

YES, WE HAVE NO CHAFF: A REPLY TO WAGNER'S "AUSTRIAN CYCLE THEORY: SAVING THE WHEAT WHILE DISCARDING THE CHAFF"

WALTER BLOCK

Richard Wagner (2000)¹ is an attack on the Austrian business cycle (ABC) theory. Although I shall be defending the latter against the former, I welcome Wagner's contribution to the debate on the Austrian theory of the business cycle.² It provides a good background review, and provides us with an opportunity to further elaborate upon and clarify the theory.

CHAFF

Not mincing words, Wagner charges the Austrian business cycle with "obsolescence," and describes it as "incoherent." What is the reason for this denunciation? It is obsolete, he says, because

The Mises-Hayek exposition of the cycle reached its final form in the mid-1930s, and contemporary expositions have been predominately restatements. Both economic theory and the institutional arrangements within

WALTER BLOCK is the Harold E. Wirth Eminent Scholar Endowed Chair in economics, at Loyola University. Apologies are made to the writers of the song *Yes, We Have No Bananas*. The author also wishes to acknowledge the editorial assistance of Hannah Block and an anonymous referee.

¹The article is found online at www.gmu.edu/jbc/fest/files/wagner, thus page numbers in quotes are omitted.

²For a rather hysterical critique of ABC theory, see Yeager (1986, p. 378), where he describes it as "an embarrassing excrescence." For an even more overwrought treatment, see Cowen (1997). Other critiques of ABC theory include Tullock (1987, 1989), Friedman (1969, 1993) and Hummel (1979). For rejoinders to the first two, see Salerno (1989), and Garrison (1996), respectively. See also Garrison (2000) and Cwik (1998).

THE QUARTERLY JOURNAL OF AUSTRIAN ECONOMICS VOL. 4, NO. 1 (SPRING 2001): 63-73

which economic life is organized have changed greatly during the intervening years, and these changes pose challenges for several of the specific contours of Austrian cycle theory. With respect to institutions, the gold exchange standard has given way to a purely fiat standard. . . . a variety of occupations and businesses have arisen that specialize in forecasting the timing and extent of all kinds of governmental actions, including those of the central bank.

It cannot be denied that institutions have changed during these seven decades, but to think that this would call for an alteration of a praxeological theory³ is surely mistaken. Supply and demand, too, have been with us for a long time, yet no one⁴ is calling for their amendment. People still engage in human action (Mises 1998), attempting, thereby, to replace a world less to their preference with one more to their liking. This cannot be all there is to the challenge.

Nor is it. Wagner now brings forth his “exhibit A” in the case against the Austrian theory of the cycle: “the primary criticism that has been advanced against Austrian cycle theory, which is that the Austrian theory assumes that entrepreneurs are foolish in that they do not act rationally in forming expectations.” He continues:

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

The comparative statics of these two cases seems clearly to presume that people possess but weak capacities to form expectations. The fall in time preference leads to a permanent shift in the structure of production, whereas the monetary expansion brings about an oscillation in the structure of production, with an initial increase in roundaboutness subsequently followed by a decrease. The central bank’s expansion of credit is treated as indistinguishable from a general increase in the desire to save. Both instances arrive as surprises, and the two types of surprise are indistinguishable from one another. This situation might have had plausibility when

³Praxeological theories are timeless, and applicable to the real world at any epoch. For an elaboration, see Batemarco (1985), Block (1973, 1980), Bostaph (1978), Cubeddu (1993), Egger (1979), Fox (1992), Garrison (1993), Gordon (1993), Gunning (1988), Hoppe (1988, 1989, 1993, 1995), Huerta de Soto (1998), Mises (1978, 1979, 1985, 1990, 1998), Rizzo (1979), Rothbard (1951, 1957, 1976a, 1976b, 1991, 1997b, 1997c), Selgin (1988), Smith (1996), White (1984).

⁴With the possible exception of Card and Krueger (1994).

Austrian cycle theory was initially formulated. The collection of economic statistics was primitive. Central banks were committed to exchanging their notes for specie. There was no developed community of financial observers and Fed watchers.

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

This seems at first glance like a telling criticism of the Austrian business cycle, but it is not.

First of all, Austrian theory, by Wagner's own admission,⁵ is hardly well-known.⁶ All the Federal Reserve shadow open market committees and savings bank watchers in the world won't help anticipate and obviate the Austrian business cycle if no one knows what to watch for. The point is, Wagner is charging that if all investors knew full well the Austrian business cycle theory, and furthermore were acquainted with the fact that a particular fall in the market rate of interest below the originary rate was due to the central bank and not to a change in time preference, then no one would engage in resource misallocation in the direction of lengthening the structure of production. In fact, however, as Wagner himself attests, virtually no one knows of ABC, and most of those who have ever heard of it reject it, mostly very contemptuously. But this is a minor point, the force of which will atrophy when and if ABC gains the popularity it deserves on its intellectual merits.

Second, and far more serious, Wagner's analysis is marred by the implicit hypothesis that the only thing needed to obviate the ABC is an assumption of reasonable expectations. Certainly not perfect assumptions, as in some variants of the rational expectations model, but just the sort that are likely to be formed by all of these fed watchers and financial pundits he lovingly mentions.

⁵States Wagner (2000), "[T]he Austrian insights have experienced no renaissance within the universe of macro theorizing." And: "Traditional Austrian cycle theory is not now a serious competitor as an explanation or characterization of economic fluctuations."

⁶Rosen (1997) exults in this. For rejoinders, see Block (2000), and, paradoxically, Yeager (1997). See also Laband and Tollison (2000), Vedder and Gallaway (2000), and Anderson (2000).

There are several difficulties here. For one thing, if the data are so “widely and readily available” and the commentators so sophisticated, from whence spring bull and bear markets? Why, for example, didn’t any of these people predict the precise “contours” of the vicious attack on Microsoft launched by the Justice Department (Anderson, et al. forthcoming), the specific implications for the stock market in general, and in particular, for computer stock prices?

For another, why didn’t they share it with everyone? Even on the assumption of accurate expectations, due to all these institutional changes in the direction of greater sophistication, all market participants will scarcely believe them. The point is, even on these assumptions, the Austrian “cluster of error” will still be available to act as an impetus for the ABC.

Expectations are a big part of the ABC story, but they by no means exhaust it. There is also the fact that by artificially lowering the market or loan rate of interest below that of the ordinary or real rate, not only are expectations pushed out of whack, but entrepreneurs are in effect *bribed* into making otherwise unwarranted investments in the higher orders of the structure of production. This is a very crucial point, completely ignored by Wagner. Even if we can somehow assume entirely accurate expectations, but not on the part of every market participant, this would not at *all* stop the ABC dead in its tracks.⁷ Not only does a divergence between the loan and real rates of interest set up expectations about the future course of economic events, it also confers *benefits* upon those who act in accordance with them—that is, those who shift resources from the lower to the higher orders of production in response to a lowering of the loan rate of interest, *even if they know this emanates from Fed machinations, not a change in time preference, and thus can only be temporary*. The trick, of course, is to get the timing right: to get in while the getting is good, and to leave someone else holding the bag right before the onset of the downturn in the ABC. But as long as expectations are not perfect and uniform, there is no reason such a scenario cannot obtain.

Let us consider an analogy, far removed from the ABC. Suppose that the proportion of peas to carrots that will satisfy consumer demand is 1:1. The government, however, decrees that the appropriate proportion is 2:1, and begins to subsidize pea production. Third premise of the syllogism: Sophisticated (but not all) investors know that this policy cannot last, that there will be political or other repercussions, and eventually the government

⁷According to the old aphorism, “there is a sucker born every minute.” On the assumption that the Austrian cogniscenti are familiar with ABC, but that this does not apply to all market participants, the latter will tend toward bankruptcy. But if new investors not sophisticated in Austrian economics are born every day, then, still, the ABC can be generated by inflationary policies of government, even in the absence of the bribery effect.

will have to pull in its horns and cease its mischievous attempt to reallocate resources.⁸ The question is, will this suffice to set up a peas-and-carrots cycle, given an tendency of government to pursue such policies whenever politically feasible? Wagner, implicitly, would argue in the negative, on grounds that, in the long run, this policy cannot persist. He would maintain that knowledgeable investors will not sink their money into peas because the subsidy will eventually be yanked out from under them, and excessive pea production will be shown at a later date to have been missallocative.

It is perhaps easier to see the error of Wagner's ways with the help of this analogy. Obviously, even far-seeing economic actors would indeed willingly invest in excessive pea production⁹ under these conditions, secure in the knowledge that they could better predict the turning point. That is, right before the government stopped its pea subsidy program, while pea resources were still at a high, the far-seeing economic actors would unload peas upon less sophisticated investors. Wagner stresses the "heavy emphasis placed on entrepreneurship in Austrian economics," as well he might (Mises 1998; Kirzner 1973). But part and parcel of entrepreneurship is the ability to out-guess competitors.¹⁰ If all market participants always know exactly the same thing, then there is no scope at all for the entrepreneurship that Wagner says he so admires in the Austrian tradition.

Our author continues his critique: "How is it possible to claim validity for Austrian cycle theory in the face of rationality in expectations? Such validity cannot be based on any claim that *people* cannot distinguish changes in saving from changes in central bank holdings of government debt" (emphasis added).

What "people?" Of course, *some* people can perhaps make this distinction, while others cannot. Wagner himself maintains, "What is surely most notable about people and their expectations, however, is their heterogeneity and not their homogeneity. This heterogeneity starts with biology, and from there spreads throughout the social and economic universe. One aspect of this

⁸This would be equivalent to the fact that inflation can easily get out of control by setting up inflationary expectations which exacerbate the situation, that is, raise the rate at which a given financial injection causes a certain amount of inflation. And thus, eventually, the inflationary party will have to stop, if it is not to eventuate in hyperinflation and the unraveling of the economy. See on this Hayek (1972), Mises (1971).

⁹We are of course assuming only profit-maximizing behavior: we eschew the motive of purposely reducing wealth mentioned in (Rand 1957).

¹⁰States Wagner: "A presumption of rationality in expectation is surely a requisite for any kind of Austrian theorizing." No truer words were ever uttered. But surely this does not imply the sort of "rational expectations" where all of knowledge—past, present, and future—is available to everyone. For that would not be Austrianism, but, rather, perfect competition, its antithesis. See on this Hoppe (1997) and Wood (1978a, 1978b).

heterogeneity would be differences among people in their objects of expectation.” But if people can differ in the expectations engendered in them by economic variables and their alterations, then Wagner’s contention that the ABC cannot arise on the basis of differing interpretations of inflation and its effects on interest rates becomes difficult to defend.

Not to put too fine a point on this, but Wagner contradicts himself. On the one hand he maintains that the ABC cannot be generated in the way Mises and Hayek say it can, because, in effect, *everyone* can “distinguish changes in saving from changes in central bank holdings of government debt.” On the other hand, he highlights heterogeneity, even rooting this in something as basic as biology, forsooth. He simply cannot be allowed to have this both ways. He is correct in his latter contention, not his former one. That is, people are indeed heterogeneous in their expectations.¹¹ And no, he has not laid a glove on ABC theory.

A word about the ease of “distinguish[ing] changes in saving from changes in central bank holdings of government debt” in terms of deviations in interest between originary and loan rates: Wagner speaks as if this is as easy as falling off a log. Not so, not so. The originary or real rate of interest is a theoretical construct. Based on time preference, this does indeed drive the market or loan rate, but is itself invisible for all that. Yes, if savings increase, as reported to us by Wagner’s much vaunted modern institutional arrangements, this is a *prima facie* indication that time preference rates have decreased—but only if *ceteris paribus* conditions hold, and Wagner certainly has no warrant for any such assumption.

Another difficulty with the Wagnerian presentation is that it focuses on the loan market and its market rate of interest. But as Rothbard (1962, pp. 360–64) points out, under the heading of “The Myth of the Importance of the Producers’ Loan Market,”¹² the key element in interest rate determination is not the rate of interest prevailing on loans, but rather the price spread between the various levels in the structure of production. The latter is the dog, the former only the tail. In other words, it is the market rate of interest which must conform to these price spreads, based on time preference, not the other way around.^{13, 14}

¹¹And just about everything else as well.

¹²Perhaps the least tenable cut at Austrianism in Wagner (2000) is his dismissal of Rothbard (2000) as a mere “restatement” of ABC, and his refusal to even acknowledge Rothbard (1962).

¹³Just because in the evenly rotating economy all of the various rates of interest, and the time discount of one stage of production vis-à-vis another, must all come into conformity does not mean that we cannot single out some of these phenomena as basic, and others as less so. Nor would it be legitimate for Wagner to rely upon their undoubted equality in equilibrium as a justification for substituting one for the other in the real world, since we never attain such a state of affairs.

WHEAT

So much for the “chaff” that Wagner sees in ABC theory. Incomprehensibly, when we get to the “wheat,” instead of his thesis becoming clearer, it gets muddled. In his own words:

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

What is this but the rudiments of ABC theory? Granted, it is not as precise as the versions rendered by Mises (1998), Hayek (1935), Rothbard (1962, 2000), Garrison (1989, 1991, 2000), and O'Driscoll (1977). It lacks recourse to the structure of production, to the deviation between market and real rates of interest, to the cluster of error, and other elements of the so-called chaff. But in one short paragraph, Wagner has at least articulated a recognizable version of the ABC theory. It is an inferior version, elevating “false trading” to a core position without investing this phenomenon in its usual clothing, but for all that, it is at least recognizably, if opaquely, Austrian.¹⁵

Also in the Austrian tradition are Wagner's remarks:

An economy can be represented by a network of human activity, some of which is engaged in executing original plans and some of which is engaged in rectifying plans that have judged to have been unsatisfactory. This distinction between types of activity is, of course, an analytical and not an empirical distinction. There is no way that a census could be taken to determine how much activity is devoted to executing plans and how much is devoted to revising plans that have been judged unsuccessful.

Here, he seems to be admitting that ABC theory is praxeological, not empirical. If so, why is there need for revision on the basis of new institutions?

¹⁴Wagner also incorporates into his analysis “aggregate variables,” but these play no role in Austrian praxeological considerations.

¹⁵Similarly, is his call to place macroeconomics “on adequate microfoundations.” This is strict classical ABC theory.

No one denies that alternative ways of doing things may or may not make praxeological theories irrelevant, in the sense of not being applicable. But Wagner, in urging his “chaff” thesis, is clearly going beyond these parameters.

It is time to bring this discussion to a close. Wagner set out to separate the Austrian wheat from the Austrian chaff, in an attempt to retain the former and jettison the latter. It is difficult to see in what way he has succeeded.

REFERENCES

- Anderson, William L. 2000. “Austrian Economics and the ‘Market Test’: A Comment on Laband and Tollison.” *Quarterly Journal of Austrian Economics* 3(3): 63-73.
- Anderson, William L., Walter Block, Thomas J. DiLorenzo, Ilana Mercer, Leon Snyman, and Christopher Westley. Forthcoming. “The Microsoft Corporation in Collision with Antitrust Law.” *Journal of Social, Political, and Economics Studies*.
- Batemarco, Robert. 1985. “Positive Economics and Praxeology: The Clash of Prediction and Explanation.” *Atlantic Economics Journal* 13(2): 31-27.
- Block, Walter. 1973. “A Comment on ‘The Extraordinary Claim of Praxeology’ by Professor Gutierrez.” *Theory and Decision* 3(4): 377-87.
- . 1980. “On Robert Nozick’s ‘On Austrian Methodology’.” *Inquiry* 23(4): 397-444.
- . 2000. “Austrian Journals: A Critique of Rosen, Yeager, Laband and Tollison, and Vedder and Gallaway.” *Quarterly Journal of Austrian Economics* 3(2): 45-61.
- Bostaph, Samuel. 1978. “The Methodological Debate between Carl Menger and the German Historicists.” *Atlantic Economics Journal* 6(3).
- Card, David, and Alan B. Krueger. 1994. “Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania.” *American Economic Review* 84(4): 772-93.
- Cowen, Tyler. 1997. *Risk and Business Cycles*. London: Routledge.
- Cubeddu, Raimondo. 1993. *The Philosophy of the Austrian School*. New York: Routledge. Pp. 1-108.
- Cwik, Paul. 1998. “The Recession of 1990: A Comment.” *Quarterly Journal of Austrian Economics* 1(3): 85-88.
- Dolan, Edwin G., ed. 1976. *The Foundations of Modern Austrian Economics*. Kansas City: Sheed and Ward.
- Egger, John. 1979. “The Austrian Method.” In Spadaro, ed. 1979. Pp. 19-39.
- Fox, Glenn. 1992. “The Pricing of Environmental Goods: A Praxeological Critique of Contingent Valuation.” *Cultural Dynamics* 5(3): 245-59.
- Friedman, Milton. 1969. *The Optimum Quantity of Money and Other Essays*. Chicago: Aldine. Pp. 261-84.
- . 1993. “The ‘Plucking Model’ of Business Cycle Fluctuations Revisited.” *Economic Inquiry* (April): 171-77.

- Garrison, Roger W. 1989. "The Austrian Theory of the Business Cycle in Light of Modern Macroeconomics." *Review of Austrian Economics* 3:3-29.
- . 1991. "New Classical and Old Austrian Economics: Equilibrium Business Cycle Theory in Perspective." *Review of Austrian Economics* 5(1):91-103.
- . 1993. "Mises and His Methods." In Herbener, ed. 1993. Pp. 102-17.
- . 1996. "Friedman's 'Plucking Model': Comment." *Economic Inquiry* 34(4).
- . 2001. *Time and Money: The Macroeconomics of Capital Structure*. London: Routledge.
- Gordon, David. 1993. "The Philosophical Contributions of Ludwig von Mises." *Review of Austrian Economics* 7(1): 95-106.
- Gunning, J. Patrick. 1988. "Professor Caldwell on Ludwig von Mises' Methodology." *Review of Austrian Economics* 3:163-76.
- Hayek, F.A. 1935. *Prices and Production*. 2nd Ed. London: Routledge and Kegan Paul.
- . 1972. *A Tiger by the Tail*. London: Institute of Economic Affairs.
- Herbener, Jeffrey M., ed. 1993. *The Meaning of Ludwig von Mises: Contributions in Economics, Sociology, Epistemology, and Political Philosophy*. Boston: Kluwer Academic Publishers.
- Hoppe, Hans-Hermann. 1988. *Praxeology and Economic Science*. Auburn, Ala.: Ludwig von Mises Institute.
- . 1989. "In Defense of Extreme Rationalism: Thoughts on Donald McClosky's *The Rhetoric of Economics*." *Review of Austrian Economics* 3:179-214.
- . 1993. "On Praxeology and the Praxeological Foundation of Epistemology and Ethics." In Herbener, ed., 1993.
- . 1995. *Economic Science and the Austrian Method*. Auburn, Ala.: Ludwig von Mises Institute.
- . 1997. "On Certainty and Uncertainty, Or: How Rational Can Our Expectations Be?" *Review of Austrian Economics* 10(1): 49-78.
- Hummel, Jeffrey Rogers. 1979. "Problems with Austrian Business Cycle Theory." *Reason Papers* 5:41-53.
- Huerta de Soto, Jesús. 1998. "The Ongoing Methodenstreit of the Austrian School." *Journal des Economistes et des Etudes Humaines* 8(1): 75-113.
- Kirzner, Israel M. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- Laband, David N., and Robert D. Tollison. 2000. "On Scientific Appraisal." *Quarterly Journal of Austrian Economics* 3(1): 33-42.
- Mises, Ludwig von. [1912] 1971. *The Theory of Money and Credit*. Irvington-on-Hudson, N.Y.: Foundation for Economic Education.
- . 1976. *Epistemological Problems in Economics*. New York: New York University Press.

- . 1978. *The Ultimate Foundation of Economic Science*. Kansas City: Sheed Andrews and McMeel.
- . 1985. *Theory and History: An Interpretation of Social and Economic Evolution*. Auburn, Ala.: Ludwig von Mises Institute.
- . 1990. "Epistemological Relativism in the Sciences of Human Action." In *Money, Method, and the Market Process: Essays by Ludwig von Mises*. Richard M. Ebeling, ed. Boston, Mass.: Kluwer Academic Publishers. Pp. 37-54.
- . [1966] 1998. *Human Action: A Treatise on Economics*. Scholar's Edition. Auburn, Ala.: Ludwig von Mises Institute.
- O'Driscoll, Gerald P., Jr. 1977. *Economics as a Coordination Problem*. Kansas City: Sheed Andrews and McMeel.
- Rand, Ayn. 1957. *Atlas Shrugged*. New York: Random House.
- Rizzo, Mario. 1979 "Praxeology and Econometrics: A Critique of Positivist Economics." In Spadaro, ed. 1979. Pp. 40-56.
- Rosen, Sherwin. 1997. "Austrian and Neoclassical Economics: Any Gains from Trade?" *Journal of Economic Perspectives* 11(4): 139-52.
- Rothbard, Murray N. 1951. "Praxeology: Reply to Mr. Schuller." *American Economic Review* (December).
- . 1957. "In Defense of Extreme Apriorism." *Southern Economic Journal* 23(1): 314-20.
- . 1962. *Man, Economy, and State*. Los Angeles: Nash Publishing.
- . 1976a. "Praxeology: The Methodology of Austrian Economics." In Dolan, ed. 1976. Pp. 19-39.
- . 1976b. "Praxeology, Value Judgments, and Public Policy." In Dolan, ed. 1976.
- . 1991. "Praxeology and the Method of Economics." In *Austrian Economics: A Reader*. Vol. 18. Richard M. Ebeling, ed. Hillsdale, Mich.: Hillsdale College Press. Pp. 55-91.
- . 1997a. *The Logic of Action One*. Cheltenham, U.K.: Edward Elgar.
- . 1997b. "The Mantle of Science." In Rothbard 1997a. Pp. 3-23.
- . 1997c. "Praxeology as the Method of the Social Sciences." In Rothbard 1997a. Pp. 28-57.
- . [1963] 2000. *America's Great Depression*. Auburn, Ala.: Ludwig von Mises Institute.
- Salerno, Joseph T. 1989. "Comment on Tullock's 'Why Austrians Are Wrong About Depressions'." *Review of Austrian Economics* 3:141-45.
- Selgin, George A. 1988. "Praxeology and Understanding: An Analysis of the Controversy in Austrian Economics." *Review of Austrian Economics* 2:19-58.
- Smith, Barry. 1996. "In Defense of Extreme (Fallibilistic) Apriorism." *Journal of Libertarian Studies* 12:179-92.
- Spadaro, Louis., ed. 1979. *New Directions in Austrian Economics*. Kansas City: Sheed Andrews and McMeel. Pp. 40-56.

- Tullock, Gordon. 1987. "Why the Austrians are Wrong about Depressions." *Review of Austrian Economics* 2:73-78.
- . 1989. "Reply to Comment by Joseph T. Salerno." *Review of Austrian Economics* 3:147-49.
- Vedder, Richard, and Lowell Gallaway. 2000. "The Austrian Market Share in the Marketplace for Ideas, 1871-2025." *Quarterly Journal of Austrian Economics* 3(1): 33-42.
- Wagner, Richard E. 2000. "Austrian Cycle Theory: Saving the Wheat while Discarding the Chaff." Festschrift for James Buchanan. www.gmu.edu/jbc/fest/files/wagner.
- White, Lawrence H. 1984. *Methodology of the Austrian School Economists*. Auburn, Ala.: Ludwig von Mises Institute.
- Wood, Stuart. 1978a. "Heterogeneous Expectations and Scarcity Price Distributions: Random Movements, Fat Tails, and Unstable Betas." *Eastern Finance Association Proceedings*.
- . 1978b. "Expectations and the Non-Equilibrium Theory of the Market Process." *Western Economic Association Proceedings*.
- Yeager, Leland B. 1986. "The Significance of Monetary Disequilibrium." *Cato Journal* 6:369-99.
- . 1997. "Austrian Economics, Neoclassicism, and the Market Test." *Journal of Economic Perspectives* 11(4): 153-63.