.1: A Family Tree of Business Cycle Schools of Thought

All of the macroeconomic schools discussed exhibit a sort of family resemblance. Figure 2.1 lays out a simple family tree to illustrate the differences and similarities of this resemblance. The horizontal axis lays out a continuum from market clearing and efficient equilibria to non-market clearing and inefficient equilibria. The vertical axis aligns theories by their methodological make-up, schools at the top exist in a form of “macrodynamics” before the advent of microfoundations; those toward the bottom are thoroughly based in microfoundations. Arrows linking schools of thought do not necessarily imply direct causation, merely a strong theoretical connection.

“What has been, that will be; what has been done, that will be done. Nothing is new under the sun” proclaimed Qoheleth,⁸ and this seems true for the central contentions of the modern approaches to the business cycle; propagation mechanisms either function properly

⁸Ecclesiastes 1:9.

to adjust resources to the impulse, or they do not. From Keynes and the “classical” approach he attacked down to new classical and new Keynesian economics, this remains the primary issue. Along the way, the method of formulating theories of the business cycle has changed, moving from the interaction of various aggregate statistics to the amplification of a representative firm or household. Twenty years after the emergence of new Keynesian economics, little has changed on the face of macroeconomic theory; the same theoretical tools are used to demonstrate how different tweaks on this or that model produces greater or lesser instability. At the same time, real business cycle has blithely turned away from the entire intellectual process of attempting to explain cyclical variation. It seems appropriate to ask whether microfoundations, as it was pursued, has actually produced a more cogent or explanatory business cycle theory.

A tentative answer to this question is that business cycle theories that rest in the value paradigm and are built on microfoundations in that same paradigm are unlikely to produce much in the way of understanding macroeconomic fluctuation. The reason for this is that by being pre-committed to the value paradigm, the theory is shackled to equilibrium-type analysis, where there is either coordinated, market-clearing equilibrium or discoordinated, non market-clearing equilibrium. The intellectual enterprise is then one of shifting variables of the model to move from non market-clearing to market-clearing, perhaps through the manipulation of fiscal or monetary variables. All of the schools of thought outlined in Figure 2.1 belong to the value paradigm with respect to macroeconomic theorizing, whether the central engine is macrodynamics or microfoundations.

A different approach would be in line with two schools that do not quite fit on Figure 2.1, these being the Austrian and Clower-Leijonhufvud “coordination Keynesian” approaches. These two approaches differ from those preceding in that their theoretical underpinning are more strongly grounded in the exchange paradigm than in the value paradigm. The microfoundations do not simply become the macroeconomy when the outcome of a given model is

multiplied by n , but instead underlie the analysis of how macroeconomic phenomena come into being. This intellectual orientation shifts the focus from allocation questions or solving the value question toward the institutions and the environment in which exchange happens. Markets work toward clearing and efficiency, given a set of institutions, but will likely never achieve full market efficiency. The primary differences between the approaches of Austrians and coordination Keynesians is the relative importance of certain institutions and the underlying behavior assumptions about the agents in their microfoundations. Nevertheless, these two schools are more alike than different when compared to the remainder of macroeconomic schools of thought that exist purely in the market clearing/non market clearing and macrodynamics/microfoundations divide. Should business cycle theory advance in its ability to explain the sources and mechanisms of macroeconomic fluctuation, it will likely be along or parallel to these lines of inquiry.

2.3 Plus Ça Change, Plus C'est La Même Chose

Born of the same drive, to understand economic change through time, growth and business cycle were once seen as phenomena of similar cause but operating over different periodic frequencies. These related disciplines were effectively split by Keynes, who saw little reason to doubt the received wisdom of long-term growth but nevertheless postulated that there is something else at play in order to explain the short-term difficulties. Since this fission, the theory of growth has undergone something of a amazing transformation from its first substantive articulation in Solow to what comprises the new comparative political economy, yet there does not seem to be a similar transformation in business cycle theory. The parallel comparison of the growth theories and business cycle theories provide the opportunity to examine the shifting nature of economic research and discourse in the second half of the twentieth century and the opening of the twenty-first.

Boettke (1997) and Boettke et al. (2003) present a narrative that, when augmented with

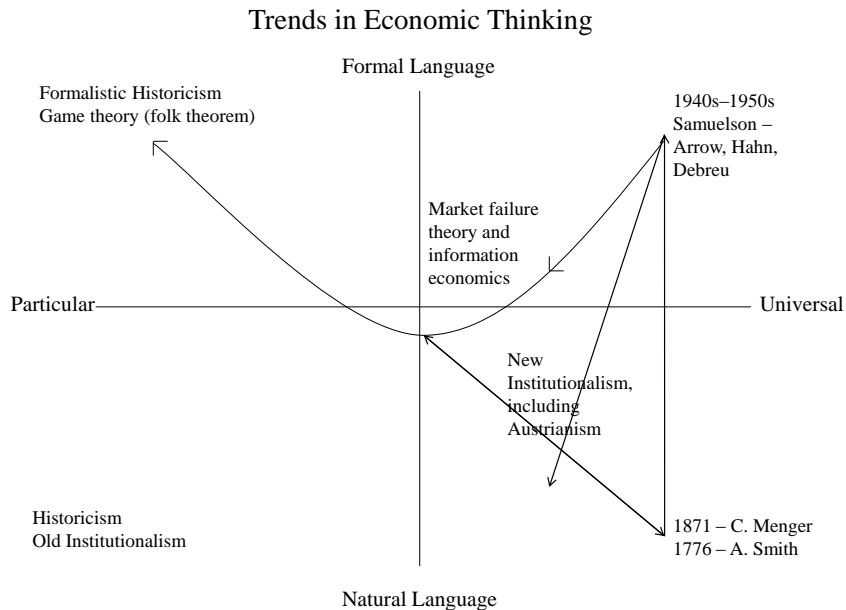


Figure 2.2: The ‘Boettke Narrative’ from Boettke et al. (2003)

a few other distinctions, helps to illuminate the changing face of economics over the twentieth century. Figure 2.2 corresponds to the story Boettke et al. tell of shifting trends in economic thinking. While originally born in the lower-right quadrant constituted by the overlap of universal characterization and natural language, challenges from the lower-left quadrant by Historical and Institutional schools on the continent, in Britain, as well as in America led to the development of a marginalist theory that would come to be known as neoclassical economics. The growth and proliferation of this neoclassical economic theory, particularly an atomistic *homo economicus* of the late nineteenth and early twentieth century and moved economics from natural language to mathematical formalization, even though the emphasis to universality and theoretical exposition remained. Mirowski (1989) argues that the nineteenth century understanding and application of the Newtonian model of physics formed the basis for the development of neoclassical economics from the 1870s on. By the 1940s and 1950s this transformation had taken hold of the entire mainstream discipline and mathematical general competitive equilibrium has been the theoretical emphasis

ever since. Breakdowns in the ability of this framework to explain reality, particularly observed market imperfections, led to the development of various exceptions and amendments to the general competitive equilibrium model neoclassical economics was using. Boettke et al. (2003) highlight the importance of game theory in general, and the Folk Theorem especially, as providing the foundation for an increasingly particularistic body of thought. They call this development “formalistic historicism” (Boettke et al. 2003, 7), formalistic because it relies strongly on the heavily formal language of mathematical modeling, even if those models are games of strategic interaction as opposed to the intersection of utility curves and budget lines, and historicist in that it leads to the development of particularist, nearly *ad hoc* theories of multiple equilibria. Boettke et al. indicate that the opening up of empirical research—even pointing to growth theory as a possible avenue—may provide a way out of formalistic historicism and back toward something more closely resembling universal theorizing with natural language. The path from Solow (1956) to Shleifer (2009) indicates that Boettke et al. (2003) may have been correct.

In addition to the Boettke Narrative, Kohn (2004)’s distinction between value and exchange paradigms helps to explain this revolution in growth theory. Kohn (2004) emphasizes the importance of an incompatibility of two co-existing paradigms in economics. On the one hand is the value paradigm, whose origins Kohn sees in the work of Hicks and Samuelson, an attempt to build a body of economic theory that is closed, bounded, nicely convex, and completely determinate. The value paradigm is the Newtonian legacy Mirowski (1989) saw in the development of neoclassical economics. Kohn elaborates, “Increasingly, then, adherents of the Hicks-Samuelson research program came to see the theory of value as *being* economics: they saw the two as identical and indistinguishable” (2004, 305). This theory of value is much better suited to and has been developed to answer questions relating to total factor productivity and distribution, *i.e.*, productive and allocative efficiency. It is the tool for the task of Robbinsian economics, finding the optimal allocation of scarce resources among competing ends. The value paradigm, and its methodological commitments, implies

an understanding of the economy that is viewed from the outside (top-down, as some have said) as a system in equilibrium that can respond to shocks and whose dynamics can be predicted, modeled, and evaluated. The exchange paradigm, on the other hand, tends to emphasize the process of exchange and as such sees the economy in a bottom-up fashion as a system of change—not of static equilibrium—whose regularities and dynamics emerge from the exchanges of individuals. Instead of casting its analytical light on the actual allocation of resources, the exchange paradigm emphasizes the institutional environment in which individuals make allocative decisions. Kohn summarizes, “Often [the exchange paradigm] is concerned less with relative prices and allocation and more with information and institutions. Much of it focuses not on the outcome of the process of exchange but on the process itself” (2004, 307).

2.3.1 Value and Exchange in Economic Growth

In light of Kohn’s distinction, the story of growth theory in the second half of the twentieth century becomes even more intelligible. The Solow model is simply an exercise in the application of increasingly strict value paradigm thinking. The economy as a whole is modeled as a single production function and the level of output is “chosen” by the variable inputs of the model. The production function model is a direct copy from the choice-theoretic microeconomics of firm behavior. Solow growth is simply firm-like behavior at the national level, abstracted away from the choices that individual households and firms may be making. The “growth” in the model is carried out by the exogenous variables, especially growth of the population and the growth in a technological modifier, and the savings rate “chosen” by society. The whole intellectual enterprise is an experiment in the applicability of choice-theory at the national economic level. “Golden rule” and “optimal growth” theory is a further elaboration of the same theme. Solow’s model implied that the savings rate is the variable of choice in the model, and something that could be chosen and would establish a steady-state equilibrium growth rate as soon as the other variables in the model had brought the entire edifice back to equilibrium. Cass-Koopmans sought to answer

the question of what an infinitely-lived, representative household would choose to save, and from this brought to the basic Solow framework a choice-theoretic, utility-maximizing social savings rate.

The endogenous growth literature produced something of a hiccup, as Kohn notes (2004, 314–318). Romer (1986)’s model of endogenous growth implies generalized increasing returns, which he modeled as creating a positive externality that could not be completely captured by the firms in the economy. One explanation for this externality is the non-rivalry of productive or technological knowledge, which creates a non-convexity in the mathematical formulations. In other words, there would be no automatic convergence to steady-state growth; even worse, there may be no steady-state growth. Though Romer had modeled his economy on the Solow framework, with changes to the exponents and modifiers, of course, the implications of his theory bucked against the closed, bounded, and deterministic methodology of the value paradigm.

A number of theoretical approaches emerged to begin coping with this problem. Some modeled endogenous growth with monopolistic competition, which could explain the absence of constant returns; others modeled labor market inefficiencies and difficulty of search arising from investment in human capital.⁹ These various approaches resemble something like the drift toward “formalistic historicism” that Boettke et al. (2003) reference. The problem, however, was that endogenous growth and the existence of increasing returns is simply incompatible with economic growth theory built on the value paradigm. Absent a paradigm shift, growth theory would not progress. Instead of a paradigm shift, however, the primary response was largely to engage in more and more empirical work.

Boettke (2000) presents a framework, reproduced in Table 2.1, that aids understanding

⁹Some of Acemoglu’s early work was in this field.

Table 2.1: Theoretical and Empirical Archetypes, Boettke (2000)

	“DIRTY” Empirical Work	“CLEAN” Empirical Work
THIN description	ANALYTICAL NARRATIVE	Standard economics analysis <ul style="list-style-type: none"> • constrained optimization • statistical significance
THICK description	Traditional anthropological, sociological, area studies political science work <ul style="list-style-type: none"> • social forces and cultural analysis • case study and ethnography 	Statistical sociology and political science <ul style="list-style-type: none"> • “Kitchen sink” statistical analysis which throws everything in the right side of the equation in search of explaining the left side.

the changes growth theory underwent in response to the theoretical challenge of endogenous growth. Growth theory prior to endogenous growth was a combination of thin theory and clean empirical work, as most economics has been.¹⁰ In the wake of the endogenous growth challenge, growth economists attempted to integrate “thicker” theoretical conceptions by augmenting their empirical work with proxy variables for culture and institutions. Through work such as Barro (1991), Barro and Sala-i Martin (1992), Levine and Renelt (1992), Mankiw et al. (1992), Durlauf (1996), Sachs and Warner (1995, 1997), and Sala-i Martin (1996, 1997), there is strong evidence that the empirical growth literature moved from thin theory with clean empirical work toward something more closely resembling the bottom right quadrant (of Table 2.1) with thick theory and clean empirical work. The empirical sources were still predominantly national income statistics, but the literature began including more and more qualitative variables in an attempt to isolate the precise causes of economic growth and to establish the parameters for convergence to steady-state growth. The theoretical base was growing, though it is important to realize that the majority of these papers were still committed to a “thin” Solow core. The “theory” in question was literally comprised of whatever variables were put in the econometric estimation, meaning that the empirical data set *defined* the “theory.” This augmentation of Solow, with the inclusion of human capital, proxies for technological movement, policy variables, and a host

¹⁰This is, incidentally, further evidence of the methodological unity of economics in the value paradigm.

of other institutionally influenced parameters¹¹ had created a theoretical presumption that “anything goes—as long as it holds up empirically.” The result is formalistic historicism at the macroeconomic level.

By the early years of the twenty-first century, however, the adoption of the analytical narrative model, as well as a small renaissance of microeconomic explanation, *e.g.*, Baumol (1990) and Olson (1996), had changed the face of growth economics. Theories being tested now were based on the presumption that growth is a function of the ability of entrepreneurs to realize the gains from trade. Institutions themselves do not cause growth, but entrepreneurship does. Institutions, rather, play a role in determining the incentives faced by entrepreneurs to realize those gains from trade and affect how successful those entrepreneurs are likely to be. This represents a transition from the chaos of thick theory back toward a thin, institutionally contextualized theory of economic growth, grounded firmly in the exchange paradigm.

2.3.2 Business Cycle Theory in the Value Paradigm

Business cycle theory, on the other hand, has yet to undergo such a paradigm shift. Kohn sees the invasion of the value paradigm originating with Hicks and Samuelson—Hicks on substantive, theoretical grounds and Samuelson on mathematical, methodological grounds. Naturally, as Hicks (1937) was a major step forward in the application of Keynesian macroeconomics, it also marks the beginning of the relationship between business cycle theory and the value paradigm.¹² From the IS-LM framework, through to the early formulations of the Phillips curve and Okun’s Law, Keynesian business cycle theory has stipulated the interaction of aggregate outcomes as if they were the objects of choice whose trade-offs were directly taken into account by the choosing agent. This theoretical commitment, which

¹¹One might conclude, tongue-in-cheek of course, that this line of inquiry is inherently Hayekian, since it had made “institutions” the fourth factor of production.

¹²It is important to note the oft-cited distinction between Keynes and the Keynesians (see Leijonhufvud (1968), for example) and to emphasize that Keynes’s own views on business cycle may be more at odds with the value paradigm than the Keynesian literature would suggest. Post Keynesians, for instance, who claim the mantle of “true” followers of Keynes seem much more at home in the exchange paradigm.

is merely the application of value paradigm thinking to macroeconomic variables, remains largely harmless without the direction of policy based upon it, as if a policymaker could step into the role of that choosing agent and make the corrective change to one or more of these macroeconomic indicators.

The early monetarist counter-revolution did little to change this approach. Indeed, it relied upon the connection between business cycle theorizing and the value paradigm in order to undermine the Keynesian orthodoxy. Friedman (1956) stems not from a fundamental rethinking of macroeconomic relationships, but rather from the application of a theory, particularly a different version of the aggregate demand for money, to the existing framework. Friedman (1968), on the other hand, marked a deeper revision to the Keynesian system. By challenging the Keynesian theory of expectations, Friedman required that mainstream macroeconomics be reconsidered, in a sense, from the ground up. This revision would come with new classical economics.

The real revolution in new classical economics was methodological. By applying rational expectations, Lucas and Rapping (1969) and Lucas (1972) turned the rumblings of the expectations-augmented Phillips curve into an earthquake. The call to build macroeconomic models on solid microfoundations was realized by building macroeconomics on the representative agent. Lucas's usage of a representative agent was not original, but it would become trend-setting. Lucas (1975) brought macroeconomic theory firmly into the formalistic universalist approach, and the Lucas Critique (1976) set the agenda for macroeconomic policy studies. New classical economics marked the crossing of a methodological Rubicon; while the theories that would develop after the new classical revolution would be substantively derivative of the Keynesian and "classical" approaches of the first half of the twentieth century, they would be unmistakably modeled in the techniques of the second half.

The first reaction to new classical theory was the emergence of real business cycle. Taking

the logic of market clearing and rationally optimizing agents, real business cycle theorists did more to bring the positions of the so-called “classical” economists—the absence of money illusion, emphasis on only real effects, continuous market clearing, etc.—back to the fore of macroeconomic research than did the new classical school. These theoretical positions prompted a response in the form of new Keynesians, though the new Keynesian development was more of a methodological response to new classical and real business cycle theory than a theoretical response. The goal of the new Keynesian revolution was to establish an explanation in microfoundations of the sub-optimal equilibria presumed in aggregate demand failure Keynesianism.

By way of the ‘Boettke Narrative’ (see Figure 2.2), modern business cycle theory is currently experiencing a period of formalistic historicism. Real business cycle had succeeded in the process of reuniting growth theory and the business cycle, as their theory does not distinguish between short- and long-run, but merely stipulates shocks of differing horizons and duration. More importantly, real business cycle is perhaps the fullest realization of the value paradigm in macroeconomic theory, having turned the entire economy into one representative agent who goes to work with a production function and allocates his leisure and savings over his infinite life-cycle.¹³ Modern empirical work in real business cycle is less about prediction and policy than it is about calibration and attempts to fine-tune the model of the economy. Theory—in so much as there is anything resembling a theory beyond “agents optimize”—has given way to empirical input and the data set wags the model. At the same time, the new Keynesian school is clearly indicative of this, with its emphasis on game-theoretic explanations of individual optimization and macroeconomic disequilibrium; any theory that can produce this theoretical result is offered as an explanation for the reason aggregate demand has failed and there is cyclical variation in output and employment. In this respect, new Keynesian and new classical macro (though there are few adherents to the latter who would not more vociferously back real business cycle theory) stand where

¹³In this respect, it functionally robs macroeconomics of anything that might be considered usefully macroeconomic, but perhaps that was the goal.

growth did during the empirical wilderness of the 1990s, having exhausted the usefulness of the value paradigm and in need of a paradigm shift.

2.4 Whither Macroeconomics? Whence

Hayek once famously suggested that “...it is probably no exaggeration to say that every important advance in economic theory during the last hundred [nearly one hundred sixty at present] years was a further step in the consistent application of subjectivism” (1952, 52). The reason for this turns on the understanding what the value and exchange paradigms mean for social science. The further economic analysis extends the understanding of subjectivism, the less economics—at the level of explaining social order—tends to focus on questions of the determinacy of value and the allocation of resources, and the more it tends to focus on the institutions and context within which individual valuation occurs. A simple example of this is the revolution carried out by Buchanan and Tullock (1962) and the public choice literature that followed and the effect they had on the understanding of politics. Prior to this revolution, much of the theorizing about government behavior was done as if it were the action of a single choosing mind, rather than the emergent result of interaction among countless agents. Buchanan and Tullock essentially took the theory of political action from the value paradigm into the exchange paradigm. Macroeconomics is presently in dire need of such a revolution. If any branch of economic science is most in need of being based in the exchange paradigm, it is macroeconomics, as the entirety of this area of study comes about through the process of exchange among individuals.

But what would such a change look like? Does a commitment to the exchange paradigm condemn macroeconomic theory to thick ruminations or dirty empirical work? The exchange paradigm does not need to be characterized by thick theory at all; new growth theory is still rather thin even though it is much closer to the exchange paradigm than to the value paradigm. Macrodynamics, *i.e.*, the interaction of aggregates with aggregates,

has little bearing on reality, so microfoundations are necessary for a useful and explanatory conception of macroeconomics. Conceptualizing of macroeconomic phenomena in the exchange paradigm puts primacy of the institutional environment in which economic exchange happens, but it cannot ignore the nature of the agents. Microfoundations still apply, but the important point, however, is *which* microfoundations. Macroeconomic theorizing throughout most of the latter part of the twentieth century followed theoretical foundations that were squarely in the value paradigm, as if whole economies were choosing. An appropriate microfoundation for an exchange paradigm macroeconomics will have to be one that comports to a rich understanding of individual choice.

The anthropology of economic agents plays an important role in the exchange paradigm precisely *because* so little theoretical work is done at the agent level. By moving from the value paradigm to the exchange paradigm, the idea of a full employment equilibrium loses its meaning, as the recognition of continuous change undermines the idea of achieving 100% efficiency. As such, it becomes less and less important to consider the motivational or information processing abilities of the *agents*, but instead to shift toward the motivating (*i.e.*, incentives) and information processing abilities of the *institutions*.¹⁴

Nor is this result limited only to understanding microeconomic phenomena. Consider, as another example, the literature on economic freedom. Both Fraser and Heritage publish data on the institutional characteristics of political regimes around the world with respect to the economic environment, *e.g.*, how long it takes to start a business, monetary stability, risk of expropriation, etc. The fundamental “theory” at work is that the process of generating growth is as simple as removing barriers to its progress. “Little else” Adam Smith remarked, “is requisite to carry a state to the highest degree of opulence from the lowest barbarism but peace, easy taxes, and a tolerable administration of justice: all the rest being brought about by the natural course of things.” This “natural course of things,”

¹⁴This argument is not new. See, for instance Alchian (1950) and Gode and Sunder (1993).

of course is the entrepreneurial market process; it is a microfoundation. Everything else Smith talked about, peace, easy taxes, and a tolerable administration of justice is properly an institutional and emphatically *macroeconomic* question. The answer, then, to the question of where macroeconomics is to go may well be to go back to where it began: Adam Smith and Classical economics.

3 Political Economy as a Discoordination Problem

The previous chapter concluded with the notion that in order to bring growth theory and business cycle theory into the realm of the exchange paradigm, it may be necessary to return to classical political economy. The particular manifestation of classical political economy that will best achieve this transition is Say's Law, or the law of markets.

This chapter proceeds along the following lines. The first section examines the meaning of the law of markets as it was understood by pre-Keynesian, 'classical' political economists, emphasizing how it served as an explanation both for growth and cyclical variation in output, the latter in what it disallows and what its workings emphasize, for a general theory of macroeconomics in the exchange paradigm. The second section explores the connection between this general theory of economic fluctuation based on the law of markets and the Austrian theory of the business cycle, both in how the standard version of the Austrian theory is related and how the Austrian theory of the business cycle could be made more in line with the exchange paradigm through a number of reformulations. The third section concludes.

3.1 Say What? Whose Law?

To call Say's Law one of the more hotly debated topics in macroeconomic theory would be a phenomenal understatement. In certain respects, Keynes's primary theoretical target in *The General Theory* was Say's Law and the implications that flow from it. The characterization Keynes put forward, that 'supply creates its own demand' has become the stuff of economic legend, fully blocking out the rich history and meaning the law of markets once held. In the wake of Keynes (1936), numerous interpreters and re-interpreters have stepped

forward to present what Say or Keynes *really* meant and how the essential problem must be approached.

The version of Say's Law adopted in this work is based predominantly on Kates (1998) and Kates (2003), especially Horwitz (2003b) in Kates (2003). Of course, Kates's two treatments are not the only attempts to revise or revive Say's Law, or the law of markets, after Keynes. Notable others include Becker and Baumol (1952), a refinement in response to Lange (1942), as well as later work by Baumol (1977). Both of the Baumol pieces, both with Becker and his own work, are largely historical treatments in that they rely on theoretical refinements bolstered by the work of classical authors. Sowell (1972, 1974), both updated to some extent in Sowell (2006), rely on historical inquiry and attempt to frame the issues at the heart of Say's Law in contemporary economic language. Further, Hutt (1974) presents an appreciation for the inter-temporal dynamics implicit in the law of markets and the propensity for generating recessions through markets not clearing. Hutt's contribution is notable in the clarity of his exposition of the mechanisms at work in the law of markets and the novel application of his own theory of idle resources first published in 1939, updated in Hutt (1977). The preceding is not intended to be a fully exhaustive survey of the secondary or primary literature on Say's Law in the wake of Keynes's *General Theory*, not treating Patinkin (1948) or his subsequent work, Balassa (1959), Clower and Leijonhufvud (1973), Cowen (1982), or Jonsson (1995). Kates (1998) provides a thorough summary and criticism of these and other modern versions up to the time of its publication.

Kates (1998) differs from other historical treatments in scope. While many of the above rely on statement by Say, James Mill, and John Stuart Mill, Kates draws on a larger base of classical economists to patch together a series of propositions that encompassed everything the law of markets meant to classical economists. Important in this process were works published as a response to Malthus's 1820 exposition of demand deficiency, as well as the various explanations offered by classical economists to explain the phenomena of cyclical

fluctuations of output and employment. Kates (2003, Chapter 1) presents eight propositions that constituted the full law of markets. They are:

Proposition 1: Recessions are never due to demand deficiency. An economy can never produce more than its members would be willing or able to buy. High levels of saving do not cause recessions.

Proposition 2: Demand is constituted by supply.

Proposition 3: Purchase and sale is [sic] the conversion of one's own goods into money and then the re-conversion of the money one has received back into other goods. Money is intrinsic to the process involved.

Proposition 4: Recessions are common and result in high levels of involuntary unemployment.

Proposition 5: Recessions are due to structural problems. Recessions occur where the structure of supply does not match the structure of demand.

Proposition 6: Overproduction of individual goods can lead to a general downturn in an economy. The transmission mechanism is from a reduction in earnings in some sectors to a fall in demand in other sectors and therefore to a wholesale downturn in activity.

Proposition 7: Monetary factors, most notably contraction of credit, can also be and often are an important cause of recession. Even where monetary instability has not been the originating cause of recession, monetary factors will often deepen a recession brought on for other reasons.

Proposition 8: Because recessions are not due to a failure of demand, practical solutions to recession do not encompass increased levels of public spending. Such expenditure is merely a palliative rather than a cure.

The next portion of this chapter will examine these propositions as the foundation of a theory of the business cycle.

3.1.1 The Law of Markets Revealed

Proposition 1 corresponds to the rejection of general gluts in causing recessions. This debate was sparked in the English-speaking world by Malthus's contention of such a cause. By the mid 1840s this position was all but completely removed from political economy. The reason for Proposition 1's truthfulness is found in Proposition 2, which has been the kernel of the law of markets since Say's earliest articulations. Proposition 2 is based on the stipulation that the act of producing a certain product creates the wealth necessary to consume other products. Without wealth created by the production—and sale—of other commodities, there would be no demand for any given good or service.

This concept bears a little extrapolation. Stated as it just was, it follows that the act of supplying a good is logically and temporally prior to effective demand for goods. This is true whether in a simple Robinson Crusoe situation or an advanced economy. If Crusoe wants to enjoy coconuts, he must engage in some form of production—*i.e.*, a physical rearrangement of the attributes of a good—whether this means gathering them off the ground or finding some means to remove them from the tree. Only then, after this production, is consumption possible. In a more catallactically-rich circumstance, if someone in Maine wants to enjoy coconuts, he must transform whatever it is he is able to produce into either something directly valued by someone else for that person's coconuts, or an intermediary good capable of linking these two. This is Proposition 3, which as Kates states it, rests firmly in a money-using catallaxy.

But even if production, or supply, is logically and temporally prior to demand, this does not imply that 'supply creates its own demand' or 'if you build it, they will come.' Rather, the acts of production and supply must be guided by some view of the demand to come. Otherwise, all types of the wrong things ("wrong" from the perspective of consumer sovereignty) will be produced. In the modern manifestation of market process theory, this corresponds to

the role of entrepreneurship, that is, the discovery of unexploited but exploitable opportunities to move existing goods and services to a different, more highly valued situation. But entrepreneurship can only be considered successful if it satisfies the desires of consumers, which implies that these desires are logically and temporally prior to successful production and supply.

As it stands, demand is logically prior to supply which is logically prior to demand, creating what might appear to be Say's Paradox, not Say's Law. A useful distinction can be made between notional and effective demand in order to get out of the paradoxical situation. Notional demand is what drives entrepreneurs to try different production techniques, innovate, or simply arbitrage existing productive capabilities in the search for profit. These entrepreneurial acts rely on the cooperation of a number of resources, the owners of which will be paid out of the firm's or entrepreneur's subsistence fund until the receipts from the sale of the goods produced have come in. These payments to the owners of factors of production, whether land, labor, or capital, enable those factor owners to make effective their notional demands. From notional demand to production to effective demand and into consumption, the law of markets is better understood as a simple model of the market process.

Plainly, the law of markets relies heavily on the successful operation of competition and entrepreneurship. If the entrepreneur has correctly perceived latent notional demand, his goods or services will sell and he will stay in business; he will continue to hire factors of production and pay them, allowing them to continue consuming. If he is wrong, however, he will have wasted the subsistence funds he was able to raise and from which he made his initial payments to factor owners, who will now have to find different employment, and this time and these resources will have been wasted. Whatever good or service he was offering had been over-produced, at the expense of other uses of the resources that could have been more valuable.

This latter case explains Propositions 4, 5, and 6, as entrepreneurial mistakes may have wide-ranging effects through an economy. Every new process of production makes a gamble on the willingness of consumers to shift their consumption from what they had previously been doing toward something new, and this new process of production will require tying up resources that could have been used elsewhere. When entrepreneurial ventures fail, they will likely have ripple effects through the economy; not only will those employed in that venture find their paychecks ceasing, but also the unrealized opportunities that could have been explored with those resources during the failed venture will be revealed. While labor, particularly unskilled labor, is relatively fungible, physical, intellectual, and human capital are considerably more specific and can find profitable employment only with complementary pieces of capital. A sort of natural concentration of capital comes along with advancements of productivity and complex production processes. When these ventures fail, there exists the all-too-likely possibility that reallocation will be a lengthy and painful process.

Further, those other industries that relied on the steady consumption offered by those who were formerly employed in the failed entrepreneurial venture will find their receipts falling, as well, and will have to adjust to new market conditions. These adjustments may entail layoffs or other labor renegotiation, or else they may take a more radical form in drastically reorganizing the entire enterprise, depending on the nature of the relationship between the failed venture and these extant ones. Since effective demand is constituted by supply, disruptions in the process of production and supply will frustrate effective demand elsewhere in the economy. The final result of these disturbances may indeed be a massive effective demand failure, but it must be noted that this effective demand failure is a *symptom*, not the disease itself. The disease is the result of a cluster of entrepreneurial errors, both those that first misconstrued underlying notional demand for certain goods or services as well as those those entrepreneurial plans that grew up around and tied into those of the former category. Since the initial mistake will be weeded out once the process of competition

and other, new entrepreneurial ventures are realized, an adjustment must necessarily follow.

Entrepreneurial errors are common, though relatively few grow large enough to have a massively destabilizing and discoordinating effect on the economy in themselves. Nevertheless, recessions do occur and must be linked to a cluster of errors (Proposition 4). These errors manifest themselves through the structure of supply they produce, which is shown to be out of step with the structure of demand that would support a different supply structure (Proposition 5). These structural problems need not arise from an error in every industry; indeed, the overproduction of any good implies the underproduction of at least one other. Prices may adjust to reflect this difference in value,¹ but it may be that the final prices do not make it possible for competing firms and entrepreneurial ventures to stay in the market (Proposition 6). A remaining question is how large these effects will be and whether they have the potential to generate recessions or not. This question, however, is decidedly more empirical than theoretical, though the theory can address parts of it, as will be discussed in the next section.

Proposition 7, recognized even by classical political economists, is an example of some such disturbance and rests on the importance of money in a large economy. As the prices and interest rates that consumers and entrepreneurs must use in the formation of their plans are money prices, monetary disequilibrium remains a vitally important cause for economic discoordination. With respect to the law of markets, Austrian concerns for the market process, and monetary discoordination, see especially Horwitz (2000, 2003a,b, 2006). Horwitz (2003b, 2006) builds explicitly on the foundation of Yeager's monetary disequilibrium theory,² and argues precisely what Kates does in Proposition 7, that a contraction of credit could create a prolonged recession. Of course, monetary disequilibrium need not be the cause, it may simply be an exacerbating factor. Proposition 7 speaks only of a contraction

¹Hutt (1974) builds his theory on how observed difficulties with the process of price adjustment, particularly adjustments downward, emphasize the discoordination implied by the law of markets.

²See Yeager (1968, 1986) and Yeager and Greenfield (1989).

of credit, though Horwitz (2006) notes that an increase in desired cash balances with a constant supply of credit could create the same problem in monetary disequilibrium through adjustments of the real value of money. At the same time, an increase in credit without an offsetting increase in the desire to hold money balances, or a fall in the desire to hold money balances without an offsetting fall in credit would also have the strong potential to create discoordination and recession. In the next section, inflation and credit expansion will be treated extensively, as these typically fall under Austrian business cycle theory.

Finally, Proposition 8 follows from the demonstration of Proposition 1. Since scarcity implies that an overproduction of one good implies an underproduction of another, the general glut is a logical impossibility. While effect demand failure *may*—but need not—appear through the course of cyclical fluctuation in output, it is a response, a symptom, not the cause of the cyclical fluctuation itself. Spending bills and attempts to stimulate aggregate demand will not be productive for a number of reasons. First there is the fact that fiscal or monetary stimulus always involve some secondary effect, such as tax burdens, deficits, or borrowing in fiscal stimulus and the tax of inflation in monetary stimulus. Even ignoring this, since demand is constituted by supply, it is impossible to increase demand without increasing supply as well. Stimulus of the effective demand during a recession will merely bid up the prices of goods and services that remain (those that were correctly provided in the first place) and make it more difficult to achieve the reallocation of capital and other factors of production. While Horwitz (2006, 170) correctly notes the logical possibility of monetary expansion to offset the problems of a credit squeeze, it is difficult to imagine that a central bank would be able to react appropriately to solve this problem, given not only the sheer amount of knowledge that would be required to do so but also the paucity of functioning market signals that provide this knowledge. The case for offsetting fiscal programs, *i.e.*, spending programs that would set in motion the growth of industry that will correct the structure of supply with the structure of demand, seems for the same reasons *a fortiori* even less likely.

The law of markets, as presented by Kates (1998, 2003) and the preceding, accomplishes two primary goals; first, it presents reasons to discount—at the very least discount, if not dismiss—under-consumptionist or aggregate demand failure theories of recession, and second, it provides a positive account for the workings of a theory of recession based on discoordination in a market economy characterized by dispersed knowledge, money prices, a specific and complementary capital structure, and entrepreneurial discovery. This theory, in addition to being general, fits squarely in the exchange paradigm. Instead of trying to explain and predict equilibrium paths of expansion in production and variation off these paths, it presents a simple version of coordination among competing and cooperative enterprises. Instead of focusing on physical production and allocation, it puts the focus on institutions, such as the price system, monetary policy, and rules regarding property and business formation. In particular, the law of markets creates a framework for considering how these institutions create and influence the environment in which the processes of exchange and production play out.

If the law of markets presented a plausible and illuminating heuristic for understanding cyclical variation in output and employment, there remains the question of how the law of markets fell out of vogue and why it would be necessary to reintroduce it. The standard story that Keynes and the Keynesians expunged Say's Law from the face of the economics discipline appears to be correct and the "blame" rests there. A major portion of Keynes's theory, modeled on Malthus, is one of aggregate demand failure, general glut, and under-consumption, anathema to the law of markets in any formulation, such that to the degree that aggregate demand failures as a cause of recession took the center stage, Say's Law disappeared. But what of the other portion, that dedicated to a positive theory of recession and variation?

Despite of the work of Keynes in putting forward an aggregate demand failure theory for

the cause of recession and thereby moving the law of markets to the dustbin of history for some time, there are grounds for sympathizing with the Keynesian enterprise. In this case the version of Say's Law that Keynes attacked—not merely 'supply creates its own demand' but the concept of an equilibrium-always worldview in which total supply always equaled total demand—is a concept that flies in the face of common experience and could likely, if left unchallenged, generate more confusion and obfuscation of economic phenomena. Of course, as Kates (1998), as well as Sowell (1972) and Baumol (1977), demonstrate, this is a position that scarcely held sway among pre-Walrasian classical economists who espoused the law of markets. This particular strain of the law of markets—more like an equilibrium-condition than a postulate about the functioning of market economies—appears to exist only in a Walrasian, general equilibrium (not even a Marshallian, partial equilibrium) world. Not surprisingly, as a theory of economic reality, it grew and thrived in the era *after* Keynes's initial attack, in the heyday of general competitive equilibrium modeling, where one was much more likely to find supporters of this view of Say's Law than among those pre-Keynesian "Classical Economists" whom Keynes put in his intellectual crosshairs.

It seems that two ironies flow from this point. The first is that if it were truly Keynes's goal to demolish and remove the law of markets *as he attacked it*, his efforts were in vain, as the literature following Keynes only served to stoke the fire of the Say's Law controversy.³ This first irony is that Keynes did a great deal to keep alive the notion of 'supply creates its own demand' and the equilibrium-condition understanding of Say's Law, contrary, it seems, to his purpose in *The General Theory*. The second great irony regarding Keynes and the law of markets is that according to one interpretation, broadly in line with Leijonhufvud (1968), Leijonhufvud (1981, especially Chapters 1–4), and Clower and Leijonhufvud (1973), Keynes's attack on the mechanistic, equilibrium-condition view of Say's Law was an attempt to draw attention to the problems of inter-temporal coordination. In this respect, Keynes's broader program and the law of markets are truly allies, not enemies. Their

³See Jonsson (1995) and Johnson (2001) for survey-like analyses of the interpretation and debates surrounding the fate of Say's Law after Keynes.

mutual antagonist is a value paradigm understanding and interpretation of economic coordination, as opposed to an exchange paradigm understanding of the processes of economic interaction, both coordinating and dis-coordinating, as well as institutional environment within which these processes take place. If Leijonhufvud and Clower are correct about the original impetus and direction of the Keynesian program, this program belongs in the same line with the original law of markets, ironic though that fact may be. In terms of the law of markets, Keynes's primary failing it seems to have mistaken (effective) aggregate demand failure for a cause, as opposed to a consequence, of recession and dis-coordination.

3.1.2 The Law of Markets and Economic Growth

The law of markets is also a theory of economic growth. Consider Hutt, "A grasp of it is indispensable for an understanding of the true genesis of depression and prosperity without inflation" (1974, 5). Having examined some of the recession theory implicit in the law of markets, this portion of the section will deal with the theory of economic growth as it relates to the law of markets.

Modern treatments of economic growth and development, *e.g.*, Baumol (1990, 2002), Olson (2000), Harper (2003), Powell (2008), and Holcombe (2009), have rightfully emphasized the entrepreneur as a prime motivator of change. Of course, this connection is nothing new; Schumpeter's classic theory of economic change was marked by the presence of the entrepreneur. The law of markets as laid out previously in this chapter is at home in an entrepreneurial market process and is a natural fit with these approaches.

Further, Horwitz (2003b, 84–86) notes the natural affinity between the law of markets and Smith's dictum that "the division of labor is limited by the extent of the market." This is best seen in Propositions 2 and 3, that demand is constituted by supply and that the effective demand for any given good or service is only made effective by the supply of other goods and services. It is a short leap from these principles to the idea that as a

market is growing, there are more and more outlets for supply and therefore more and more demanders. As the division of labor is the primary cause of increases in productivity, larger markets make more more divided labor and higher productivity. The law of markets helps to highlight this important mechanism.

As a theory of growth, the law of markets is fundamentally Smithian, in that it works on the principle of increasing returns at the economy level. Increasing returns is often associated with Young (1928), and a number of more recent treatments (Buchanan and Yoon (1994, 1999), Buchanan (2008), and Sandilands (2009)) have emphasized the importance of increasing returns at the economy level. For a connection between increasing returns and the law of markets, however, one need look only to Young himself:

...an increase in the supply of one commodity *is* an increase in the demand for other commodities, and it must be supposed that every increase in demand will evoke an increase in supply. The rate at which any one industry grows is conditioned by the rate at which other industries grow, but since the elasticities of demand and of supply will differ for different products, some industries will grow faster than others. (Young 1928, 533, emphasis original)

In the statement “an increase in the supply of one commodity is an increase in the demand for other commodities” one sees a near-perfect version of Kates’s Proposition 2 and 3. Simply through the interaction of demanders and suppliers in an entrepreneurial market process, increasing returns are often realized and economic growth is, to quote Adam Smith, “the natural course of things.” The remainder of the explanation is institutional, namely the “peace, easy taxes, and tolerable administration of justice.” In this respect, not only is the law of markets a suitable framework for understanding the process of economic growth and development, but by situating these processes in increasing returns, it stands outside the value paradigm and in the exchange paradigm. As such, it properly puts the focus on the institutional considerations that frame the environment in which these processes take place.

The law of markets serves at the very least, in Horwitz’s (2003b, 86) words, as “...an explanatory principle. It is a piece of theory that helps us render the world around us

intelligible, and enables us to give good advice to policymakers and others who might be pondering various sorts of efforts to stimulate the economy.” While this is certainly true, the law of markets is more than just this, as the present explication goes beyond the discussion offered in Horwitz (2003b). Although certainly a piece of theory that helps us render the world intelligible, the law of markets—in all of its aspects—forms the core of macroeconomic understanding, as it relates to the institutions and processes of interaction at the level of whole economies.

3.1.3 Recession Theory or Business Cycle Theory?

Thus far in the discussion a number of terms have been used more or less interchangeably, those being ‘business cycle,’ ‘recession,’ and ‘cyclical fluctuation.’ For the present discussion these are merely different terms for the same phenomenon, namely the expansion and contraction of output and employment through time. This usage is broadly in line with the standard usage of economists, who model, and at least measure, business cycles empirically. Booms are periods when output and employment are growing; recessions are periods when these (and other variables, perhaps) are falling. The business cycle is the connection of a boom and recession, and cyclical fluctuation is simply another term for the process of a business cycle. This is where the unity of present usage and that of standard economics ends. In the mainstream, business cycles are due to variations away from full employment levels, which will tend to cause difficulties either through the economy’s “overheating” or, alternatively, some aggregate demand failure or aggregate supply shock. The various causes for deviation away from full employment currently in vogue represent the major schools of thought on the business cycle and were discussed in the previous chapter.

The usage above, standard for most economists, is decidedly at odds with one conception of the business cycle, namely the Austrian theory of the business cycle. According to the Austrians, the boom is a period, brought on by credit expansion, of growth above the full capacity of the economy, and the bust (or recession) is the phase that follows during

which capacity of the whole economy falls as plans are liquidated. As the economy adjusts, ostensibly, the long-run growth path expands back to something resembling its prior form, it is surmised something like a full employment equilibrium.

The reason for this formulation stems from Mises's employment of the evenly rotating economy thought experiment in framing his version of the Austrian business cycle. By beginning from an evenly rotating economy, abstracting from time and uncertainty and where plans are full coordinated, Mises could more carefully highlight the effect of a credit expansion, namely the lengthening of the structure of production (since any shorter-time horizon plans would already have been exploited in order to have achieved the equilibrium construction from which Mises began). Since the intellectual exercise began with the evenly rotating economy—an equilibrium, long-term growth path—this expansion of credit causes the economy to move above full employment, an unsustainable situation, and the bust will naturally follow.

Neither the standard economics nor the Austrian formulations is acceptable. The reasons for this come primarily from two sources, one methodological and the other theoretical. First, by adopting the law of markets fully conceptualized within the exchange paradigm, there is little in the way of an 'optimal' output or employment of which to speak. The concept of a long-run growth path does not completely fall away, but the idea of an 'optimal' or 'full' employment output brings with it intellectual baggage that are odds with conceiving of the economy as an open-ended, emergent process built upon the actions and interactions of individuals. Whatever growth path remains is the result of the interaction of various underlying and induced variables in the economy, which correspond to an emergent—and likely ephemeral—state of coordination, rather than some stable equilibrium path.

The second reason for rejecting these business cycle formulations exists on account of capital theory. By taking the capital structure as a primary fact of economic reality, it becomes

clear that changes in the nexus of plans and enterprises forever change the capital structure in such a way that returning to a previous state would be nearly impossible. This notion of capital as having an interactive and overlapping structure comprised of not only physical objects but also the plans of entrepreneurs who would change the structure of economic relationships corresponds broadly to Kirzner (1966) and Lachmann (1978). Simply put, as plans are adapted to new circumstances, capital is often consumed if not actually destroyed (particularly if the conception of capital is broad enough to encompass enterprise-specific information and relationships, which it seems it must), making a return to a previous organization infeasible if not actually impossible. Therefore, there cannot be a persistent economic equilibrium in any meaningful sense, instead leading one to recognize that the observed outcomes of the market process are inherently contingent, and not determinate.

One of the conclusions of this line of thinking is akin to Nelson and Plosser (1982), whose economy proceeds along different growth paths as determined by the relationship of underlying factors (such as technology, the institutional climate, and the tastes and preferences of consumers) each of which is unique and unrelated to some, in the language of Nelson and Plosser, “deterministic trend.” Yes, there is a growth path that is determined by real, underlying factors in the economy, but this growth path merely represents the forward carrying of the current economic situation (the same thought experiment as used in the construction of the evenly rotating economy); without changes in these underlying data the economy would proceed as before along the growth path and any and all changes would, naturally, affect the direction of the growth path. As stated above, one perfectly reasonable impetus for such a change would be a positive or negative real supply shock, such as those emphasized by Nelson and Plosser. These authors, however, also discount monetary factors in moving the secular growth component of their model, but this is due primarily to the method of their analysis, which is an equilibrium-based, a smooth line comprised of infinite static equilibria, rather than appreciating the effects of money through time. Nevertheless, the crucial insight remains: the economy progressed through time on growth paths, but each

of these are uniquely determined by the underlying factors of the economy and comprised of the unique constellation of individuals, organizations, firms, and other enterprises as well as the concatenate capital structure.

If the growth path, and therefore the levels of variables along it are unique, what can be said of business cycles? One alternative is a formulation like the real business cycle, and it is a fact that Nelson and Plosser (1982) helped give rise to that analysis. In the real business cycle, higher and lower levels of output and employment were no less equilibria, they merely reflecting different trade-offs. The present analysis differs from real business cycle in the regard that it recognizes the existence of structural causes of pervasive discoordination and subsequent drops in output and employment.

In this discussion, Leijonhufvud's concept of "the corridor,"⁴ will be useful. The economy may be said to be traveling along a given growth path, with a corridor on either side. The natural variance of fortunes in economic reality reflect the movement of output and employment above and below the growth path but still inside the corridor. Leijonhufvud argues that, within the corridor, the regular process of the market tends to return shocks in either direction back toward the growth path. Should, due to some "disturbances...of unanticipatedly large magnitude," the economy travel outside the corridor, these homeostatic forces will be too weak to return the economy back to the growth path. What kind of shocks are those that would be sufficiently large to move the economy outside the corridor? The simplest answer, tautologically speaking, is those of an "unanticipatedly large magnitude," of course; notwithstanding, this answer is more insightful than the mere tautology appears. The causes of these swings must be such that either their existence is so contextually contingent or their magnitude so large that they could not be correctly anticipated and accounted for. A first, most obvious example would be unpredictable supply shocks due either to natural or manmade disasters, which nearly by their existence are unforeseen

⁴See Leijonhufvud (1973, 32-34) and Leijonhufvud (1981, "The Wicksell Connection," Chapter 7).

or unpreventable events. A second category of possible explanations lies in changes in the institutional environment that have unforeseen consequences. An example of this latter category would be monetary disturbances—perhaps a violent swing in monetary policy or the process of adjusting to a new set of monetary institutions—since distortions in money obfuscate prices and interest rates (two of those major factors creating and maintaining the homeostatic nature of the corridor) and would tend to shield entrepreneurs and consumers from the facts of underlying economic reality.

The corridor itself, as a band of possible variability around the current growth path, is a product of the economic environment in which it holds sway. The most important component in determining the size of the corridor is the capital structure. The capital structure, which is the term used for the whole currently extant physical structure of production as well as nonphysical components like contracts, relationships, and plans, determines the possibility for variations on the existing economy. Any movement too radically from the present ecology of plans and enterprises supported by the capital structure will lead to a collapse as the capital to support those plans is not present. This is not to imply that varying too far or too low below the growth path is what is necessarily meant by radical shifts of the capital structure (although those may in fact be the case from time to time), as a radical change in the capital structure may manifest itself in the displacement of the ‘old’ growth path entirely.

Undergirding the capital structure are other institutional considerations of primary importance to the market economy. The institutional setting of economies will help to play a role in how flexible the capital structure may be. Important institutional considerations may be highly formal and legal, such as rules regarding contract enforcement and the process of declaring bankruptcy (both for consumers and firms), or on the other extreme, rather cultural and informal, such as Granovetter’s weak and strong bonds or individuals’ forbearance for one another in the face of shifting economic realities. The study of these institutional considerations is alien to standard business cycle analysis, but it is necessary to

understand the institutional environment in order to conceive of economic processes in the exchange paradigm. An area where this approach has keen prospects for bearing fruit is in the application of comparative economic systems—as a branch of comparative institutional analysis—on the theories of growth.⁵ Applied to business cycle analysis, one implication is that the study of business cycles becomes more historical in its execution and more general in its theoretical underpinnings.

Finally, with the major pieces in place, the theory of the business cycle based on the law of markets comes into view. Market economies tend to experience secular growth through time through exploiting the gains from trade in an entrepreneurial market process. This secular growth happens along growth paths determined by the economy's capital structure and further influenced by the institutional conditions within which individuals interact. A certain variability in the levels of output and employment are normal for an economy characterized by a highly complex capital structure and negative swings will result from the discoordination rippling through this capital structure in the wake of a business failures due to entrepreneurial error. Large swings in output and employment are generated through clusters of error, which may not have a unique original cause but may merely manifest together due to the interconnected nature of the capital structure. The task of any inquiry into the business cycle is to locate the cause(s) of this cluster of errors and the mechanisms by which discoordination works through an economy.

3.2 The Law of Markets and Austrian Macroeconomics

Axel Leijonhufvud, in his review of Horwitz's *Microfoundations and Macroeconomics* (Leijonhufvud 2002), outlines what he sees as the fundamental problem with “Austrian macroeconomics,” noting that the Mises-Hayek theory of the business cycle, the free banking literature, and monetary disequilibrium theory would make a fine addition to a macroeconomic system, but leave him (Leijonhufvud) wondering where and what the underlying system

⁵See Martin (2009), especially Chapters 2 and 3.

is. The answer, it seems, is the law of markets, which undergirds all of the discussion of the market process in Horwitz (2000). This connection was even more explicitly outlined in Horwitz (2003b), where Horwitz openly examines the relationships between the law of markets and Austrian microfoundations as well as Austrian macroeconomics.

The connection between the law of markets and Austrian business cycle theory is less well explored. Anderson (2009) makes a connection between the standard version of the Austrian theory and Say's Law as presented in Hazlitt's (1959) criticism of *The General Theory* and Sowell's (1974) book on classical economics, as well as classical-era authors. Anderson concludes, correctly, that Say's Law is necessary but not sufficient for the Austrian business cycle theory. This is correct because the Austrian theory of the business cycle is a specific case of the more general theory of recession laid out in the law of markets. The first subsection will deal with the typical Austrian business cycle apparatus.

3.2.1 The Standard Version

The Austrian business cycle⁶ has been crudely fleshed out above, but will receive a little more explication here. It relies on the expansion of credit, or what Mises calls fiduciary media, to entrepreneurs who then engage in new production processes lured by lower interest rates on loans and available credit. As this occurs, new intermediary goods are produced and employment rises as both the existing structure of production remains while early stages are increased. The immediate effect is an increase in spending on and consumption of final goods. In both production and consumption, the economy has risen above the long-term growth path set by underlying market conditions and are in a boom. Conditions begin to turn sour when, realizing that physical capital is more scarce than the false signals that the loan rate of interest and the easy credit indicated, entrepreneurs begin to consume capital to meet with the increased consumption. The boom generated by this artificial lengthening of the structure of production comes to an end when loan interest rates shoot up (in what

⁶Of particular importance, see von Mises (1912, Chapter 19), Hayek (1935), von Mises (1949, Chapter 20), Rothbard (1978), Ebeling (1996), and Garrison (2001, 2004).

Mises terms the flight to real goods, much as would be the case in the situation of a hyperinflation) and many production processes grind to a halt; liquidation begins. Liquidating the failed ventures is the first step in economic recovery that will, eventually and absent any further disturbance, restore the economy back to the long-term growth path on which it sat prior to the injection of credit.

This story is a rather specific version of the simple discoordination story outlined by the law of markets. The impetus of the problem is monetary in nature, namely an injection of credit that goes on entrepreneurs.⁷ The monetary shock, in this case an increase in the money supply, generates a mis-match in the structure of supply and the structure of demand by causing entrepreneurs to produce the wrong mix of goods and services. These mistakes are due to the faulty market signals sent in the interest rates on loans as well as the prices that adjust in the early stages of the cycle to reflect these faulty production processes. Acting on these faulty signals, entrepreneurs begin the production of goods and services that are out of step with the demands of consumers. Once the structure of supply is realized to conflict with the structure of demand, many firms are liquidated and a general recession occurs. The Austrian story is specific because it stipulates the cause for the mistaken production decisions, as well as the mechanisms by which a cluster of particular entrepreneurial errors will be made.

The theory works out this way, with such particular predictions, because Mises starts from the evenly rotating economy, where originary interest is constant through the entire structure of production and the loan rate is uniform. These two assumptions indicate that Mises is employing an equilibrium construct, as in an economy marked by change, there would only be a tendency toward uniformity of originary interest nor are the gross rates of interest on the loan market uniform. In this construct, the credit injection will lower the

⁷Both von Mises (1949) and Rothbard (1978) argue that the essential nature of the Austrian business cycle depends on these loans going to entrepreneurs and business ventures. Similar credit expansion to consumers in the form of loans would, ostensibly, not generate discoordination—or at the very least, not an Austrian business cycle. These claims will be addressed below.

loan rate, lengthening the structure of production. The construct of the evenly rotating economy allows Mises to presume that all shorter-term projects had been exploited, since he abstracted from time, change, and uncertainty. As such, the structure of production can only get longer, implying a lower rate of interest, which would also be necessary if the newly created credit is to be lent out.

At the same time, consumption decisions have not changed, so consumers have not given up their previous levels of consumption in order to finance the savings that would have to be lent in order to lengthen the structure of production. As production expands, particularly in longer production processes, employment goes up along with output and these new workers (or else, workers with higher wages) increase consumption. The economy goes along relatively smoothly until producers of both capital and consumer goods, some of which had been consuming capital, try to increase output to keep up with increasing demand for *both* types of goods. A race to get more and more capital drives the interest rates up and triggers the failure of a number of marginal entrepreneurial plans. By this time, the bust is well on its way.

The precise nature of the predictions that arise from this version of the Austrian theory of the business cycle have been a cause for criticism over the decades since its first articulation, even among those who are generally sympathetic to the overall approach of Austrian theorizing. Examples include Hummel (1979), Yeager (1986), Tullock (1988), and Cowen (1997). Yet these precise predictions are the result of the intellectual commitment to modeling the Austrian business cycle theory on an equilibrium framework. Indeed, many complaints from the authors above would cease to have relevance for an Austrian theory without these particular predictions. The next section attempts just this.

3.2.2 The Austrian Theory Recast

Suppose, instead of beginning from an intellectual construct like the evenly rotating economy, one were to consider the Austrian story happening to an economy in the midst of change. The very first change is a recognition that ordinary interest may not be uniform across the economy, as an economy in the midst of change will be subject to time and uncertainty. It will also be the case that at any given moment in time, not all plans will be fully coordinated to one another, such that inconsistent or even contradictory plans will exist contemporaneously.

Beginning, as Mises does, with ordinary interest there is already a problem. In an economy, the only true glimpse entrepreneurs will get at the natural rate of interest (insofar as there is *a* natural rate) will be through the capital structure itself. In the absence of an equilibrated natural rate, the only suitable proxy entrepreneurs will have for the underlying variables of the economy is the current capital structure. This fact produces severe problems. First, the entire capital structure is much too large and complex for entrepreneurs to be able to grasp at a single time, and even if they were able to do so, it is hard to tell what useful knowledge they could extract from it. Instead, entrepreneurs have to rely on the various smaller parts of the total capital structure (those that are particularly important for their plans) and changes in those remote ‘corners’ of the market. Second, entrepreneurs will consider various constellations of relative prices and loan market interest rates in order to get a glimpse at the underlying real characteristics of the market economy. As Evans and Baxendale (2008) note, however, entrepreneurs in an economy marked by change will be unable to easily—if at all—differentiate the entrepreneurial component from the ordinary component of the loan rate. In the evenly rotating economy, a stable ordinary interest rate and the absence of an entrepreneurial component to the real interest rate allows this real interest rate to communicate nearly all of this information without associated signal-extraction problems. Without this simplifying assumption, the real problems of economic coordination through time, and the possibility of massive discoordination, come into sharp

relief.

Further, there is the problem of conceiving of the loan market as uniform. As previously mentioned, Mises knew the loan market would never be uniform (1949, 545), yet the majority of attempts to model and understanding the workings of the Austrian theory have progressed as if they were. Garrison (2001) in his classic three-part diagram begins his explication with the loanable funds market. In this market, it is presumed that the level of interest that equilibrates this is both the loan market rate (definitionally) but also the real rate (by construction of the rest of the diagram, particularly since he draws the Hayekian triangle with a linear hypotenuse linking the consumption leg with the time leg), abstracting from a price premium or entrepreneurial component of the market rate. What needs to be emphasized is not that there is a *a* market for loanable funds but rather that there is a *market* for loanable funds. Clarifying, the former pertains to there being one market, that is one economically-modeled market, for the interaction of lenders and borrowers, savers and investors. The latter, on the other hand, suggests a market, i.e. a nexus of interaction, for lenders and borrowers, savers and investors. The former represents an extension of the value paradigm in order to make intelligible the coordination of saving and investing decisions in an economy; the latter represents an exchange paradigm understanding of the same coordinating phenomena. Money is fungible and opportunity cost exists, and these two facts will create a tendency toward uniformity in the loan market, but such uniformity would only be achieved if all other underlying conditions ceased to change. To understand the process of economic change through time, this fact is something that must be explained and accounted for, not assumed away.

The next object to consider is the *sine qua non* of the Austrian theory: credit expansion, or money supply growth of some type. Evans and Baxendale (2008) argue that interest rates—especially given that the only interest rates to which entrepreneurs readily have

information, are historical loan rates as found on the market—are less important to understanding the Austrian theory of the business cycle than “the monetary footprint,” which is a term for the overall size of the money base available for lending. Put differently, the availability of money and credit is more important than the manipulation of interest rates. This seems correct at first blush if the standard story of the Austrian theory is that firms or entrepreneurs must receive the credit. A drop in interest rates of one or two percentage points will sometimes make very little difference regarding business decisions,⁸ while on the other hand, the availability of large amounts of credit will be much more important to entrepreneurs and businessmen. Evans’s and Baxendale’s point is very much in line with understanding the Austrian theory as the outcome of certain policies in a given institutional environment. Caldwell (2004)⁹ argues that in his *Monetary Theory and the Trade Cycle* (1933), Hayek argues that loose money is important institutionally, not only for the reason that it may lead to malinvestment through credit expansion, but also (and perhaps more importantly) that it tends to degrade the epistemic value of the signals communicated by relative prices.

With these in place, all that remains is to consider the ways in which the market will adjust through time. Beginning with the expansion of credit,¹⁰ there must be some way to move money from this source into the larger economy. Evans and Baxendale (2008) argue that the recipients are likely going to be *marginal* entrepreneurs, those who are most eager to make use of any interest rate or principal-based quantity adjustments, noting, “In a welfare state of easy money there is less competitive pressure to ensure profitable ideas, and thus the marginal entrepreneurs will be those who wouldn’t find funds in a free economy”

⁸This is partially due to the period over which contracts are set in the business world. A few percentage points, for example, on a 36-month or even two-year loan may not be a large amount in absolute terms. To consumers, on the other hand, a one-percentage point change in a 30-year mortgage will have huge repercussions on total interest payments.

⁹See also Caldwell’s introduction to Hayek (1995). On a similar topic though presenting different evidence, see O’Driscoll (1977, 79–82).

¹⁰As noted above, via Horwitz (2006), “credit expansion” could manifest itself either an increase in credit or money supply without an offsetting increase in money demand, *or* as a decrease in money demand without an offsetting decrease in money supply. A third option, logically, is an increase in credit or money supply and a decrease in money demand.

(ibid, 86). This formulation sounds reminiscent of that found in Mises where all legitimate profit opportunities were exploited prior to the credit expansion, such that all those created by the credit expansion would have been unsustainable by the market. This situation, however, need not be the case; it is sufficient merely that there be some entrepreneurs whose plans are based on slightly lower interest rates or larger principal and who, on account of this fact, will be particular keen to make use of the newly created credit. Further, it will not be the case that all those plans that had not been attempted prior to the credit expansion were those that the economy could not support, as sheer ignorance may have kept some such plans from being discovered (though they would have been sustainable) or ignorance of actual profitability kept entrepreneurs from acting upon these plans. Evans and Baxendale also argue that this credit expansion will create not only the familiar moral hazard, but also adverse selection (akin to something nearly the opposite of the Stiglitz and Weiss (1981) credit rationing mechanism) that will attract marginally more aggressive entrepreneurs with riskier projects. This adverse selection problem, with the moral hazard of easy money and the prisoner's dilemma demonstrated by Carilli and Dempster (2001), seems to indicate that demand for the credit will be present and lenders will be happy to lend. In all of this, it was unnecessary to assume or to begin from a position of full exhaustion of profitable opportunities and uniform real and loan interest rates; the mechanisms for lending will still function to distribute the credit.

Thus far it has been supposed that firms take the majority of the loans, which is in line with the original Austrian business cycle story. Further, it was presumed that the primary mechanism for distributing these loans will be either interest rate or quantity adjustments that would correspond to lower loan rates of interest. In the standard version, which presumed a uniform real rate and a uniform market for loanable funds, this creates a lengthening of the structure of production. In an economy of change, this need not be the case. Some entrepreneurs will not be looking for lower interest rates or larger lines of credit on more favorable terms, but will rather be looking for niches in the capital structure or the fabric

of the economy into which their plans may fit. Regardless of the changes of loan interest rates, actual changes in the capital structure will affect the perceived profitability of entrepreneurial plans; some entrepreneurial ventures that did not seem profitable before the credit expansion and subsequent reshuffling of the capital structure may now seem profitable, regardless of their actual profitability. These second-tier marginal entrepreneurs may be responding to the first wave which did make use of the initial credit expansion. They may also be brought into the market by changes in relative prices due to the perceived structure of demand, which will likely have shifted in response to the credit expansion working its way into consumption decisions. It seems implausible that all of these increases in enterprise will be lengthening of the structure of production toward longer time-horizons.

Nor is it necessary that industry increase in that direction alone in order for there to be an eventual bust. The cause of the eventual recession, which is brought on by discoordination triggered through entrepreneurial error, is the creation of a capital structure that cannot sustain itself. In one purely metaphorical sense, the capital structure is pulled in too many directions at once. Less metaphorically, changes in the nexus of plans and enterprises that comprise the economy and the capital structure will necessitate changes and often the destruction of previously existing capital relationships. At the time of the initial change, these alterations seem profitable and the best course of action. Only when some plans have failed and prices can more accurately communicate information about relative scarcity of resources and demands for their application will entrepreneurs realize which of these alterations were mistakes and which were not. Of course, at that point, it will be too late to correct these errors entirely, as the capital structure will have been irrevocably changed.¹¹ Without knowledge of the particular circumstances of the markets in question,

¹¹There is a certain tenor of doom surrounding the idea of the destruction of capital and irrevocable or at least irreversible changes in the capital structure. Nevertheless, this is the case, as capital is only useful as capital insofar as it fits into a given entrepreneurial plan, almost always in conjunction with other capital. Some of this capital will exist as little more than knowledge of a particular time and place, such that the progress of time and the inexorable change of conditions that accompany it will destroy this capital and the usefulness of all complementary capital, as well.

further elaboration of the mechanisms of the initial errors and the propagation of discoordination through the economy remains impossible. This is a task for economic historians who study business cycles.

In the standard Austrian story, credit expansion leads to a simultaneous lengthening and shortening of the structure of production, which is found to be unsustainable and leads to the eventual bust of the economy. In the altered form presented above, credit expansion alters the institutional environment in which entrepreneurs form their plans by disrupting the epistemic properties of market prices and interest rates. These false signals, along with the existence of newly created credit, set in motion a wave of entrepreneurial ventures that are unsustainable and will lead to an eventual bust. The primary differences between these two versions lie primarily in emphasis. The standard theory emphasizes the importance of interest rates and the lengthening of the structure of production, both of which result in a boom above the equilibrium growth path. The second version emphasizes the importance of monetary institutions and the actual money supply, as well as the working of relative prices on the market economy. These factors together paint a picture of the creation of a new capital structure that will be unable to sustain itself. The area in which the latter theory shows its value is in considering different institutional environments.

3.2.3 Riffs on the Austrian Theme

Suppose, contrary to the previous example, credit were to go to consumers first.¹² This is contrary to the standard Austrian business cycle theory as a cycle could only be generated through the lengthening of the structure of production. However, it presents no special problem for the theory based on the law of markets. Instead of attracting marginal entrepreneurs, the credit expansion will attract consumers who are interested in changing their consumption patterns. Of course, depending on the circumstances, they could either spend this new-found “wealth”—since the wealth is due to a credit expansion and not

¹²Should each consumer decide to save the money, or deposit in a lending institution, it may well have the same effect as if the credit were given directly to entrepreneurs in the first place.

backed by an increase in production, it is by-and-large illusory (Proposition 2 of the law of markets)—on durable goods or on nearly any other consumptive choice. Faced with the prospect of new income, consumers will increase consumption and may change the structure of their demands, particularly those who first receive the credit expansion as their income has risen sharply in real terms. This shift in the structure of demand may be sufficient to create a significantly large disjoint between the structure of supply and the structure of demand, precipitating a wave of business failures that may create a recession.

But this is not the only possibility. Depending on the resiliency of the capital structure and the flexibility of entrepreneurial plans, the market may respond well. In fact, it is possible that there is very little disturbance at all. Consumers may continue to change their consumptive patterns as the credit expansion works its way through the economy. The areas in which consumers spend will see an increase in demand and will expand production. Beginning in those areas, prices will tend to generally rise in response to the new demands for goods and services, and businesses adapt to the new structure of demand by creating a matching structure of supply. The credit expansion has merely redistributed wealth from some places to others by working through the economy. This second possibility relies on the fact that consumers and firms are getting reliable signals and information from relative prices and that the process of economic transformation from one structure of supply (or capital structure) to another is rather smooth.

If, on the other hand, the credit expansion and the situation of easy money tends to degrade the ability of prices to accurately communicate knowledge, a third possibility may arise. When consumers receive the credit, they change their consumptive behavior and increase demand for certain goods and services. Of course, without the credit expansion, this implies a sacrifice of some other goods or services, but in the case of a pure income expansion without a change in the price structure, some consumers will simply increase their total consumption. This new demand will drive up prices for some goods and services,

which will lead firms to increase their output, requiring more resources. Yet again, were this increase in effective demand for certain products due to a trade-off, either the demand for other products would be falling or savings would be falling. In the standard analysis, a shift toward more consumption would likely mean a drop in savings, which would put upward pressure on interest rates and signal to firms how to adjust. However, since this increase is due to a credit expansion, there need not necessarily have been a drop in savings and any concomitant changes in interest rates. Firms can only respond to the signals that are available to them, and prices are likely rising for many goods, which is an indication to increase production in those goods. But capital is not suddenly less scarce, and pressure to increase output will require the rationing of and bidding up on the prices of resources. At this juncture the capital structure begins to strain against the changes in the structure of demand and the shifting nature of the structure of supply. Incompatibilities of these emerging entrepreneurial plans will lead some to be abandoned, thus revealing previous entrepreneurial errors, both those induced by the credit expansion itself and those formed in response to the former. A recession follows as the discoordination develops and is eventually removed by new entrepreneurial plans.

This final possibility, that of a recession triggered by structural discoordination, fits the general type outlined in the previous section. So it seems there are three broad possibilities in reaction to an expansion of credit that goes predominantly to consumers: the first is that of a nearly immediate crisis and is the least likely as there would have to be severe rigidities in economy so as not to adjust to the influx of credit; the second is that of mostly “harmless” inflation whereby the real economy adjusts quickly to changes in effective demand for different goods and services brought on by the credit expansion; and the third is that of a recession triggered by the revelation of several entrepreneurial errors in response to a credit expansion. The important difference among these three possibilities is the degree to which the interaction of actors in the market produce coordination, and this ability is almost entirely a function of the quality of information and knowledge to which those actors have

access. The root cause of every economic downturn is a mismatch between the structure of supply and the structure of demand; in other words, a breakdown at some point in the translation of notional demand of consumers into actual goods and services which can be consumed. The problem, in short, is entrepreneurial error. Entrepreneurial errors, in terms of misunderstanding or misinterpreting notional demand are likely to be common, but will rarely be large enough or of a sufficiently systemic scale to cause significant discoordination.¹³

Yet again, the concept of a cluster of entrepreneurial errors comes to the fore. In order to generate discoordination on a scale sufficient to create an economy-wide recession, there would have to be a critical mass of errors. It bears repeating that these errors do not all have to be in the same “direction”—*e.g.*, a lengthening of the structure of production in the standard Austrian theory—but merely a number of errors occurring at the same time that undermine the stability of the capital structure. In looking for a cause for such a cluster of errors, different variations on the theory of the business cycle will highlight different components. The standard Austrian theory of Mises and Hayek focus on the interest rate offered in the loan market, which is influenced by an artificial increase in credit. The two variations on this theme offered in the present work (the former where credit goes first to producers and the latter where consumers receive the credit expansion) shift the emphasis toward degraded epistemic quality of relative prices and the constellation of market interest rates, though similarly affected by the increase in credit and a general institutional condition of easy money. The hard work is not done by changes in the interest rate, as the relevant interest rate is but one relative price with which entrepreneurs and consumers have to reckon. Still, these are but particular examples of the broader theory of discoordination at work.

¹³Of course, this claim is only an empirical evaluation, not a theoretical proof. Common experience, nonetheless, seems to indicate that this type of error is not only ordinary, but rarely generates much widespread discoordination.

Equally plausible is a contraction of credit, or alternatively a situation of excess demand for money, in generating a recession. Horwitz (2006, 170–173) explores this possibility and the following will be but a brief recount of his narrative. Should there be an excess demand for money (due either to an increase in demand in the face of constant supply or a fall in supply in the face of stable demand), consumers realize that the real value of their actual money holdings are less than their desired money holdings. Unable to conjure up higher income out of thin air, consumers will restrict their expenditures, lowering the demand for goods and services. In a general equilibrium world, or a world of comparative statics, this would lead to a fall in the price level, driving up the real value of actual money holdings closer to the desired money holdings. Of course, as Horwitz notes, the real world is not one of general equilibrium nor of comparative statics and some prices will adjust at different rates from others, as the demand for some goods or services will fall sooner or faster than others. Further complicating matters is the existence of various nominal and real price rigidities, such as overlapping contracts, union-set wages and insider-outsider differentials, menu costs, and the like. While these various explanations may not explain a *universal* sluggishness of price adjustment, this is not necessary once the structural considerations are taken into account. The result is resistance to price adjustment that would lead to a clearing market; this is the story that Hutt (1974) lays out as an important application of Say's Law to modern economic conditions. Rigidities, some coming about due to market forces designed at competition and profit maximization, others at a more institutional level (such as price or quantity regulation in a given market), contribute to the increasing number of idle resources. Output falls, unemployment rises, and the economy begins slipping into a recession as excess inventories accumulate and businesses begin to fail. These failing firms will contribute to the frustration of plans of other businesses, and, at a larger level, will create still more difficulties in the capital markets as firms try to adjust their capital expenditures and production processes in the face of falling prices.

The credit expansion (excess money supply) versions do not have the same transition mechanism as that in the credit contraction (excess money demand) version. In the credit expansion version, loose money created a situation where prices did not accurately reflect the scarcity of resources and the desires of consumers for various final products. This phenomenon is particular to credit expansions as credit expansions put slack in the institution of money prices. Credit contractions do not exhibit the same phenomenon. Horwitz offers an explanation, “What Yeager argues is that we will always accept money in exchange even if this means temporarily having more of it than we might wish to hold. We know we can always trade the excess for goods and services. The important implication of this insight is that we have much more control over getting rid of money than we do obtaining it. This is particularly important when money is in short supply” (ibid, 168). Consequently, in the situation of excess credit, there will be an increased bustle of trade as individuals turn their excess money into goods and services, thereby disrupting the relative prices of goods and services. Metaphorically, it is as if the credit expansion has “numbed” the sensitivity of the price system to underlying conditions by increasing the volume of trades and in a sense making prices “too” responsive. In the case of credit contraction, while not perfectly analogous, there is an over-tightness that makes prices hyper-sensitive and the price mechanism will suffer by being “under” responsive to underlying circumstances. These two monetary theories of recession share the explanation in altering the institutional environment in which the price system must work, thereby degrading the ability for the price system to communicate information and knowledge to entrepreneurs. Without accurate or correct information—and with no other way to obtain it other than prices and market signals—entrepreneurs will be in the dark, less able than they would be otherwise to tell which ventures are profitable and well-advised from those that are marginally less so. The stage is set for entrepreneurial errors.

3.3 Conclusion

The law of markets provides a framework for macroeconomic analysis. In contrast to many other approaches to macroeconomic phenomena, this approach emphasizes the structural components of the market in illuminating the processes of economic growth or development, as well as in explaining the source of discoordination that cause and deepen recessions. This emphasis on structure creates a natural affinity for the insights of typically ‘Austrian’ macroeconomics, namely the epistemic importance of money prices, the structure of heterogeneous and complementary capital, and the interaction of economic actors in genuine process of discovery, trial, error, correction, and learning.

With respect to the causes of the business cycle, the law of markets provides justification for two principles. The first is the rejection of a general glut or under-consumption as the cause of economic recession, while the second is a positive theory of recession based in the discoordination of the structure of supply with the structure of demand. In fostering this latter principle, the law of markets had historically emphasized the importance of money, not only as helping to coordinate, but also as providing one possible avenue for the generation of disordinating entrepreneurial errors. With its emphasis on the market process as creating either coordination or discoordination, the law of markets puts institutions at the center of the empirical study of the business cycle.

The difference between whether an economy exhibits large amounts of coordination or discoordination, as Leijonhufvud (1981) argued, hangs on information. Austrians may qualify this statement that tacit knowledge is as important as information, but this addendum does not substantially qualify Leijonhufvud’s insight. Hayek (1945) famously demonstrated that the generation of useful information and knowledge for economic actors is only achieved by the price system in the context of money prices. But the ability for the price system to carry out this quintessential task is shaped by institutional factors. A common example, such as the weakness or attenuation of private property rights creating difficulties for the price system

to accurately transmit knowledge to economic agents, serves to illustrate the point that the “proper” functioning of the price system requires a certain institutional environment.

In order to understand coordinating and discoordinating tendencies in the market economy, therefore, it becomes imperative to begin analyzing the institutional environment of the economy itself. This intersection of the study of social, political, legal, and economic institutions, along with a detailed analysis of the economy and the polity, in both the people and relationships that comprise them, is the classical discipline of political economy. The business cycle and recession, with their roots in discoordination itself, become a problem for political economy, not merely economic theory.

4 The Tragedy of Errors

A housing bubble emerged in the first decade of the twenty-first century, and its bursting sent ripples through the economy, especially through its connection with the destabilization of the banking and financial industries. This housing bubble and the resultant financial ‘crisis’ remain—almost four years after the first signs of mounting trouble—a major story in the discussions of academic economists as well as the policy analysts and policymakers.

In explaining the housing bubble and the financial mess that followed it, there exists a large amount of agreement. Home prices and home ownership had reached record highs when, in 2006, home prices peaked and began to fall. As the housing bubble burst and the prospect of owning a perpetually appreciating asset destroyed, homeowners began defaulting on mortgages at an increasing rate and foreclosures were on the rise. The financial industry, which had become more and more invested in mortgage backed securities over the period of the inflation of the housing bubble, suffered huge losses as the revenues from mortgages fell. The house of cards, built as it was on top of an inflated asset bubble, came tumbling down.

The present chapter does not delve much into the connection between housing and financial institutions in terms of creating the financial crisis. Other authors have addressed this question quite thoroughly. Instead, this chapter offers a slightly different evaluation of the importance of commonly recognized factors with respect to generating and perpetuating the housing bubble and the fallout from the collapse of these industries. In doing so, it addresses questions about the relative importance of Federal Reserve behavior and whether the housing bubble conforms in any more than passing similarity to the Austrian theory of the business cycle.

The first section outlines the key empirical relationships at play in the genesis of the housing bubble and their adjustments after the collapse of the housing market. The second section ties these empirical relationships to the policies of the Federal Reserve in order to explore the effect of these policies on the housing bubble. The third section puts forward an alternative to the ‘standard’ Austrian story and offers evidence. The fourth section concludes.

4.1 Trailers for Sale or Rent / Rooms to Let, Fifty Cents

The phenomena to explain are unprecedented prices and home ownership in 2006, following more than a decade of increases in both of these indicators. Figure 4.1 shows data from the St. Louis Fed ranging from 1984 (when the St. Louis data begin on home ownership) to 2009 on housing starts for single-family homes and the percentage of occupied homes that are occupied by the owner. Before getting in to some of the more intricate details of home ownership statistics, it makes sense to discuss the link between mortgages, housing starts, and home ownership.

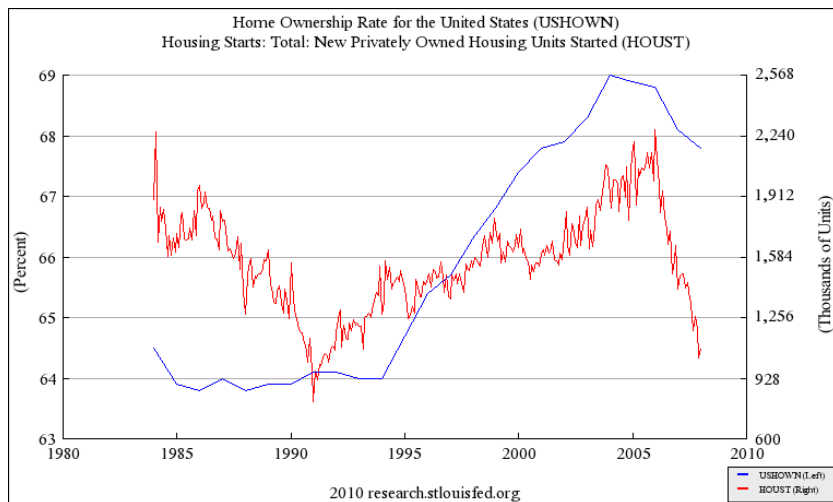


Figure 4.1: Growth in Home Ownership and Housing Starts from 1984 to 2009

Increases in home ownership, of course, do not necessarily mean a 1:1 relationship to new

mortgages, but data from the Census Bureau and the Department of Housing and Urban Development indicate that mortgage financing constituted by far the lion's share of *new homes*.¹ Over the period from 2000 to 2007, on average less than 5% of all new homes are paid for with cash, while financing of new homes by “Conventional” means (mortgages, as opposed to FHA or VA loans, rural housing programs, or cash purchases) rose from approximately 80% in 2000 to 90% in 2007.² The data indicate that, for those housing starts observed from 2000 through the inflation and bursting of the housing bubble, the overwhelming majority of new homes indicate new mortgages.

But home ownership is not the same thing as the percentage of the US households that own a home. Home ownership, as calculated by the Census Bureau, is based on the proportion of homes occupied by owners compared to total occupied homes. In this respect, had the increase in housing starts meant sufficiently high numbers of new homes that were rented out, it could be the case that home ownership percentage would *decrease*. Instead, increases in both home ownership percentage and housing starts indicates that many of the new homes were to be occupied by the owner. Of course, from 1995 to 2006 (the range over which both housing starts and home ownership begin growing and finally peak), home ownership increases about five percentage points (from 64% to 69%), or around 8% growth, while housing starts increased from around 1.4 million in 1995 to around 2.25 million in 2006, an increase of nearly 850,000 annually, a nearly 60% increase in *annual* growth over the 1995 level. Growth in housing starts, however, does not tell the whole story; to get a better picture, it is important to look at total housing inventory.

This massive increase in housing starts explains nearly all of growth in the total inventory of houses. Naturally, some houses are going to be lost to demolition, condemnation, fire, flooding, or other sources, so the change in total inventory from any two given points

¹For these data, see Table A.1 in the Appendix.

²Conventional financing is footnoted in the Census data, noting it “[i]ncludes houses reporting other types of financing.” It seems plausible that this broad category will apply to any type of financing, so long as it is not another direct government program or a cash purchase, *i.e.*, no financing at all.

will not completely reflect new housing starts. Census Bureau data³ indicate an increase in the inventory of approximately 13,357,000 units (from 112,655,000 in 1995 to 126,012,000 in 2006), an increase of nearly 11.8%. Why is it that total inventory is increasing faster than home ownership? Two factors help to explain this result. First, the percentage of houses that are vacant (and would not count toward home ownership, as measured) increased from 11.2% to 13.0%, an increase of just over 16%; thus, the percentage of occupied homes out of all homes fell over this range (lowering the denominator of the home ownership ratio), offsetting some of the effect of the massive increase in inventory. Second, of those homes that were occupied, the rate of renter occupation fell 11.5%, from 31.3% to 27.5%. These two trends work together to produce the increase in home ownership observed in Figure 4.1.

Further, these data point to two important phenomena regarding the structure of the housing market. First, there is strong evidence of people moving out of renting and into ownership over this period. Second, the percentage increase in vacancies is larger than the percentage increase in total supply, indicating that homes were being bought but not occupied by either owner or renter. Analyzing the changes in the structure of vacancies elaborates on this point to tell an interesting story.

In terms of absolute numbers, total vacancies increase approximately 30% from 1995 to 2006, though, with nearly matching increases of year-round vacancy and seasonal vacancy (year-round vacancy actually grew 0.3% while seasonal vacancy fell 1.0%). Where the vacancy data becomes interesting is in comparing the structure of year-round vacancies. In absolute terms, the predominating reason for holding a house vacant appears to be holding it off the market, which accounts for some 35% of all year-round vacant houses. The next highest reason is for seasonal occupancy, around 24%, or for putting the home up for rent but being unable to find one, around 23%. From 1995 to 2006, as total vacancies increased,

³See table A.4 for source data used in this and the following two paragraphs.

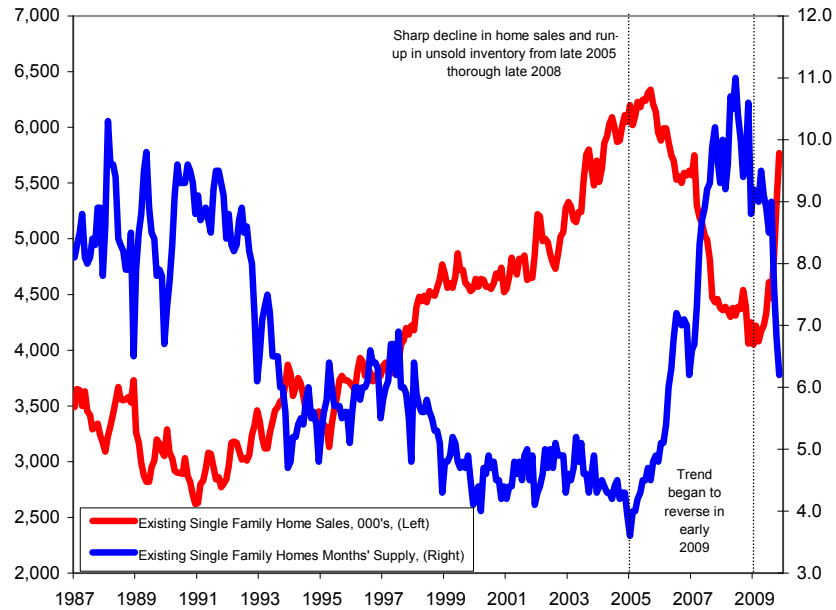
these three proportions remained the same, showing relatively little variability. The interesting data come from vacancy due to being unable to find a buyer, which from 1995 to 2005 increased 42%, and a staggering 26.5% change from 2005 to 2006. In terms of its share of total vacancies, vacancy due to being up for sale but not selling rose from 8.1% in 1995 to 11.1% in 2006, an increase of about 38.5%. While the 2006 data may reflect the sudden downturn of home prices in the second quarter of 2006, and a frantic attempt to get out of the market, the increase from 1995 to 2005—and especially from 2002 to 2005—appears to be due to housing speculation.

In trying to make sense of the housing market, the simplest tool an economist has is supply and demand. The data presented so far indicate a number of facts. First, the acceleration of home starts observed in Figure 4.1 indicates a strengthening demand for new homes from 1995 to 2006 and the response of suppliers to carry it through. Second, the growth in the housing inventory reflects this decade-long ramping up of housing starts. Third, structural changes in the share of ownership versus rental and between vacant and occupied homes indicate both a shift from renting to ownership and evidence of widespread speculation. These two indications also appear to indicate an increase in demand. Most of the phenomena to be explained point toward a strong increase in demand driving the housing bubble.

Figure 4.2 compares the sales of existing single family homes to the months' supply of those existing single family homes.⁴ The sales data require little if any explanation, but months' supply is a bit of a strange concept. Months' supply relates the existing inventory of a certain type of home (in this case, existing single family homes) to the sales of that type in a given period (typically a month). In one sense, it relates demand and supply for a certain type of housing. If inventories are increasing faster than sales, months' supply will be increasing. If, on the other hand, sales are increasing faster than inventories, months' supply will be decreasing. Likewise, if the two indicators are moving in opposite directions,

⁴Figure 4.2 uses national existing home sale data; for data on a state-by-state basis, see Table A.3 in the Appendix.

months' supply will go with the direction of inventories.



Source: National Association of Realtors, SAAR. Data through November 2009.

Figure 4.2: Existing Home Sales from Maitland and Blitzer (2010)

As Figure 4.2 pointedly demonstrates, for the period from the early 1990s until the end of 2005, months' supply was falling, indicating that inventories available for sale were lagging behind current sales. It is important to note that this does not imply that there is a housing shortage; as indicated before, there are literally millions of homes sitting vacant at any time. Instead, months' supply is best understood as something akin to a rate of change. If, as indicated in Figure 4.2, months' supply holds steady around 5.5 or 6.0, as it did from 1994 to around 1998, then suddenly drops to 4.5 to 5.0 as it did from 1998 to 2001, this indicates that over that period, sales were outstripping the accumulation of for-sale inventories. A plausible explanation for the long periods of falling months' supply is structurally related to the housing market. Building a home (unless it is truly pre-fabricated) takes several weeks (generally six to eight on the low end) and up to several months even under favorable conditions. In contrast, the process of offer, negotiation, contract, and title transfer could be significantly more expedient, particularly if there is money to be made in doing it quickly,

as was the case in the early-to-mid 2000s.

The dips in months' supply from 1993 to 2005 stands out as an indication of the size of the housing bubble, but equally telling is what occurs in late 2005 and on through 2006 until 2008, when months' supply shoots back up. This indicates a stockpiling of for-sale inventory that outstripped current sales. It stands to reason that from 2006, and particularly into 2007 and 2008, an important contributing cause to the increase in months' supply is the existence of homes that have been foreclosed or are trying to be offloaded before their value falls further. Perhaps the most interesting point is that the reversal of months' supply begins in 2005, while existing home sales and new housing starts are both still on the rise. Again, the facts of the home industry offer a partial explanation; it takes time to build homes, and even longer to line up the lines of credit and permits to do so. Even if artificially cheap credit are driving both suppliers and demanders, demanders and the sellers of existing homes can react more quickly than those who are building new homes.

The fact that months' supply turns around in 2005 stands out because home prices peaked in the middle of 2006, implying that something in 2005 triggered a reversal in the trend of the housing market. Nevertheless, the trend carried forward several months into 2006 before home prices began to fall. Table 4.1 is taken from Maitland and Blitzer (2010), using the Standard & Poor's/Case-Shiller home price index in all three samples: a ten-city sample, a twenty-city sample, a larger sample (based on the nine census divisions) to capture national trends. The S&P/Case-Shiller home price index is indexed at 100 to the first quarter of 2000.

As Table 4.1 indicates, peak housing prices were nearly double (90% increase nationally) their 2000 levels at the time of the peak in the housing market. Inventories had been steadily increasing for over a decade, and at a rate of nearly two million units a year from 2004 to 2008, while prices were climbing to record highs even in real terms. Most every principles

Table 4.1: S&P/Case-Shiller Home Price Indices from Maitland and Blitzer (2010)

	10-city	20-city	National
Peak date	June 2006	July 2006	2006Q2
Peak level	226.29	206.52	189.93
Recent trough date	April 2009	April 2009	2009Q1
Peak-to-trough decline	-33.5%	-32.6%	-32.0%
Peak-to-latest data decline	-29.8%	-29.0%	-27.8%
Appreciation since trough	+5.6%	+5.3%	+6.3%

of economics student recognizes that when both quantity and price increase, the most likely explanation is a demand shift.

Figure 4.3 plots the S&P/Case-Shiller home price index for the national housing market against the building cost index as compiled by the Engineering News-Record. The construction cost index has been indexed to 100 in the first quarter of 2000. This index is comprised of a collection of 68.38 hours of specialized labor (with average wages for bricklayers, carpenters, and structural ironworkers), 25 cwt (2500 pounds, 2.5 tons) of standard structural steel, 1.128 tons of concrete, and 1,088 board-feet of 2x4 lumber (Grogan 2010). For these inputs, the building cost index multiplies the values by local spot prices in markets around the country. This index differs from the building cost index in the type of labor it uses, as the latter uses specialized labor, while the former has a larger number of less specialized labor. Grogan (2010) explains, “The CCI can be used where labor costs are a high proportion of total costs. The BCI is more applicable for structures.” Structures, in this case, while also technically applying to large-scale buildings, is better suited than general construction, which would describe roadway, curb-and-gutter, and bridge work better than homes.

The result is striking. While there have been modest increases in factor prices associated with production, the prices of the final sale good (in this case, houses) has far outstripped those underlying costs. At the housing price peak in 2006Q2, the building cost index had

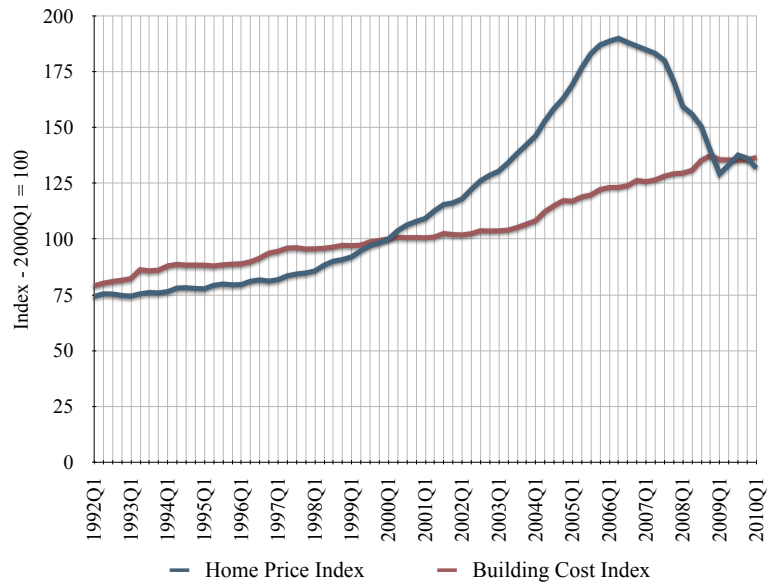


Figure 4.3: Home Price Index and Building Cost Index, 1992 to 2010

shown a 23.1% increase. Of course, this is a rather substantial increase for only six-and-a-half years, but it is dwarfed by the growth of home prices themselves. In terms of supply and demand analysis, these increases in building costs may correspond to movement along the supply curve for new houses as demand for all housing had been increasing steady for a decade.

The data explored indicate a number of trends for the period 1995 to 2006: steady growth in home inventories punctuated by tremendous increases in housing starts, a rising proportion of owner-occupied housing, a structural change in vacancies toward unsold (but for-sale) homes, record numbers of sales, and a disproportionately large increase in home prices compared to the costs of production for new homes. This evidence points toward the origins of the housing bubble in an explosion of demand. In terms of motivation, there is some evidence in these facts that speculation played a strong role—particularly in the last few years before the collapse—in generating the record-level of home prices. The next section addresses some of the different motivations and causes for the growth of housing

demand.

4.2 Sources of Demand

The approach to the causes of the housing bubble taken in this section echoes to a large degree those previously expounded by Liebowitz (2008), O’Driscoll (2008, 2009), White (2008, 2009), and Woods (2009). With the above, it is generally agreed that lax lending standards (or as Liebowitz calls them, “flexible underwriting standards”), the existence of positive pressure to lend to persons who are at high risk of default, a separation of risk and return brought on by government insurance in the mortgage market, low interest rates and artificially cheap credit as a result of Federal Reserve policy, and widespread speculation all play roles in creating the housing boom. The difference among these approaches, as well as with the one taken here, lies in the weighing of those comparative factors. The remainder of this section is in three parts. The first considers the role of Fannie Mae and Freddie Mac in the housing market along with changes in the lending standards on mortgages. The second part examines prime, subprime, CRA, Alt-A lending behavior, as well as different lending methods, particularly adjustable-rate mortgages, and their relationship with interest rates. The third part focuses on money and monetary policy causes in generating the housing bubble as well as the connection between the housing bubble and the Austrian theory of the business cycle. Some overlap is inevitable.

4.2.1 Mortgage Innovation and GSEs

Liebowitz (2008) puts a good deal of explanatory weight for the generation of the housing bubble on changes in the mortgage underwriting standards and active policy aimed at increasing home ownership, particularly among minorities and low-income citizens. The former manifested itself in changes of policy at the level of mortgage issuers and other lenders. The latter was particularly instantiated in the Community Reinvestment Act of 1977 (and subsequent changes in the terms of this original Act). Undergirding and backing both of these broader initiatives were government sponsored enterprises (GSEs) Fannie

Mae and Freddie Mac. As far as blame may go, Fannie Mae and Freddie Mac are by far the most important of all fiscal, policy, or real (as opposed to monetary) cause, as their involvement in the housing market through the purchase, guarantee, and repackaging of mortgages severed the feedback mechanism between private risk and reward, creating a perverse system of private reward but public risk. Behind Fannie and Freddie, changes in the standards for lending is the next most contributory cause of the housing bubble. The Community Reinvestment Act, vilified by many, appears to be only barely relevant for creating the boom and causing the bust, though it may explain persistence of housing problems.

Federal government involvement in housing, at least in its current form, was born out of Great Depression and the establishment of the FHA (Federal Housing Administration) in 1934. The goal of the FHA was guarantee mortgages, systematically lowering the risk for lending, and thereby increasing the likelihood that banks would lend to individuals trying to buy a home. Four years later, as a part of the FHA, the Federal National Mortgage Association (FNMA, now called Fannie Mae) was created in order to buy loans the FHA had insured and repackage those mortgages as securities. In the more than seventy years since the creation of Fannie Mae, its central mission has not changed appreciably: it still buys mortgages, repackages them as securities, and sells them to investors.

What has changed is that Fannie Mae no longer restricts herself to FHA mortgages, which had seen a steady drop in their representation of the mortgage market in the last decade of the twentieth century and the first decade of the twenty-first. By 2000, FHA/VA mortgages were less than 20% of all mortgages,⁵ and only rose above that amount in 2008 after the housing bubble had burst and in the midst of the financial crisis. The thought that perhaps the FHA representing 20% or more of all mortgages is not a *bad* thing deserves consideration, as this larger share of the market had been, empirically, more sustainable than what transpired in the first decade of the twenty-first century. Over the course of

⁵Whereas in 1980, FHA/VA mortgages were just over 35% of all new sales. See Table A.1 in the Appendix.

the twentieth century, Fannie Mae expanded by separating off from the FHA in 1968 and becoming a government sponsored enterprise, and in 1970 saw its mission inherited by a second GSE, Freddie Mac (the Federal Home Loan Corporation). The remainder of the century saw Fannie and Freddie expand into the secondary market for all mortgages, not just from the FHA or other government programs, but those issued by commercial banks. By 2003, Fannie and Freddie held about half of the total US mortgage debt.

The problem, once again, is in the incentives facing lenders, borrowers, and people otherwise associated with Fannie and Freddie—not with the idea of buying mortgages, packaging them as securities, and selling them. Indeed, the concept is a stroke of financial genius. There is, of course, risk and uncertainty involved, but these risks may be minimized in order to make prospect viable. Or maybe they cannot, which presents two scenarios. Perhaps, since Fannie originally only bought FHA loans (which truly only existed because markets deemed those loans not worth making in the first place), this scheme would never be profitable, doomed from the start and collapse would simply be a matter of time. In an alternative scenario, perhaps Fannie Mae could have stayed completely under government supervision and instead of eventual collapse, it would remain a large expenditure on the annual budget. While neither of these is a particularly rosy situation, reality took on the worst of both. The gains could be captured privately, but the losses, since they were government sponsored enterprises, were implicitly⁶ public, backed by the federal government. This creates incentives for lenders to make nearly any mortgage they can and sell it off to Fannie or Freddie as soon as possible, then turn around with the receipts and make more loans.

All of the preceding concerns the nature of the enterprise that Fannie and Freddie are; regardless of other market conditions or changes in the rules of the game, this is how Fannie and Freddie were to fit into the housing market *by their design*. This is not, however, all

⁶And explicitly, as it turned out, in September of 2008 when they were put into “conservatorship,” rather than closed down for bankruptcy.

there is to the story. Liebowitz (2008) outlines a number of other assaults on the mortgage underwriting process in the wake of a paper published by the Boston Fed in 1992. The paper was called “Closing the Gap: A Guide to Equal Opportunity Lending” and, according to Liebowitz, it set off a firestorm of reform, both in legislation and in changing mortgage lending standards. He cites a Fannie Mae report in the wake of the Boston Fed piece that cites the CRA as part of this new wave in mortgage lending, as well as the Federal Housing Enterprises Financial Safety and Soundness Act (FHEFSSA) of 1992, which spurred Fannie Mae into a trillion dollar commitment to “more affordable and flexible mortgages.” The real teeth behind these changes did not come directly from Fannie, Freddie, or even the CRA,⁷ but from private banks and mortgage companies who are happy to make riskier loans and sell them to eager GSEs acting on marching orders from Washington. Reforms followed the shift in emphasis. Liebowitz cites a ‘guidebook’ to relaxed lending put out by the Boston Fed that encouraged lowering of existing lending standards in a number of key areas: credit history, obligation ratio (percentage of income paid as mortgage), down payments and closing costs, and an expansion of acceptable sources of income. The key term is “acceptable,” precisely because it makes one ask, “Acceptable to whom?” The answer is simple: acceptable to the GSE that was going to buy this mortgage once the bank or mortgage company did the first part in finding a buyer.

Watering down of mortgage underwriting standards did not require a conspiracy from greedy mortgage companies. Such conspiracies tend to break down, regardless. All it required is some organization(s) out there interested in buying mortgages, regardless—it seems—of the potential viability of that mortgage as an asset. Fannie Mae and Freddie Mac provided just these organizations, and the systematic demolition of ‘sensible’ mortgage lending followed suit. In the narrative history so far, the last major turn of events was the Boston Fed paper and the resultant changes in legislation (the FHEFSSA) and industry standards, all of which were in place by late 1992 or early 1993. Returning to data on housing starts (Figure

⁷Canner and Bhutta (2008), in fact, conclude that the CRA and loans made as a result of it had negligible, if any, effect on the building up or bursting of the housing bubble.

4.1) and existing home sales (Figure 4.2), there is no coincidence that the monumental rise in these two indicators seems to begin in the early 1990s and does not stop until the peak and collapse of the housing bubble.

The general purpose of this section is to explain changes in housing demand, which was the prime driver in creating the housing bubble. Economics is poorly suited to expounding on people's tastes for home ownership or their preferences for owning a home as compared to renting. What economics does do well, is explain that when the relative cost of some action falls, people tend to do more of it. By actively buying up an increasing share of mortgages, as well as indirectly contributing to lowered mortgage underwriting standards by lowering their own standards for purchase, Fannie Mae and Freddie Mac made it less costly for people interested in mortgages to get one; *ceteris paribus*, there would be more mortgages issued. Standing alone, the influence of Fannie and Freddie on the mortgage market would likely have been sufficient to generate a housing bubble of sorts. While this bubble would have inflated more slowly than the one observed, and would likely have not burst when and how it did, the broken feedback mechanism and perverse incentives created by the existence of Fannie and Freddie in the housing market had all the makings for an asset bubble.

4.2.2 The Mortgage Market and Interest Rates

This subsection serves two primary purposes. The first is largely definitional, to put precise meaning behind the terms prime, subprime, Alt-A, fixed-rate, adjustable-rate (ARM), and others. The second is to serve as a link between those causes that are real and those that are monetary. As interest rates form a major part of the link between the capital structure and the market for loanable funds, they straddle this divide.

The mortgage market exists in tiers. Though there are many more differentiations, three tiers receive special attention from the media in studying the housing bubble: prime, Alt-A,

and subprime. The top tier is prime, which applies to mortgages that conform to rigorous lending and underwriting standards. Prime would receive the most favorable terms, particularly with respect to interest rates which would be lower than the other tiers. Below prime is, definitionally, subprime, which occupies the lowest tier of these ratings groups. Subprime mortgages are rated down due to some problem with the underwriting status of the mortgage applicant: poor credit history, lack of money for a down payment, poor income, etc. To offset this risk, subprime mortgages usually have higher interest rates as a form of compensating differential for being a riskier mortgage. Alt-A is in the middle between prime and subprime. According to Fannie Mae's and Freddie Mac's books, various miscellaneous high-risk mortgages (neither subprime nor Alt-A) constitute the majority of non-prime, high-risk mortgages, even though all high-risk mortgages (including subprime and Alt-A) are only about 30% of their portfolios.

Adjustable-rate mortgages (ARMs) are those for which there is an introductory or "teaser" interest rate, which is often lower than a fixed-rate mortgage would be over this period, but after this introductory period, the interest rate adjusts upward. Depending on the particular mortgage contract, the period can either be specified or at the lender's—albeit limited—discretion. Fixed-rate mortgages are precisely what they sound like, a mortgage with a fixed interest rate over the period of the mortgage. Homeowners looking for a lower rate on a fixed-rate mortgage will usually refinance. The interaction of the prime, Alt-A, and subprime classification with adjustable- or fixed-rate mortgages completes set of mortgage permutations to be discussed.

In terms of generating the collapse in the housing bubble, Liebowitz (2008) goes to great length to demonstrate—convincingly—that the important distinction for predicting the take-off of default and foreclosures in 2006 and onward was between adjustable- and fixed-rate mortgages, not between those that were prime or subprime. He shows that following the second quarter of 2006, both subprime and prime ARMs exploded relative to their

fixed-rate counterparts of the prime and subprime classification. Naturally, subprime defaults and foreclosures were higher percentage-wise than prime, but this had historically been the case, and lenders would almost certainly have expected this to be the case. The interesting points come from the divergence adjustable-rate mortgages of both prime and subprime classification from the relatively consistent rates for prime and subprime fixed-rate mortgages.

Table 4.2: Mortgage Delinquency and Foreclosure Rates

	2009			2008				2007	
	Q3	Q2	Q1	Q4	Q3	Q2	Q1	Q4	Q3
Delinquency Rates									
All Loans	9.64	9.24	9.12	7.88	6.99	6.41	6.35	5.82	5.59
Prime Loans	6.84	6.41	6.06	5.06	4.34	3.94	3.71	3.24	3.12
Sub-prime Loans	26.42	25.35	24.95	21.88	20.03	18.67	18.79	17.31	16.31
Foreclosures Started									
All Loans	1.42	1.47	1.34	1.01	1.07	1.19	0.99	0.83	0.78
Prime Loans	1.12	1.07	0.91	0.63	0.61	0.67	0.54	0.41	0.37
Sub-prime Loans	3.70	4.49	4.55	3.72	4.13	4.70	4.06	3.44	3.12

Table 4.2 comes from Maitland and Blitzer (2010) and carries forward data on delinquency and foreclosure for prime and subprime mortgages into 2009. As these data show, subprime delinquency and foreclosure are higher in absolute terms, but the percentage increase from 2007Q3 to 2009Q3 is significantly higher for prime loans than for subprime loans. Over this period, the prime loan delinquency rate rose 119% and the foreclosure rate rose 202%, while subprime counterparts rose 62.0% and 18.6%, respectively. In absolute terms, all of these figures are record-highs, and there is no diminishing the fact that the housing market is still in hot water: over a quarter of all subprime loans, and nearly 10% of *all* loans, are delinquent!⁸ Nevertheless, the change in these data show an alarming increase in the rates of default, especially for prime mortgages, further emphasizing Liebowitz’s point that subprime lending *per se* was not the problem with the housing market.

⁸One explanation for the explosion in delinquency and foreclosure is the effect of the economic downturn and unemployment. This explanation, however, gets more mileage with absolute changes than with percentage changes. Would the recession hit prime mortgage holders harder? Perhaps it is merely the case that there are more of them still around to default?

If the bursting of the housing bubble was brought on by adjustable-rate mortgages, what caused them to turn around so quickly? Liebowitz argues that ARMs are particularly attractive to speculators, who are looking to flip the property relatively quickly, and not have to encounter the chance that the rate would suddenly increase. Figure 4.4 displays data from the St. Louis Fed on the prime interest rate and the federal funds rate.

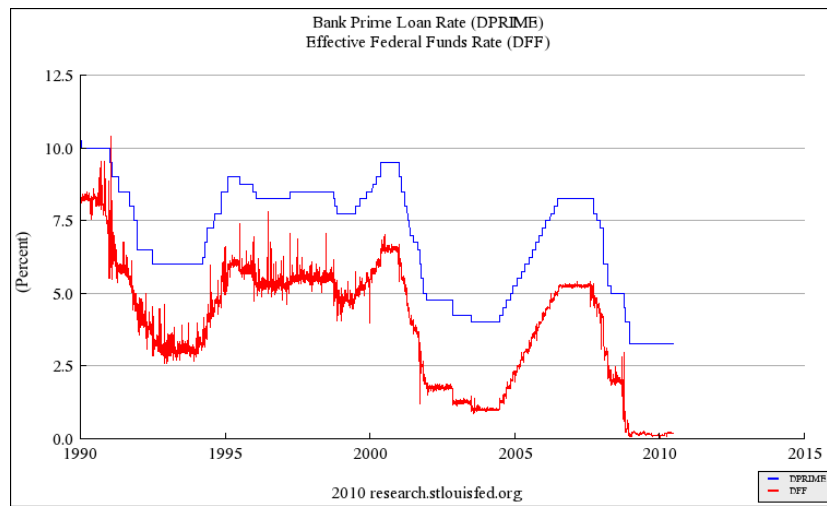


Figure 4.4: Prime Loan Rate and Effective Federal Funds Rate, 1990 to 2010

The federal funds rate is the overnight rate for transfers from one bank within the Federal Reserve to another (sometimes from branches back to the local Federal Reserve bank). In this respect, it serves a sort of lower bound nominal interest rates as it is functionally the cost of getting funds from another bank that may have excess reserves. The prime rate is generally taken to be the lower bound of the nominal interest rate charged to customers of the bank. From 2001 until 2005, both the prime rate and the federal funds rate were on a steep downward decline. In 2005, the federal reserve began raising the federal funds rate, bringing it back to over 5% by June of 2006, about the time the housing market peaked. This is not coincidence.

The evidence presented in the first section indicates that speculation played an important role in generating the housing bubble, and the best method for financing a home for speculative purposes is an adjustable-rate mortgage with an introductory period during which one could offload the house on the market. The precipitous drop in the effective interest rate from 2001 to 2005 would have been a speculator's dream—the sudden rise from 2005 to 2006, his worst nightmare. As interest rates are climbing out the basement, mortgage lenders are beginning to raise the interest rates on ARMs, as well. Faced with the prospect of significantly higher mortgage payments, speculators will try to offload their properties as quickly as possible. The economics is quite simple; whenever there is an observed market price it is because a buyer and a seller agreed on it and property changed hands. In order to drive prices down, all that is required is sellers competing with one another for buyers. As interest rates are climbing back up, holding onto property becomes less and less favorable, so more speculators try to offload their property. This floods local markets with existing homes for sale (and one cannot forget the ramping up of new housing starts, as well), driving down home prices. These lower home prices make it *even less desirable* to hold on to a property for speculative purposes, as the falling market value is likely beginning to approach the mortgaged sale price (and perhaps fall below it, creating negative equity) while the interest rate continues to rise. One need not be a speculator to be particularly hurt by this phenomenon. Even homeowners who intended to live for years in their current property are faced with falling home prices and rising interest rates, squeezing them on both ends.

So why are these loans so interest-rate elastic? White (2009) cites data from Freddie Mac that shows nontearer ARM rates in 2001 were 113 basis points, or 1.13 percentage points, below 30-year fixed-rate mortgages. By 2006, the difference was 194 basis points. As an illustration, Table 4.3 compares the monthly payments, total interest payments, and total payments for two identical loan amounts, \$300,000 (with no down payment for simplicity) on a fixed-rate 30-year mortgage. For these calculations, the figures White (2009) quotes for 2006, 3.90% and 5.84%, will be used.

Table 4.3: Interest Rates and Repayment Structures

	Monthly Payment	Interest Paid	Total Paid
3.90%	\$1,415	\$209,402	\$509,402
5.84%	\$1768	\$336,477	\$636,477

Table 4.3 uses a 30-year, fixed-rate mortgage for both loans as a way of simply comparing the effect the interest rate has on these outlays. Not surprisingly, the figures for total interest paid and total repayment for a 3.90% adjustable-rate mortgage and a 5.84% fixed-rate mortgage are closer together. The whole idea of the adjustable-rate is to get buyers into the home and financed, not to give money away; in equilibrium, they would have to be equal, else no one would take one over the other. The difference in monthly payment between these two rates in Table 4.3 is not particularly large in absolute terms, but if the interest rate were to increase suddenly—perhaps 400 basis points in less than twelve months—it seems the sudden increase in expense would frustrate more than a few speculative plans.

The arithmetic in Table 4.3 points in a second, interesting direction. Cochran et al. (2003) and Evans and Baxendale (2008) argue similarly that the size of the monetary change (what the latter call the monetary footprint), rather than the interest rate, may be more important in explaining the malinvestment in the boom portion of an Austrian-style business cycle. Said differently, they argue that investment by firms may be more principle elastic than interest rate elastic. Households, on the other hand, seem to be more interest rate elastic than principle elastic, *especially* when it comes to assets or durable goods. This phenomenon may still hold for other consumer-led spending in situations of loose money, but there appears to be no empirical literature on the question.

The conditions from 2001 to 2005 appears to have been ideal for inflating a housing bubble; cheap credit for the firms in the business of loans and low interest rates for prospective buyers. The two forces together mutually reinforced in an already primed environment for

housing growth. New mortgages drove prices up, which helped to convince buyers that prices would keep rising, allowing them to look at low mortgage interest rates and appreciating homes as ATMs (to use Liebowitz's turn of phrase). When the interest rate suddenly turned around, the whole situation went sour and as speculators and others fled the housing market, the bubble burst.

4.2.3 Homes, The Fed, and ABCT

The final paragraphs of the previous portion sound a good deal like a standard Austrian business cycle story. In the familiar institutional component of the Austrian theory is cheap credit and the artificial lowering of interest rates. Empirically, looking at the period from 2001 to 2005, one can plainly see a lot of credit and very, very low interest rates. Does this force one to conclude that the housing bubble is a standard Austrian business cycle?

There is at least one major reason not to conclude so. The standard Austrian theory postulates that the credit would have to go into the loan market and from the loan market into the hands of entrepreneurs in order to create the boom and bust of the Austrian story. Mises is quite clear on the matter:

In this section we are concerned only with inflation and credit expansion. For the sake of simplicity we assume that the whole additional amount of money and money-substitutes flows into the loan market and reaches the rest of the market only via the loans granted. This corresponds precisely to the conditions of an expansion of circulation credit. Our scrutiny thus amounts to an analysis of the process caused by credit expansion (1949, 551).

If the money does not cause a lengthening of the structure of production, there will not exist the characteristic malinvestment and over-consumption of which Mises warned.⁹ Rothbard echoes the sentiment, "Mises did not deal with the relatively new post-World War II phenomenon of large-scale bank loans to consumers, but these too cannot be said to generate a business cycle . . . because they will not result in 'over' investment, which must be liquidated in a recession (1978, 152)." In the most strict version of the story, without an increase in

⁹See Garrison (2004) for a highly enlightening discussion of Mises's terms.

production, an increase in capital goods, there apparently is no Austrian business cycle story. While there is certainly evidence of a ramping up of home production, and with it no doubt some increases in capital goods, the evidence is fairly strong that the housing bubble was created by increases in demand; it was largely consumer driven.

This creates something of a problem for the Austrian version of the housing bubble. There were most certainly loans, and a great many of them ended up as mortgages. It appears there was such a thing as “over” investment in housing, much of which is being liquidated in a recession. If Rothbard were still alive, he could drive through Las Vegas and see the half-finished houses Liebowitz (2008) and O’Driscoll (2009) both note. Rothbard is simply wrong—and dogmatically so. The problem, as considered in the previous chapter, is that the Mises/Rothbard version of the Austrian story is an artifact of the assumptions and modeling characteristics employed in its formulation. As such, it is still a powerful theory, but it serves merely as *sufficient* for a business cycle of a certain kind (one created by credit expansion that works through the supply side of the market first), not *necessary* for all business cycles.

On the one hand, in the strictest terms, it does not appear that the house bubble was an Austrian-style business cycle. On the other hand, what actually did occur is in many ways quite similar to the kind of chain of events outlined in the Austrian theory. If one were to relax the stipulation on the injection point of credit from the Mises version, one would still be left with credit expansion and interest rate manipulation. The previous portion of this chapter addressed the importance of interest rate manipulation, so the present portion will address credit expansion.

The typical Austrian definition of credit expansion is an increase in fiduciary media, though there is also insight in the Misesian definition of inflation: increase in the supply of money

not offset by an increase in demand. This definition conforms well to the monetary disequilibrium theories employed in the previous chapter. In order to analyze the growth of credit, it is necessary to consider both money supply and money demand. The first difficulty arises in measuring these two components, as there is no completely reliable way to measure either, particularly the latter. To attempt to get a grip on money demand, this inquiry will use velocity as a proxy.

Relying on the standard equation of exchange $MV = PQ$, which can be treated as an identity, to get rates of change, simply transform into $\% \Delta M + \% \Delta V = \% \Delta (PQ)$. Once sufficient variables are chosen for M and PQ , change in velocity can be estimated by taking the difference in the other two. MZM (money of zero maturity) is the variable used for the money supply (M); MZM is collected weekly and monthly and consists of M2 minus small time deposits but includes institutional money market accounts. For PQ , the simplest variable is nominal GDP, which is collected quarterly. Figure 4.5 compares percentage change in MZM to percentage change in GDP.

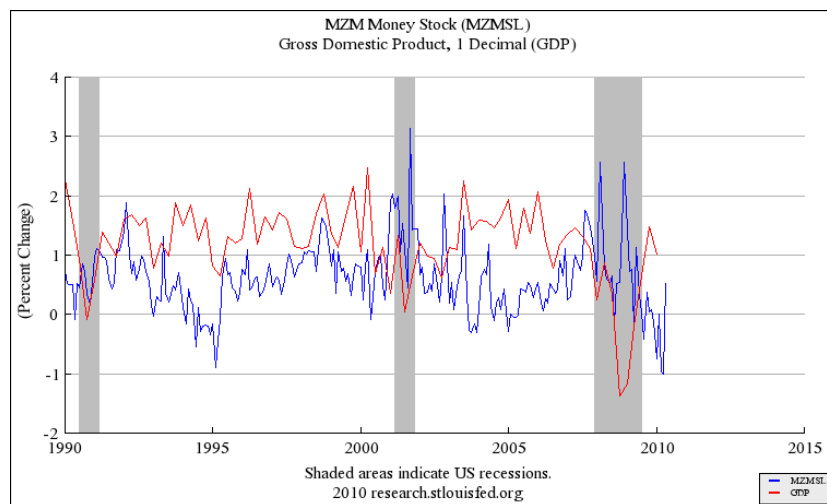


Figure 4.5: MZM and GDP as % Change

For all those periods when the percentage change in nominal GDP lies above the percentage

change in MZM, there is reason to believe that money velocity is rising. Money velocity, the rate at which a dollar turns over, is a proxy—albeit limited—for money demand and they move in opposite directions. Money demand is most clearly manifested by a desire to hold money balances as part of a portfolio of wealth. As money demand falls, consumers are either converting their liquid wealth into less liquid assets (an investment, or perhaps a home, a car, or some other durable good), or they are spending it. So long as the whole economy, that is, every individual does not shift from wealth from liquid assets (money and money substitutes) into highly illiquid investments, a rise in the velocity of money should be evidence of a fall in the demand for money.

Examining Figure 4.5 also indicates that there were very few and short periods when the percentage change in MZM was negative, implying a drop in the money supply. Over the range of primary interest to the the present context, 1995 to 2006, only in the third quarter of 2003 and and the fourth quarter of 2004 showed negative money supply growth. Put differently, from 1995 to 2006, there was nearly constant growth in the money supply, but this does not necessarily indicate credit expansion. In the monetary equilibrium theory, in order for there to be credit expansion, there has to be an increase in supply not offset by an increase in demand. Since the method of computing demand is only by proxy to the velocity, it is extraordinarily difficult to know whether money supply was actually growing faster than money demand when the observed velocity was falling. Instead, it may be more fruitful to look for periods when money demand was likely *falling*, given an increase in velocity. In these situations, there is a strong reason to believe that money demand is not keeping up with money supply growth and will serve as evidence of a credit expansion.

Comparing quarterly data, from the period 1985 forward, there have been four intervals over which the money supply was increasing and money demand may have been falling for three or more consecutive quarters. These intervals are from 1987Q1 to 1989Q1, 1993Q3 to

1995Q1,¹⁰ and 2004Q2 to 2006Q1¹¹. Looking back at Figure 4.5, it is interesting to note that the first period falls before the 1989 stock market disturbance and about two years before the recession in the early 1990s. The second period, in the mid 1990s, falls just before the big take-off in dot-coms, which lends some support to the findings of Callahan and Garrison (2003). This second period may also have some bearing on the ramping up in housing starts and sales of existing homes during the 1990s, but there is very little way to control for that. Finally, the last period falls squarely in the middle of the housing bubble. This finding is interesting in that it links a potential credit expansion to the housing bubble, but it must also be noted that it occurred when the housing bubble was already well underway.

Unless this conjectured credit expansion in the mid 1990s was sufficiently large to kick off the housing market and fuel the budding dot-com, else if it were unrelated to dot-com and only fueled housing, it seems implausible that a credit expansion drove the housing bubble from the 1990s and picked it up in the 2000s. Instead, the increases in existing home sales and housing starts from the early 1990s until 2006, which drove the home price index to record levels, were simply too big and too sustained to be attributed to credit expansion alone.

Further, the Federal Reserve is not the only organization capable of extending credit. In the period from 2004 until the middle of 2007, when indications that the housing market was not likely to recover quickly and that something was seriously wrong in the financial sector, commercial paper grew at a fantastic rate. Commercial paper is a promissory note issued by an organization (usually a bank or a corporation) against itself and future earnings for funds now. It is essentially a credit card for businesses, but instead of having a

¹⁰Interestingly, from 1995Q2 to 1997Q1, there were alternating periods of this phenomenon and not, indicating that there may have been credit expansion over a longer period. Naturally, it may be the case that some of these recorded observations are false positives, as well, so caution in both directions is warranted.

¹¹2003Q3 and 2003Q4 also exhibited it, but 2004Q1 did not. Once again, there may be reason to believe the credit expansion period was longer than these data indicate.

predetermined rate and credit limit with an issuer, commercial paper is sold at a discount. In this respect, it is similar to corporate bonds. Figure 4.6 shows the changes in levels of commercial paper on the market.

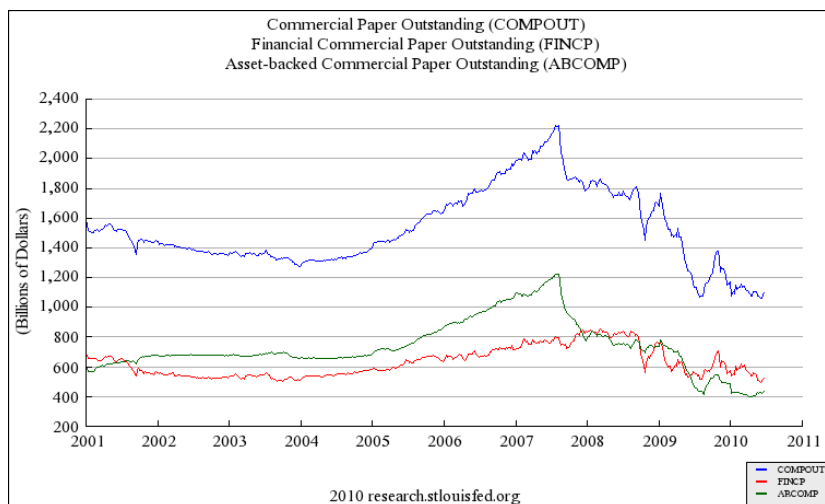


Figure 4.6: Outstanding Commercial Paper

From 2004 until 2007, overall increases in all outstanding commercial paper amounted to around 900 billion dollars (about 70%), while asset-backed commercial paper increased by 500 billion dollars (again, about 70%) over the same period. In essence, this expansion of commercial paper constituted a non-Fed increase available credit, amounting to almost one trillion dollars over three years, well over three-quarters the total expansion in MZM over this period.

One explanation for this massive increase could be that there was not enough credit to go around and commercial paper was an obvious outlet for the demand for funds. This is possible, but it seems more likely, given the timing of the massive increases, that commercial paper was a way to finance expenses (and what better way to do so than with financial assets based on mortgage-backed securities) without coping with rising interest rates. Recall that from 2005 to 2006, the federal funds rate rose over four percentage points. While this

rate tends to serve as a lower bound on nominal interest, Mises (1912) is clear to point out that in the absence of a binding ‘price control’ on the interest rate, the actual lower bound is determined by the technological capabilities (that is, the ability to cope with transaction costs) of banks and other financial institutions. Commercial paper, particularly in its emergence in the middle of the 2000s seems to represent an innovation in finance in the face of arbitrary interest rate adjustment by the Federal Reserve.

Even discounting the difficulties of a consumer- or producer-led credit expansion for applying the Austrian theory, it seems that there is not sufficient evidence of a Fed-generated credit expansion to put the blame of the housing bubble on monetary policy by the Fed. Does this mean that the Fed is innocent? By no means. Even if the growth in the money supply doesn’t correspond to a particularly strong credit expansion, the manipulation of the interest rate, both in lowering so severely from 2001 to 2005 and then pulling it back up so quickly over the next year, constitutes a major contribution at the very least to bursting the housing bubble. Another, perhaps more important effect of the Federal Reserve, is the implicit guarantee that the Federal Reserve would be there to re-inflate any problems that arise from burst bubbles. Another contribution is what O’Driscoll (2009, 179) calls “The Greenspan Doctrine,” a position that “[w]hile the Fed would not stop asset bubbles from inflating, it would act to prevent their deflation.” While the policies of the Federal reserve contributed to the inflation of the housing bubble, they certainly did not deflate it; they popped it outright.

4.3 Conclusion

The housing bubble that grew from the mid 1990s and preceded the financial crisis of 2008 is undoubtedly, as all macroeconomic outcomes are, a complex phenomenon with multiple causes and feedback mechanisms. There can likely be no silver bullet theory that can cope with all of the complexities. The purpose of this analysis was to demonstrate the importance of larger institutional factors in generating the housing bubble and to examine the

role that Federal Reserve policy played.

The Austrian Theory of the Business Cycle, as presented in Mises and Rothbard, is a specific formulation of the interaction between credit expansion—again, dependent on the type of monetary institutions present in an economy—and the structure of production. This form of the theory seems out of place in explaining the housing bubble, as the latter was not driven by producers in response to artificially cheap credit. Instead, the housing bubble was a response of potential home owners, some of whom wanted to find a better house, others to own for the first time, and still others interested in speculation, all of which were allured by the prospect of home prices never falling and were enticed by a host of governmental programs. Many of these programs existed to remove the risk borne by lenders and exasperated the problem of moral hazard; other programs implicitly and sometimes even explicitly encouraged lending to potential homeowners who would not have qualified otherwise.

Federal Reserve policy definitely plays a part in this drama, but it seems as if it is not a starring role. Even without cheap credit and easy money, the rules were set to increase home ownership to unprecedented levels. Naturally, having cheap credit made this easier, but from the early 1990s until the collapse of the housing market in 2006–2008, pro-housing government policy was ramped up a number of times. While it may be the case that the housing bubble would have happened without Federal Reserve policy (though it would likely have been smaller, grown more slowly, and not likely burst when it did), it seems unlikely that a housing bubble would have grown with Federal Reserve policy *without* these other programs and initiatives.

This is directly at odds with the view that the housing bubble was an Austrian Business Cycle story, at least in the restricted terms of the formal version espoused by Mises and Rothbard. The housing bubble was, on the other hand, an Austrian story, if one takes Austrian to mean attention to the institutions in place that shape the process of mutual

adjustment (or, in this case, maladjustment) of plans. The broader understanding of business cycles, as developed in the previous chapter, faces no such problems of specific sources or recipients of credit. Understanding the causes of boom and bust is a matter of paying attention to the monetary and non-monetary institutions and policies in place that effect the relative prices producers and consumers face. These relative prices will drive behavior toward and away from specific endeavors and shift the structure of production and, with time, the entire capital structure. This is the same basic outline of the housing bubble.

5 Conclusion

This dissertation began with a methodological distinction between value and exchange as paradigms for understanding economic phenomena. The value paradigm leans toward understanding all economic choices and outcomes as if they were equilibria and the object of direct choice. Work within this paradigm has produced many of the important insights economists use today to understand the world and the workings of complex market economies. Its insights, however, are less powerful when applied to questions of a macroeconomic nature, where outcomes may still be characterized as equilibria, but where these very outcomes are less and less the object of choice of any one or handful of individuals.

In cases such as these, where the outcomes to be studied are the emergent result of the interactions of countless individuals, firms, organizations, and bureaucracies, the value paradigm is decidedly limited and it is necessary to consider the exchange paradigm. The exchange paradigm leans toward understanding economic choices and outcomes as arising out of the interaction between and among individuals with particular attention given to the environment within which this interaction takes place. As economies become larger, involve more and more people, and grow in complexity and scope, the exchange paradigm will continue to grow, relative to the value paradigm, in its ability to render economic phenomena intelligible.

Reviewing the changes in macroeconomic theory over the twentieth century, the overwhelming majority of theoretical and applied work was done in the value paradigm. Only in the 1990s and early 2000s did growth theory and the new development economics begin incorporating important insights and understanding from the exchange paradigm. Though this transition is nowhere near complete, much of the gains in economists' understanding of the

process of economic growth and development has come from paying more and more attention to institutions and the environment within which human interaction goes on, and the rules that create incentives for people to raid or to trade. Business cycle theory has, as yet, not undergone a similar methodological revolution. The mini revolutions of the post-Keynes twentieth century, the Monetarist and the new classical revolutions, were revolutions of a theoretical nature, not methodological. The incorporation and elevation of microfoundations to the cutting edge of macroeconomic theory did change the face of macroeconomics, but it did not produce much in the way of illumination of the inner workings of economies and the sources of macroeconomic phenomena. Instead, there now exist side-by-side several competing sets of microfoundations, each of which give rise to a different macroeconomic superstructure. It is a state of what Boettke et al. (2003) called formalistic historicism, where the models are technical and equilibrium-based, though the theory is “historical” or ad hoc to fit the situation being described. Progress, they argue, can be reached by returning to universalism in theory and plain language explanations of economic phenomena. While not perfectly a match, these changes are better suited to theorizing in the exchange paradigm. Not coincidentally, these were the methods of economic science in the eighteenth and nineteenth centuries.

Among these early contributions to economics one can find the law of markets, or Say’s Law, which is not a single law but a collection of postulates about the way the market works. The “law of markets” may better be considered a “theory of markets,” a closer translation to what Say originally called it. Instead of a rule or single pronouncement, the law of markets forms a framework for understanding the workings of the market. It is a sort of theoretical hard core that precedes and implicitly informs the Austrian theory of the market process. In the theory of the business cycle developed in Chapter 3 of this dissertation, the law of markets forms the center of all theories of cycle, namely the discoordination of the structure of supply with the structure of demands. Put differently, the law of markets

postulates that all economic downturn begins with the inability of consumers and producers to coordinate on what should be produced, how much of it, and at what price. The central task of any explanation of the business cycle is to explain the sources of this discoordination between buyers and sellers, paying attention not only to the particular markets involved, but—and sometimes even more importantly—the rules within which all markets must function. The law of markets, by pointing to discoordination, rather than aggregate demand failure, functionally shifts the analysis to institutional considerations. The law of markets best serves as the center or core of business cycle analysis in the exchange paradigm.

Closely related to the law of markets is the Austrian Business Cycle Theory, which stipulates a specific causal mechanism. The Austrian theory holds that a process of eventual discoordination is set in motion by the expansion of credit to businesses on favorable loan terms (*i.e.*, low interest rates). Low interest rates and available credit set off a lengthening of the structure of production, which must inevitably collapse since consumer preferences have not changed. The Austrian theory is in fact a specific version of the broader law of markets theory of the business cycle, one that point to a specific causal mechanism. In this respect, the Austrian theory is only a sufficient explanation for business cycles (and sufficient only when the conditions hold), rather than a necessary one, as some proponents have claimed. Indeed, credit expansion to consumers or credit contraction might also cause large-scale discoordination and recession. These monetary origin theories are attractive because monetary policy—and its manipulation—has a direct effect on the ability of the price mechanism to provide information in the process of coordinating economic actors. For this reason, monetary causes may be more severe, and perhaps an overwhelming majority of observed recessions, but it does not exclude other potential explanations. The problem of creating an environment within which economic coordination can be carried out is the oldest problem in political economy. Even before Adam Smith began asking what had led some peoples to prosperity and left others in poverty, the problem of finding the correct institutional structure has always been at the forefront. This has not changed, even though

modern theories of growth and business cycle have not afforded these questions their proper place.

The final essay of this dissertation is an attempt to demonstrate the importance of governmental policy, not just monetary policy, in generating a boom and bust, in this case, the housing bubble that burst in 2006 precipitating a fallout in the financial sector and triggering a recession. While many scholars who have studied the housing bubble adopt the basic reasoning of the Austrian business cycle theory and point to the Federal Reserve as primary culprit, there are two problems. First, the Austrian theory would require an expansion in production leading the way, while nearly all the data suggest that consumer demand drove home prices up and the industry responded. Second, the moral hazard and encouragement created by Fannie Mae and Freddie Mac, as well as other governmental initiatives to increase home ownership through relaxing mortgage lending standards, had been driving housing starts and home sales even when there was not a significant credit expansion going on. Indeed, the most important thing Federal Reserve policy may have done was to pop the bubble in 2006 with climbing interest rates, which made existing mortgages (especially ARMs) too expensive to maintain for many homeowners, causing them to sell and begin lowering home prices. Federal Reserve policy was exasperating in the inflation of the housing bubble, no doubt, but the housing bubble was not created by monetary policy and fueled by housing policy. If anything, it was the opposite.

Whether modern macroeconomic theory is in a crisis or not, there is always the opportunity for breaking new ground and deepening our understanding of economic phenomena. This dissertation is not an attempt to break new ground, per se, but rather to offer reasons to consider ground no longer considered fertile. “After Keynes, who needs Jean-Baptiste Say?” one might ask. The answer offered here is that if Keynes and those who have followed him (in name, if not entirely in spirit) have lost hold of what was correct in Say, then economics needs Say. Broadly speaking, the value paradigm is rapidly exhausting its

usefulness in explaining economic phenomena; in some areas, such as economic growth, this potential appears completely exhausted. Business cycle theory, if it is going to be a useful branch of academic inquiry, must begin paying more attention to the rules underlying the decisions why prices are not perfectly equilibrated and less to studying by how much or postulating behavioral reasons for such. By adopting a core theory of business cycle in the exchange paradigm, the emphasis is shifted back toward studying economic history and events out the window, as opposed to fancy mathematics and econometrics. The test of a theoretical approach is its usefulness in making complex phenomena intelligible in a way that is accurate to the nature of the phenomena. Only time and more work will tell whether the law of markets is a useful theoretical approach to business cycles. This dissertation is an invitation to the work.

Appendix A: Housing Data

Tables A.1 through A.4 are taken by from from the 2010 Statistical Abstract of the United States. For convenience of fact-checking, the table number and title from the Statistical Abstract have been retained, but for the reader's convenience, internal references will use the conventional numbering system employed throughout the dissertation.

Table A.1:

Table 939. New Privately Owned One-Family Houses Sold by Region and Type of Financing, 1980 to 2008, and by Sales-Price Group, 2008

[In thousands (545 represents 545,000). Based on a national probability sample of monthly interviews with builders or owners of one-family houses for which building permits have been issued or, for nonpermit areas on which construction has started. For details, see source and Appendix III. For composition of regions, see map inside front cover]

Year and sales-price group	Total sales	Region				Financing type			
		North-east	Midwest	South	West	Conventional ¹	FHA and VA	Rural Housing Service ²	Cash
1980	545	50	81	267	145	302	196	14	32
1985	688	112	82	323	170	403	208	11	64
1990	534	71	89	225	149	337	138	10	50
1995	667	55	125	300	187	490	129	9	39
2000	877	71	155	406	244	695	138	4	40
2001	908	66	164	439	239	726	141	2	39
2002	973	65	185	450	273	788	140	4	42
2003	1,086	79	189	511	307	911	130	4	41
2004	1,203	83	210	562	348	1,047	105	6	46
2005	1,283	81	205	638	358	1,150	79	1	52
2006	1,051	63	161	559	267	948	63	1	38
2007	776	65	118	411	181	693	52	2	30
2008.	485	35	70	266	114	358	104	(NA)	23
Under \$200,000	183	13	35	128	16	(NA)	(NA)	(NA)	(NA)
\$200,000 to \$299,999	149	10	21	76	42	(NA)	(NA)	(NA)	(NA)
\$300,000 to \$499,999	104	12	18	45	38	(NA)	(NA)	(NA)	(NA)
\$500,000 and over	49	9	4	17	18	(NA)	(NA)	(NA)	(NA)

NA Not available. ¹ Includes houses reporting other types of financing ² Prior to 2000, the Farmers Home Administration.

Source: U.S. Census Bureau and U.S. Department of Housing and Urban Development, Current Construction Reports, Series C25, *Characteristics of New Housing*, annual; and *New One-Family Houses Sold*, monthly; publications discontinued in 2001. See "New Residential Sales" at <<http://www.census.gov/const/www/newressalesindex.html>>.

Table A.2:

Table 942. **Existing One-Family Homes Sold and Price by Region: 1990 to 2008**

[3,186 represents 3,186,000. Includes existing detached single-family homes and townhomes; excludes condos and co-ops. Based on data (adjusted and aggregated to regional and national totals) reported by participating real estate multiple listing services. For definition of median, see Guide to Tabular Presentation. See Table 945 for data on condos and co-ops. For composition of regions, see map inside front cover]

Year	Homes sold (1,000)					Median sales price (dol.)				
	Total	North-east	Mid-west	South	West	Total	North-east	Mid-west	South	West
1990	3,186	586	859	1,088	653	96,400	141,400	76,300	84,700	138,600
1991	3,147	592	862	1,065	628	101,400	143,600	80,500	88,100	144,500
1992	3,433	665	968	1,124	676	104,000	142,600	84,200	91,100	141,100
1993	3,739	712	1,027	1,256	744	107,200	142,000	87,000	93,700	141,800
1994	3,887	726	1,029	1,314	818	111,300	141,500	90,600	94,900	149,200
1995	3,852	723	1,006	1,308	815	114,600	138,400	96,100	96,900	150,600
1996	4,167	776	1,058	1,388	945	119,900	139,600	102,300	102,400	157,100
1997	4,371	817	1,083	1,467	1,004	126,000	143,500	108,200	108,400	165,700
1998	4,965	902	1,221	1,718	1,124	132,800	147,300	115,600	115,000	175,900
1999	5,183	910	1,247	1,849	1,177	138,000	150,500	121,000	118,900	185,300
2000	5,174	912	1,222	1,867	1,173	143,600	149,800	125,300	126,300	194,600
2001	5,336	913	1,270	1,969	1,184	153,100	158,700	132,500	135,500	207,000
2002	5,631	951	1,346	2,065	1,269	165,000	179,300	139,300	146,000	230,100
2003	6,178	1,020	1,469	2,284	1,405	178,800	209,900	145,600	156,700	251,800
2004	6,778	1,113	1,550	2,540	1,575	195,400	243,800	154,600	170,400	286,400
2005	7,076	1,169	1,588	2,702	1,617	219,600	271,300	170,600	181,700	335,300
2006	6,478	1,086	1,483	2,563	1,346	221,900	271,900	167,800	183,700	342,700
2007	5,652	1,006	1,327	2,235	1,084	219,000	279,100	165,100	179,300	335,000
2008	4,913	849	1,129	1,865	1,070	198,100	266,400	154,100	169,200	271,500

Source: NATIONAL ASSOCIATION OF REALTORS, Washington, DC, *Real Estate Outlook; Market Trends & Insights*, monthly, (copyright). See also <<http://www.realtor.org/research>>.

Table A.3:

Table 944. **Existing Home Sales by State: 2000 to 2008**

[In thousands (5,174 represents 5,174,000). Includes condos and co-ops as well as single-family homes. Data shown here reflect revisions from prior estimates]

State	2000	2005	2007	2008	State	2000	2005	2007	2008
United States	5,174	7,076	5,652	4,913	Missouri	110.2	142.9	123.7	108.7
Alabama	67.0	128.0	118.0	86.0	Montana	17.4	25.4	24.1	19.9
Alaska	14.3	24.6	26.4	23.2	Nebraska	32.3	41.2	36.8	30.9
Arizona	104.8	199.2	105.5	116.1	Nevada	44.6	98.0	45.3	65.5
Arkansas	45.0	75.3	78.6	64.2	New Hampshire	26.7	(NA)	(NA)	18.4
California	573.5	601.1	355.0	439.9	New Jersey	161.1	184.4	139.7	112.6
Colorado	111.5	130.4	118.2	106.8	New Mexico	29.9	57.5	44.5	33.3
Connecticut	61.5	78.0	62.6	47.4	New York	273.3	319.8	295.9	255.4
Delaware	12.9	19.3	15.7	11.5	North Carolina	134.2	215.7	214.0	157.1
District of Columbia	10.6	12.1	9.6	7.1	North Dakota	10.8	15.8	14.4	12.4
Florida	393.6	547.1	286.4	262.5	Ohio	216.4	286.9	250.8	229.7
Georgia	143.6	242.1	209.9	174.9	Oklahoma	67.3	104.6	102.0	87.7
Hawaii	22.1	36.8	27.8	20.0	Oregon	62.6	100.5	74.3	54.8
Idaho	24.1	49.8	36.3	26.5	Pennsylvania	195.9	255.2	214.0	174.7
Illinois	246.8	315.3	239.7	183.1	Rhode Island	17.0	19.8	16.4	13.4
Indiana	111.0	138.3	148.3	118.6	South Carolina	64.3	114.6	105.0	80.3
Iowa	53.3	74.9	70.5	55.7	South Dakota	12.6	18.3	18.5	16.3
Kansas	52.6	77.9	70.5	60.4	Tennessee	100.4	170.9	145.7	118.0
Kentucky	66.0	96.2	91.8	75.3	Texas	381.8	532.5	557.8	474.8
Louisiana	66.8	87.7	75.9	59.1	Utah	35.5	51.7	41.9	30.8
Maine	27.6	33.3	25.5	20.6	Vermont	12.1	15.3	14.4	10.7
Maryland	100.5	135.5	86.4	63.8	Virginia	130.0	182.5	116.5	112.7
Massachusetts	112.3	148.6	122.4	103.8	Washington	112.4	167.8	133.5	86.9
Michigan	185.0	208.6	172.4	155.6	West Virginia	22.9	38.6	29.0	25.5
Minnesota	96.3	134.9	99.8	96.2	Wisconsin	91.6	122.8	104.6	84.5
Mississippi	38.7	61.2	59.7	50.4	Wyoming	9.6	14.3	12.9	10.0

NA Not available.

Source: NATIONAL ASSOCIATION OF REALTORS, Washington, DC, *Real Estate Outlook: Market Trends & Insights*, monthly (copyright). See also <<http://www.realtor.org/research>>.

Table A.4:

Table 947. **Total Housing Inventory for the United States: 1990 to 2008**

[In thousands (106,283 represents 106,283,000), except percent. Based on the Current Population Survey and the Housing Vacancy Survey and subject to sampling error; see source and Appendix III for details]

Item	1990	1995	2000	2002 ¹	2003	2004	2005	2006	2007	2008
All housing units	106,283	112,655	119,628	119,297	120,834	122,187	123,925	126,012	127,958	130,113
Vacant	12,059	12,669	13,908	14,332	15,274	15,599	15,694	16,437	17,652	18,704
Year-round vacant	9,128	9,570	10,439	10,771	11,631	11,884	11,916	12,459	13,276	13,936
For rent	2,662	2,946	3,024	3,347	3,676	3,802	3,721	3,737	3,848	4,056
For sale only	1,064	1,022	1,148	1,220	1,308	1,307	1,451	1,836	2,117	2,226
Rented or sold	660	810	856	842	976	991	1,060	1,108	1,130	1,075
Held off market	4,742	4,793	5,411	5,362	5,671	5,784	5,684	5,778	6,181	6,579
Occasional use	1,485	1,667	1,892	1,819	1,989	1,967	1,884	1,858	1,993	2,071
Usual residence elsewhere	1,068	801	1,037	995	994	1,068	1,128	1,198	1,139	1,170
Other	2,189	2,325	2,482	2,548	2,688	2,749	2,672	2,722	3,049	3,338
Seasonal ²	2,931	3,099	3,469	3,561	3,643	3,715	3,778	3,978	4,376	4,768
Total occupied	94,224	99,985	105,720	104,965	105,560	106,588	108,231	109,575	110,306	111,409
Owner	60,248	64,739	71,250	71,278	72,054	73,575	74,553	75,380	75,159	75,566
Renter	33,976	35,246	34,470	33,687	33,506	33,013	33,678	34,195	35,147	35,843
PERCENT DISTRIBUTION										
All housing units	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Vacant	11.3	11.2	11.6	12.0	12.6	12.8	12.7	13.0	13.8	14.4
Total occupied	88.7	88.8	88.4	88.0	87.4	87.2	87.3	87.0	86.2	85.6
Owner	56.7	57.5	59.6	59.7	59.6	60.2	60.2	60.3	58.7	58.1
Renter	32.0	31.3	28.8	28.2	27.7	27.0	27.2	27.5	27.5	27.5

¹ Revised. Based on 2000 census controls. ² Beginning 1990, includes vacant seasonal mobile homes. For years shown, seasonal vacant housing units were underreported prior to 1990.

Source: U.S. Census Bureau, "Housing Vacancies and Home Ownership"; <<http://www.census.gov/hhes/www/housing/hvs/hvs.html>>.

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Curriculum Vitae

Geoffrey Scott Lea was born September, 27, 1982, in Richmond, Virginia, and is an American citizen. He attended and graduated from Mills E. Godwin High School in Richmond, Virginia, in June, 2000. That August, he enrolled at Hampden-Sydney College in Hampden-Sydney, Virginia. In May, 2004, he received his Bachelor of Arts, *summa cum laude* and Honors in Economics, with majors in Economics and Greek. In August, 2004, he enrolled at George Mason University, receiving his Master of Arts in Economics in 2006. In 2007, he took a position as Research Fellow at the Foundation for Economic Education, staying on to direct Programs and Seminars, a position he held until the Autumn of 2008. Since August, 2009, he has held an adjunct position in the Department of Economics and Business Administration at Hillsdale College in Hillsdale, Michigan.