**Macroeconomic theory after the great recession of 2008: the need for a market process approach.**

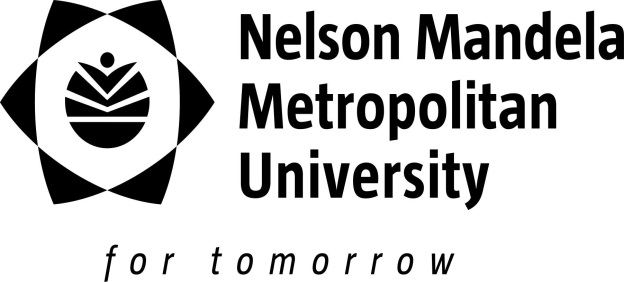
**INAUGURAL LECTURE**

**delivered at Nelson Mandela Metropolitan University**

**on 6 May 2015**

**Professor Pierre le Roux**

**NELSON MANDELA METROPOLITAN UNIVERSITY**

******

**Inaugural & Public Lectures**

**2015**

**Macroeconomic theory after the great recession of 2008: the need for a market process approach.**

**ABSTRACT**

This paper sets out to reflect that contemporary schools of thought are unable to explain the great recession of 2008. The Great Recession 2007-2009 and the long, slow recovery from it serve as reminders of the difficulty of explaining business cycles. Macroeconomists of all varieties have been humbled by these events and by our inability to predict or to design policies that moderate the effects. Paul Krugman (2009) and John Cochrane (2010) are examples of how two schools of thought have struggled with the issue. Many theories of business cycles exist, without any being comprehensive; none are able to account for all important characteristics. Macroeconomic theory continues to explore stylised facts for explanatory power.

The whole sub-discipline of “macroeconomics” is premised on the belief that the standard microeconomic tools are not of much use in understanding the dynamics of growth and business cycles. Even with the rational expectations revolution purporting to set macroeconomics back on microfoundations, the language of aggregate supply and demand, over-simplified versions of the Quantity Theory of Money, and the aggregative analytics of the Keynesian cross and simple models of functional finance still fill the textbooks and inform most policy debates.

The neglect of capital theory in particular has removed the important elements of time and money from Macroeconomics. The main approaches to Macroeconomics are compared and their lack of a firm micro foundation exposed.

The dissatisfaction with macroeconomics can be resolved by taking a more capital-based approach. This will allow for macro elements such as time and money while reintroducing the entrepreneur into macroeconomic theory. Relative prices, especially intertemporal prices can then again take their rightful place in explaining the business cycle.

1. **INTRODUCTION AND BACKGROUND**

The Great Recession 2007-2009 and the long, slow recovery from it serve as reminders of the difficulty of explaining business cycles. Macroeconomists of all varieties have been humbled by these events and by our inability to predict or to design policies that moderate the effects. Paul Krugman (2009) and John Cochrane (2010) are examples of how two schools of thought have struggled with the issue. Many theories of business cycles exist, without any being comprehensive; none are able to account for all important characteristics. Macroeconomic theory continues to explore stylised facts for explanatory power.

The whole sub-discipline of “macroeconomics” is premised on the belief that the standard microeconomic tools are not of much use in understanding the dynamics of growth and business cycles. Even with the rational expectations revolution purporting to set macroeconomics back on microfoundations, the language of aggregate supply and demand, over-simplified versions of the Quantity Theory of Money, and the aggregative analytics of the Keynesian cross and simple models of functional finance still fill the textbooks and inform most policy debates.

1. **AN OVERVIEW OF CURRENT MAINSTREAM INTERMEDIATE MACRO**

Modern Macroeconomics can be quite readily be classified as:

**Labour-Based Macroeconomics**

The employment of labour is logically and temporally prior to the creation of capital. Capital goods, after all, are produced by labour. Even the macroeconomic theorists who have devoted the most attention to capital have typically identified labour, together with natural resources, as the "original" means of production. And although the employment of labour in modern economies is facilitated by a commonly accepted medium of exchange, the use of money is not fundamentally a prerequisite to employment. The employment of labour can take place in a barter economy, and self-employment in a Crusoe economy.

Employee compensation accounts for a large portion--more than seventy percent--of national income even in the most capital-intensive economies. The earning and spending by workers, then, dominates in any circular-flow construction. The occasional widespread unemployment in modern economies is the most salient manifestation of a macroeconomic problem. Cyclical variation in economic activity is conventionally charted in terms of changes in the unemployment rate. The pricing of labour even in markets that may otherwise be characterised by flexibility can be affected by attitudes about fairness, implications for worker morale, and considerations of firm-specific human capital. Hence, changes in labour-market conditions can result in quantity adjustments and/or price adjustments not fully accounted for by simple supply-and-demand analysis. All these considerations give employment a strong claim to being the primary focus for macroeconomic theorising.

John Maynard Keynes’s General Theory of Employment, Interest, and Money (1936) presents the basic principles of “labour-based macroeconomics.” Paul Krugman is the contemporary presenter . Markets don’t work --especially the loanable-funds market. Saving is based upon habit (and income). Investment is based upon “animal spirits.” Income-expenditure analysis, which takes a depressed economy to be the “general case,” shows how a bad situation gets worse or how a good situation gets better.

A waning of “animal spirits” causes investment to decline, bringing all else (Y, C, and S) down with it. The market economy is depression prone and requires pro-active fiscal and monetary policies for achieving prosperity and stability.

Output reckoned as I and C. The distinction flags a basic problem, but fails even to hint at a market solution. The interest rate is out of play---or plays a role that is distinctly perverse.

Keynesian models produce a bias against the market economy and a bias for fiscal and monetary activism. The presumption of inherentand chronic business fluctuations, the implicit claim that the price system does not work reliably or in a timely fashion to coordinate disappointed individual plans, and a belief in the unerring efficacy of macro policies promote a bias that full employment. In the Keynesian models prices simply do not adjust and no time is allowed for adjustments. It is thus essentially “caught” in the short-run

**Money-Based Macroeconomics**

It is the use of money that puts the macro in macroeconomics. In the context of a barter system, it is difficult even to imagine--unless we think of a widespread natural disaster--that the economy might experience variations in market conditions that have systematic economy-wide repercussions. But, with trivial exceptions, money is on one side of every transaction in modern economies. Unavoidably, however, the medium of exchange is also a medium through which difficulties in any sector of the economy--or difficulties with money itself--get transmitted to all other sectors. Further, the provision of money even in the most decentralised economies is--not to say must be--the business of a central authority. This institutionalised centrality translates directly into a central concern of macroeconomists. Money comes into play both as a source of difficulties and as a vehicle for transmitting those difficulties throughout the economy. Money matters both as "impulse" and as "propagation mechanism." So involved is money that macroeconomics and monetary theory have, in some quarters, come to be thought of as two names for the same set of ideas. Monetarism, broadly conceived, is simply money-based macroeconomics.

Milton Friedman’s Optimum Quantity of Money and Other Essays (1969), which includes his “Quantity Theory of Money: A Restatement” (1956), presents the principles of “money-based macroeconomics.” John Cochrane is the contemporary presenter.

Output reckoned as Q.

The all inclusive Q puts the issue of the allocation between C and I into eclipse.

The interest rate is out of play---but is affected when the Fed changes M.

Markets do work. Never mind the loanable-funds market.

Just add Investment (I) to Consumption ( C to get Output (Q).

Now write: MV = PQ.

Both output (Q) and prices (P) began falling in 1929 because the Federal Reserve, behaving ineptly, allowed the money supply to collapse.

Central-bank bungling causes a collapse of the money supply, which puts downward pressure on prices. Since prices cannot adjust instantly, output falls. Policy formulation should focus on avoidance rather than on remediation. Monetarists often argue that the bungling occurred as the economy was experiencing an “ordinary recession.” In the Monatarist models prices are always at their equilibrium level. They are thus forever “caught” in the long-run

**Capital-Based Macroeconomics**

Considerations of capital structure allow the time element to enter the theory in a fundamental yet concrete way. If labour and natural resources can be thought of as original means of production and consumer goods as the ultimate end toward which production is directed, then capital occupies a position that is both logically and temporally intermediate between original means and ultimate ends.

The goods-in-process conception of capital has a long and honorable history. And even forms of capital that do not fit neatly into a simple linear means-ends framework, such as fixed capital, human capital, and consumer durables, occupy an intermediate position between some relevant production decisions and the corresponding consumption utilities.

This temporally intermediate status of capital is not in serious dispute, but its significance for macroeconomic theorising is rarely recognised. Alfred Marshall taught us that the time element is central to almost every economic problem. The critical time element manifests itself in the Austrian theory as an intertemporal capital structure. The scope and limits to structural modifications give increased significance to monetary disturbances. Simply put, capital gives money time to cause trouble. In a barter economy, there is no money to cause any trouble; in a pure exchange economy, there is not much trouble that money can cause.

The macroeconomic significance of the fact that production takes time suggests that, for business-cycle theory, capital and money should get equal billing. Macroeconomic theorising, so conceived, is a story about how things can go wrong--how the economy's production process that transforms resources into consumable output can get derailed. Sometime subsequent to the committing of resources but prior to the emergence of output, the production process can be at war with itself; different aspects of the market process that governs production can work against one another. Thus, the troubles that characterise modern capital-intensive economies, particularly the episodes of boom and bust, may best be analysed with the aid of a capital-based macroeconomics.

Friedrich A. Hayek’s Prices and Production (1931) presents the principles of “capital-based macroeconomics.” Roger Garrison is the contemporary presenter Markets work -even the loanable-funds market.

Output reckoned as I LONG, I SHORT and C.

The disaggregation identifies a basic problem and a market solution. The interest rate is fully in play---affecting I LONG and I SHORT differently. Saving (S) and Investment (I) are brought into equality (and, more broadly, intertemporal equilibrium is maintained) by adjustments in the rate of interest.

Pumping new money through credit markets drives a wedge between saving and investment, triggers and artificial boom, and sets the stage for an inevitable downturn. In these models price adjust differently. It is a process driven by entrepreneurs and lies between the short- and the long-run.

**3 THE MARKET AS A PROCESS: THE INTEGRATION OF MONEY, CAPITAL AND MARKET THEORY**

The theoretical foundations of the market process, may be summarised by a set of Ideas related to subjectivism, money, the price system, capital, time, market process,and institutions. These form a set of internally consistent ideas that provides a coherent approach to mounting a fully developed treatment of Austrian capital-based macroeconomics.

**Subjectivism**

Austrian economics insists on a subjectivist treatment of economic action, a claim holding that individuals (not aggregates) act on the basis of their own perceptions of reality. Such actions occur within a context of uncertainty about the future. Agents, despite such uncertainty, are active learners and creators of knowledge and, consequently, have the capacity to adapt to current and future situations.

**Money, Time, and Expectations**

Money, time and expectations are essential for Austrian macro. For Austrians, media of exchange emerge from the very process of the market. Thus, at a fundamental level of analysis money is already integral to the Austrian analytical framework of the market process.

The essential function of money as a commonly accepted intertemporal medium of exchange implies that money also provides services as a common denominator for appraising value and as a store of value, attributes that reflect money’s role as an indispensable mental tool of calculation for all economic action (Mises 1966, chap. XI–XII).

The use of money implies recognition of the passage of calendar time in that individuals sell goods for money that is then held until a subsequent monetary exchange is made Because all action occurs within the passage of calendar time, expectations are inseparable from money-macro analysis.

Austrians argue that expectations are generally “sensible” but not “rational” (in Lucas’ sense), exogenous, or inherently subject to fits of irrationality (as in Keynes); rather, expectations areseen as adaptive in expressing the creative capacities of agents and in their learning and appraising the relevant external environment. Austrians, following Mises (1966, chap. XVII), assign to money a “driving force” of its own in generating real systemic effects arising from changes in the supply or demand for money. This secures the distinctive Misesian insight of rejecting the notion that “changes in the purchasing power of money occur at the same time and to the same extent with regard to all commodities andservices” (p. 416).

Mises’s (1971) denial of money neutrality provides the starting point for the integration of value and monetary theory and the Austrian theory of the business cycle. Credit expansion that lowers market interest rates below their equilibrium (or “natural”) levels generates nonsustainable changes in output, relative prices, and resource allocation that principally affect the capital structure but also consumption expenditures.

**Price System**

Austrians emphasise the unitary character of the (monetary) price system and its uniqueness in generating, as an unintended byproduct of the interactions among market participants, a constellation of money prices. It is through market interactions that individual knowledge is transformed into market knowledge in the form of monetary prices; in turn, because prices constitute useful knowledge for individuals, they also are “inputs” for agents, providing an inducement for changes in agents’ behaviour. Prices are emergent phenomena, created anew as individuals, driven by their separate purposes, interact in markets.

Prices, in making economic calculation possible, enable agents to rationally conduct their affairs and to calculate monetary profit and loss; at the same time, prices enable individuals to economise on what theyhave to know because monetary prices summarise information relevant to them in an easy and accessible form. A monetary pricing system is also important because it endogenises change by promoting the generation and discovery of new preferences and new knowledge by agents. When the price of air travel falls, for example, we have an incentive to travel more and in so doing to discover or learn of preferences that did not exist or were latent. Or, when the price of an essential input rises, an added incentive now exists for rethinking how to produce an output, perhaps leading to a technological or production innovation that effectively alters relevant resource constraints. Following the work of Kirzner (1985, chap. 3), prices are seen as disequilibria phenomena that put into motion the entrepreneurial process of discovery.

Austrians take seriously the notion that monetary prices cannot be created in any other way other than by the actual market process producing them. The market process neither unfolds deterministically before our eyes nor is it chaotic or arbitrary. Rather, within a framework of property rights and enforceable contracts, the process generates its own path from one moment to the next. The theory of the market process argues that interventions designed to “correct” market prices produce outcomes that are unsustainable, undesirable, often rationalising further interventions.

**Capital and Time**

Production is time-dimensioned and forward-looking, comprising a structure of complementary inputs, including both original and produced factors, that produce goods-in-process or a flow of intermediate goods (Mises 1966, chap. XVIII; Hayek 1935; Rothbard 1962,). Because the production structure reflects the intertemporal plans of entrepreneurs in marshaling complementary factors of production, analysis of it must take account of uncertainty and entrepreneurial expectations. The intertemporality of the capital structure is seen by Austrians as interest rate constrained in terms of the degree to which production processes may be profitably roundabout. This capital structure is a sub-order in the catallaxy and reflects perhaps the most salient feature of a market economy after the price system itself.

Most economic activity and the execution of time-dimensioned plans that comprise the daily agitation of the market occur principally within this capital structure. The capital structure reflects ongoing decisions by entrepreneurs in response to changes in technology, resource constraints, market rates of interest, and consumer preferences. When we speak of the stability of the market economy or its responsiveness to change, it is really of the capital structure to which we must turn to consider such matters. Thus, when considering the market process, including the effects of interventionist policies, we must recognise the contingency of the analysis to changes wrought on the capital structure.

**Equilibrium, Coordination, and Process**

Austrians use a variety of equilibrium concepts in their economics. However, most agree that as a pedagogical heuristic for undergraduates, the use of equilibrium has a useful role to play in explaining how markets work. Equilibrium, as used here, is a model-dependent concept in which all perceived utility enhancing exchanges have been made such that agents’ plans would be achieved. The equilibrium concept as such, however, does not provide an explanation of how this all happens. Austrians recognise the market as a dynamic, ongoing, and open-ended process that has the capacity to be coordinating (or equilibrating). If we wish to understand how markets work, our analytical models should study market mechanisms that bear on the coordinating and adaptive properties of the economy. This perspective has been successfully engaged by Austrians, especially Mises and Kirzner, in developing an entrepreneurial theory of the market process.

**Institutions**

From its early beginnings, the Austrian School has sought to develop and apply theory to the actual world we live in and to the actions of real people.There is, for example, little in the way of *homo oeconomicus* or “representative” agents and firms, bedrock assumptions of neoclassical economics, that is essential for Austrian theory. These sensibilities result in Austrians taking seriously the critical role of the institutional framework in analysing economic systems. In the context of money-macro analysis, this pertains to the specification of policy regimes, including *laissez-faire* monetary systems, central banking, exchange rate, and balance of payments systems, and fiscal regimes. The way in which the market operates and the outcomes it produces in terms of the use and generation of market knowledge are dependent on the overall institutional setting in which these processes occur. The fertility, for example, of applying the theory of Big Players to the functioning of financial markets (Koppl and Yeager 1996) is a benefit of taking institutions seriously.

**4 AUSTRIAN MACRO NORMALCY AND BUSINESS CYCLES**

Modern money-macroeconomics, buckling under the weight of the Keynesian avalanche and other macroeconomic enthusiasms, essentially buried the Wicksell-Mises-Hayek cycle theory. Although originally put forth as a theoretical explanation to explain the disproportionate fluctuations in capital goods producing sectors associated with standard nineteenth century business cycles, it has been developed and reinvigorated in recent decades to provide a general theory of unsustainable expansions. Austrian business cycle theory is simply too important not to form a central component of a new Austrian money-macroeconomics. Contemporary Austrian work in economic history and empirical analyses germane to business cycles has become increasingly important. Rothbard’s America’s Great Depression (1963) initiated the post-World War II Austrian literature in this area. More recently, several empirical and econometric studies have appeared that subject the Austrian theory to standard statistical testing.

These have provided corroborative evidence that the Austrian theory has strong empirical grounding; hopefully others will follow. The relevance and importance of this empirical work cannot, I believe, be overestimated. For one thing, it helps to keep the theory grounded in the real world and tied into real world events. Second, an explicit empirical direction provides research questions for both scholars and students, including most emphatically advanced undergraduate college students.

**5 CONCLUSIONS**

The absence of virtually any Austrian economics presence in most contemporary undergraduate curricula reflects back on Austrian economists as much as it does on the indifference (and worse) toward Austrian economics by most of the profession. While some of this neglect has already been hurdled by the new edition of The Economic Way of Thinking by the late Paul Heyne, Peter Boettke, and David Prychitko, that book is appropriate for a one semester Principles course. As such, it does not address the needs of post-Principles students and instructors. I have suggested that this can be remedied if Austrians provide an instructional vehicle— an intermediate level text—suitable for presenting Austrian macro in a systematic way to undergraduate students. With few exceptions, Austrian economics is simply unavailable to students at most universities. If we believe these ideas are worth our professional attention, should we not take some obvious steps to ensure their undergraduate dissemination?

REFERENCES

Ackley, Gardner. 1961. Macroeconomic Theory. New York: Macmillan.

Ashton, G A demand from students around the world: Change economics education now! 2014 http://www.polity.org.za/article/a-demand-from-students-around-the-world-change-economics-education-now-2014-06-19 [Accessed 2015-03-20]

Anderson, Benjamin M. 1949. Economics and Public Welfare: A Financial and Economic History of the United States, 1914–1946. New York: D. Van Nostrand.

Butos, William N. 1997. “Toward an Austrian Theory of Expectations.” In Peter J. Boettke and Steven Horwitz (Eds.). Advances in Austrian Economics. Vol. 4: 75–94.

Butos, William N., and Roger Koppl. 1997. “The Varieties of Subjectivism: Keynes and Hayek on Expectations.” History of Political Economy 29 (2): 303–29.

Butos, William N., and Thomas J. McQuade. 2002. “Mind, Market, and Institutions: The Knowledge Problem in Hayek’s Thought.”. In Jack Birner and Thierry Aimar (Eds.) The Economic and Social Thought of F.A. Hayek, pp. 113–33. London: Routledge.

Capra, Fritjof. 2000. The Tao of Physics. Boston: Shambhala.

Cochrane, John H., “How did Paul Krugman Get It So Wrong?” Economic Affairs, June 2011: 36-40.

Davis, Steven J. and John C. Haltiwanger. 2014. Labour Market Fluidity and Economic Performance, National Bureau of Economic Research, Working Paper, November 26, 2014 .

DeLong, J. Bradford. 1998. ”It Doesn’t Work: A Review of Out of Work by Richard K. Vedder and Lowell E. Gallaway,” Critical Review 12 (1-2): 59 - 69.

Fuller,Edward W. 2013. “The Marginal Efficiency of Capital,” Quarterly Journal of Austrian Economics, 16 (4): 379 – 400.

Gali, Jordi. 1992. “How Well Does The IS-LM Model Fit Postwar U.S. Data?” Quarterly Journal of Economics, 107 (2): 709 – 738.

Garrison, Roger. 2001. Time and Money: The Macroeconomics of Capital Structure. London: Routledge.

\_\_\_\_\_\_, 2006. “Natural and Neutral Rates of Interest in Theory and Policy Formulation,” Quarterly Journal of Austrian Economics, 9 (4): 57 – 68.

\_\_\_\_\_\_, 2006. Time and Money: The Macroeconomics of Capital Structure. London: Routledge.

Hansen, Gary D. and Edward C. Prescott, “Did Technology Shocks Cause the 1990-1991 Recession?” American Economic Review, 83 (2): 280 – 286.

Hayek, Friedrich. 1935. Prices and Production. ( 2nd Ed.). London: Routledge.

———. 1937. “Economics and Knowledge.” Economica 4, n.s.: 33–54.

———. 1948. Individualism and Economic Order. Chicago: University of Chicago Press.

———. 1978. “Personal Recollections of Keynes and the ‘Keynesian Revolution’.” New Studies in Philosophy, Economics, and the History of Ideas, pp. 283–89. Chicago: University of Chicago Press.

———. 1993. “Hayekian Expectations: Theory and Empirical Applications.” Constitutional Political Economy 4 (3): 303–30.

Hazlitt, Henry. 1959. The Failure of the “New Economics”: An Analysis of the Keynesian

Fallacies. Princeton, N.J.: D. Van Nostrand.

Heyne, Paul, Peter Boettke, and David Prychitko. 2006. The Economic Way of Thinking

(11th Ed.). New York: Prentice Hall.

Hicks, John R. 1937. “Mr. Keynes and the ‘Classics’: A Suggested Interpretation,” Econometrica 5 (2): 147-159.

Hirshleifer, Jack. 1970. Investment, Interest and Capital. Englewood Cliffs, New Jersey, U.S.: Prentice Hall.

Horwitz, Steven. 2000. Microfoundations and Macroeconomics. New York: Routledge.

Ikeda, Sanford. 1997. Dynamics of the Mixed Economy. New York: Routledge.

Keeler, James P. 2001. “Empirical Evidence on the Austrian Business Cycle Theory,” Review of Austrian Economics, 14 (4): 331-351.

Keeler, James P. and J. Dean Craig. 2010. “Cyclical Capital Stock”. Quarterly Journal of Austrian Economics, 13 (1): 16 – 47.

Keynes, John Maynard. 1936. The General Theory of Employment, Interest and Money. London: Macmillan and Co., Ltd.

———. 1972. Collected Writings. Vol. IX, Essays in Persuasion. London: Macmillan.

Kirzner, Israel M. 1985. Discovery and the Capitalist Process. Chicago: University of

Chicago Press.

Klein, Lawrence R. 1947. The Keynesian Revolution. New York: Macmillan.

Koppl, Roger, and Leland Yeager. 1996. “Big Players and Herding in Asset Markets: The Case of the Russian Ruble.” Explorations in Economic History 33: 367–83.

Kristoff, Nicholas. 2012. “The Unhealthy Meat Market, New York Times, March 12, 2012.

Krugman, Paul. 2008. “Changes in Money-Wages and Amity Shlaes,” New York Times blog, November 29, 2008.

\_\_\_\_\_\_, 2008. “Notes on Nominal Wages and Employment,” New York Times blog, December 2, 2008.

\_\_\_\_\_\_,2009. “How Did Economists Get It So Wrong?” New York Times Magazine, September 2, 2009.

\_\_\_\_\_\_, 2010. “How Did We Know the Stimulus Was Too Small?” New York Times blog, July 28, 2010.

Lester, Robert B. and Jonathan S. Wolff. 2013. “The Empirical relevance of the Mises-Hayek Theory of the Trade Cycle,” Review of Austrian Economics, 26(4): 433 – 461.

Lewin, Peter. 1999. Capital in Disequilibrium. New York: Routledge.

Mankiw, N. Gregory. 2004. Macroeconomics. ( 5th Ed.). New York: Worth.

Mason, Will E. 1996. Classical versus Neoclassical Monetary Theories. William N. Butos, (Ed.). Boston: Kluwer Academic Press.

McCulloch, J. Huston 1981. “Misintermediation and Macroeconomic Fluctuations”. Journal of Monetary Economics, 8 1981: 103 – 115.

\_\_\_\_\_\_, 2014. “Misesian Insights for Modern Macroeconomics”. Quarterly Journal of Austrian Economics, 17 (1) 2014: 3 – 18.

Menger, Carl. 1950. Principles of Economics. James Dingwall and Bert F. Hoselitz, trans. Glencoe, Ill.: Free Press.

———.1963. Problems of Economics and Sociology. Francis J. Knock. trans.

Urbana: University of Illinois Press.

Mill, John Stuart. 1920. Principles of Political Economy. (Ashley Edition.). London: Longmans and Green.

Mills, Terence C. 2003. Modelling Trends and Cycles in Economic Time Series, Houndmills, England: Palgrave Macmillan.

Mises, Ludwig von. 1966. Human Action. (3rd Rev. Ed.). Chicago: Regnery.

———. 1971. The Theory of Money and Credit. Irvington, N.Y.: Foundation for Economic Education.

———. 1978. Notes and Recollections. South Holland, Ill.: Libertarian Press.

Mulligan, Robert F. 2006. “An Empirical Examination of the Austrian Business Cycle theory,” Quarterly Journal of Austrian Economics, 9 (2): 69 – 93.

Ncube, Mthuli, Eliphas Ndou and Nombulelo Gumata. 2012. “How are the US Financial Shocks Transmitted into South Africa? Structural VAR Evidence” African Development Bank Working Paper Series No. 157, October 2012.

Romer, Christina and Jared Bernstein. 2009. “The Job Impact of the American Recovery and Reinvestment Plan”, Washington,D.C: Congressional Budget Office, January 8, 2009.

Romer, David. 2012. Advanced Macroeconomics. (4th Ed.). New York: McGraw-Hill, 2012.

O’Driscoll Gerald P. 1977. Economics as a Coordination Problem. Kansas City: Sheed

Andrews and McMeel.

Rothbard, Murray N1962. Man, Economy and State. New York: D. Van Nostrand.

———. 1963. America’s Great Depression. Kansas City: Sheed Andrews and McMeel.

Salerno, Joseph T. 1994. “Ludwig von Mises’s Monetary Theory in Light of Modern Monetary Thought.” Review of Austrian Economics 8 (1): 71–115.

Snowden, Brian, and Howard R. Vane. 2005. Modern Macroeconomics. Northhampton,

Mass.: Edward Elgar.

Stock, James H. and Mark W. Watson. 1999. “Business Cycle Fluctuations in U.S. Macroeconomic Time Series”. Handbook of Macroeconomics 1, 1999.

Tullock, Gordon. 1988. “Why the Austrian Are Wrong about Depressions”. Review of Austrian Economics, 2 (1): 73 – 78.

Vedder, Richard K. and Lowell E. Gallaway.1997. (Updated Ed.). Out of Work: Unemployment and Government in Twentieth Century America. New York: New York University Press.

\_\_\_\_\_\_, 1998. “Government and Unemployment: Reply to DeLong,” Critical Review 12 (3) 1998: 253 – 264.

Williams, John C. 2003. “The Natural Rate of Interest.” Federal Reserve Bank of San Francisco Economic Letter, October 31, 2003.

Witte, James G. 1963. “The Microfoundations of the Social Investment Function,” Journal of Political Economy, 71 (5): 441 - 456.

Yeager, Leland B. 1968. “Essential Properties of the Medium of Exchange.” Kyklos 21 (1): 45–69.

\_\_\_\_\_\_,. 1998. The Fluttering Veil: Essays on Monetary Disequilibrium. (George Selgin, Ed.). Indianapolis: Liberty Press.