

On Hummel on Austrian Business Cycle Theory

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1. Introduction

Jeffrey Rogers Hummel criticizes Austrian Business Cycle Theory (ABCT), and it is our intent in the present article to reply to his criticisms,¹ defending this viewpoint against the difficulties he raises with it. Hummel sees six separate problems with the Austrian or praxeological analysis of the

¹ Why expend so much time and effort here to respond to Jeffrey Rogers Hummel, “Problems with Austrian Business Cycle Theory,” *Reason Papers* 5 (1979), pp. 41-53, which was, we readily admit, published a long time ago? This is because no matter that this author mischaracterizes ABCT, and thus his criticisms of it fall wide of the mark, we are appreciative of the fact that they are serious criticisms. On that ground alone they deserve a serious reply. Additionally, there are few thought-provoking negative assessments of ABCT. See, e.g., Gordon Tullock, “Why the Austrians Are Wrong about Depressions,” *Review of Austrian Economics* 2 (1987), pp. 73-78; Gordon Tullock, “Reply to Comment by Joseph T. Salerno,” *Review of Austrian Economics* 3 (1989), pp. 147-49; Richard E. Wagner, “Austrian Cycle Theory: Saving the Wheat While Discarding the Chaff,” essays in honor of James Buchanan (2000), available online at <http://www.gmu.edu/jbc/fest/files/wagner.htm>; J. Snippe, “Intertemporal Coordination and the Economics of Keynes: Comment on Garrison,” *History of Political Economy* 19, no. 2 (1987), pp. 329-34. For Austrian defenses, see Joseph T. Salerno, “Comment on Tullock’s ‘Why Austrians Are Wrong about Depressions,’” *Review of Austrian Economics* 3 (1989), pp. 141-45; Walter Block, “Yes, We Have No Chaff: A Reply to Wagner’s ‘Austrian Business Cycle Theory: Saving the Wheat While Discarding the Chaff,’” *Quarterly Journal of Austrian Economics* 4, no. 1 (2001), pp. 63-73; Roger Garrison, “Intertemporal Coordination and the Invisible Hand,” *History of Political Economy* 17 (1985), pp. 309-21; Roger Garrison, “Full Employment and Intertemporal Coordination,” *History of Political Economy* 19, no. 2 (1987), pp. 335-41. There is also Tyler Cowen, *Risk and Business Cycles* (London: Routledge, 1997), which has had no reply. This by itself would be sufficient to justify a reply to Hummel. In sharp contrast, many critiques of ABCT amount to no more than name-calling. For example, Leland Yeager, “The Significance of Monetary Disequilibrium,” *Cato Journal* 6, no. 2 (1986), p. 378, says that ABCT is an “embarrassing excrescence.”

Reason Papers Vol. 30

business cycle, and we shall comment on each of them. To wit, following Hummel's outline, we devote Section 2 to Asymmetry, 3 to Definitions of the Money Stock, 4 to Net Investment, 5 to Deflation, 6 to the Constant Rate of Credit Expansion, and 7 to International Aspects of the ABCT. We conclude in Section 8. Since Hummel prefaces his remarks with his "fundamental assumption," we shall follow him in that regard here.

Hummel states:

According to Austrian theory, the boom or cyclical upswing consists of a lengthening of the structure of production induced by credit expansion. The depression or cyclical downturn consists of a shortening of the structure of production until it is back into coordination with consumers' time preferences.²

What is Hummel's "fundamental assumption?" It

consists of the observation that, because the boom is a lengthening of the structure of production while a depression is a shortening of it, violent fluctuations in time preferences that generate similar alternations between lengthening and shortening can theoretically

² Hummel, "Problems with Austrian Business Cycle Theory," p. 41. Hummel's statements in the text above are fully in keeping with Austrian understanding of ABCT; in contrast, ours are not perfectly congruent. There are really three distinct views of the business cycle now in play, and we do well to distinguish between them. First is what we will call mainstream Austrianism. This, roughly, is the perspective of Ludwig von Mises, *Human Action*, Scholar's ed. (1998 [1949]), available online at <http://mises.org/Books/HumanActionScholars.pdf>; Friedrich Hayek, "The Present State and Immediate Prospects of the Study of Industrial Fluctuations," in Friedrich Hayek, *Profits, Interest, and Investment* (Munich: Augustus M. Kelley, 1975 [1939]); Murray Rothbard, *Economic Depressions* (Lansing, MI: Constitutional Alliance, Inc., 1969); Murray Rothbard, *Man, Economy, and State* (Auburn, AL: Ludwig von Mises Institute, 2001 [1962]); and Roger Garrison, *Time and Money* (London: Routledge, 2001). Second is Hummel's view, which is a critique of the former. Third are our views. For the most part, we side with the Austrian mainstream, but not always. In the present instance, although we do not wish to divert our critique of Hummel's article away from his analysis of this understanding, we note that there is a difference between lengthening (shortening) the structure of production and lengthening (shortening) the period of production. During the credit-expansion-initiated boom, the period of production might be shortened, not lengthened, and the bust might be characterized by a lengthening, not a shortening, of the period of production. Because the critique in this present article of Hummel's criticism of mainstream ABCT is from that latter perspective, this does not mean that we are in full accord with standard ABCT; in fact, though we agree with the essence of ABCT as we see it, we disagree with several specific aspects thereof.

Reason Papers Vol. 30

cause a business cycle.... [T]his assumption means that the lengthening of the structure of production that occurs as the result of credit expansion and the lengthening of the structure of production that occurs as the result of a genuine shift in time preferences are basically identical *except* for the fact that the lengthening due to credit expansion must in the future be reversed because it is inconsistent with underlying consumers' tastes.³

It cannot be denied that there is an eerie similarity between the two scenarios. Even an otherwise highly accurate outside observer who was not acquainted with the very different causal antecedents between the two of them might well be forgiven for failing to distinguish one from the other. Nevertheless, there is all the world of difference in these two cases. It is, at first approximation, the distinction between a human-like marionette, ruled by strings pulled above his head, and a human being, making volitional choices. The similarities, nay, the identities in the movements may fool the unwary, but the first is mere movement of a human look-alike creature, and the second is human action.

Consider the following two scenarios. In the first, the government subsidizes (or taxes), initially, only the umbrella industry, and then, secondarily, the sunglass industry alone, and then continually repeats this process. People are led by prices to first purchase more of the one good and less of the other than they otherwise would, and, then, the reverse, in never-ending iterations. In the second scenario, the weather is first rainy, and then sunny, in continuously altering patterns. People first buy more umbrellas, and then sunglasses, to suit their tastes that change in response to the weather, and so on. In both cases, let us suppose, the identical acquisitions occur. And, yet, the first scenario, engendered by governmental fiscal policy, is analogous to alterations in credit expansion (and contraction), and the second, to "violent fluctuations in time preferences." The first full well deserves the appellation "Austrian Business Cycle." The second does not; it constitutes merely the working out of endogenous changes in taste or time preference in the case under discussion.

Nor is this merely a matter of nomenclature, as important as that is for clarity of analysis. There is more. For with the alterations in taste, whether rainwear vis-à-vis sungear or a future orientation versus a present one, entrepreneurs will eventually figure it out⁴; certainly, they will if this pattern long endures. In very sharp contrast, there is no such expectation regarding the prediction of which side of the bed the fiscal authorities or, in

³ Hummel, "Problems with Austrian Business Cycle Theory," p. 41.

⁴ Israel M. Kirzner, *Competition and Entrepreneurship* (Chicago, IL: University of Chicago Press, 1973); Mises, *Human Action*.

Reason Papers Vol. 30

the case of money, Alan Greenspan, will arise from on any given day. That is, there is an element of arbitrariness intrinsically related to government operation that simply does not hold true for market decision-making. The latter is predictable, at least in theory, whereas the former is radically unpredictable.⁵

States Hummel: “If the changes in the structure of production induced by credit expansion are different from changes in the structure of production caused by changes in time preferences in some essential respect other than that they must in the future be reversed, no one has explicitly identified this additional difference.”⁶ Not so, at least not anymore; the issue of predictability in principle has now been explicitly articulated.

It is easy to sell predictability short as a distinction between the two cases, but this would be an error. For, if entrepreneurs can foresee consumer changes in a way that does not apply to Federal Reserve currency manipulation, they can take steps to reduce or even eliminate its otherwise disruptive qualities. Perhaps, for example, a sufficient supply of both sunwear and raingear can be planned in advance; when the inevitable (stipulated) changes occur, businessmen can stand ready to supply that which is needed, in a way they cannot do for changes inaugurated by central banking authorities.

Moreover, that the one necessarily will be reversed and the other reversed only with radical fluctuations in the mass of individuals’ preferences, especially given the essentially conservative behavior of the mass of people, is far from a trivial matter. That is, the credit/money expansion necessarily creates discoordination between the actions of producers and the preferences of consumers. It leads to misallocations of resources and distortions in the structure of production⁷ from the outset, that is, as soon as the new money that was lent into existence is spent. These misallocations give rise to discoordination between the actions of producers and the preferences of consumers. These are *ex ante* misallocations/distortions. However, if subsequent to them the preferences of consumers should somehow change in precisely such fashion that they align themselves with the altered

⁵ Ludwig Lachmann, “From Mises to Shackle: An Essay on Austrian Economics and the Kaleidic Society,” *Journal of Economic Literature* 14, no. 10 (1976), pp. 54-62.

⁶ Hummel, “Problems with Austrian Business Cycle Theory,” p. 42.

⁷ It also creates distortions in the time structure of consumption, which is analogous to the structure of production. For example, at any one time, there will be an ideal allocation between the following consumer goods: houses that last for hundreds of years, medium-enduring cars and refrigerators, and short-lived soap and tissue paper. Artificial central bank-created alterations in interest rates will play havoc with these allocations, just as they do for producers’ goods.

Reason Papers Vol. 30

allocation/structure, neither would there be a crisis nor would there be a bust, that is, there would not be a cycle.⁸ In such a case, what had been *ex ante* mistakes would prove to be wise decisions *ex post*. However, that possibility does not in any way challenge the validity of ABCT. Note that absent the subsequent change in preferences: (1) the boom is necessarily self-reversing, (2) necessarily the actions of producers and preferences of consumers were discoordinated, (3) resources were necessarily misallocated, and (4) the structure of production was necessarily distorted.

Compare that with Hummel's hypothesized violent fluctuations in preferences. If there is no such fluctuation—if, that is, subsequent to the initial change in preferences, there is no further violent change in them—then (1) the “boom” is not self-reversing, (2) the actions of producers and preferences of consumers are not discoordinated, (3) resources are not misallocated, and (4) the structure of production is not distorted.⁹ That is, there are no entrepreneurial mistakes, save for ever-present random errors.

Hummel's assumption regarding violent fluctuations must be just that, fluctuations, swings back and forth. Consider, for example, a situation in which consumers' preferences changed to prefer a group of goods, A, relatively more and a group of goods, B, relatively less, and producers responded to this change by reallocating relatively more resources to A and relatively less to B, say, from (A_0, B_0) to (A_1, B_1) , $(A_1 > A_0, B_1 < B_0)$. Suppose that subsequently consumers' preferences changed again, but in the same direction—an even greater preference for A relative to B—and producers responded by again reallocating relatively more resources to A and relatively less to B, (A_1, B_1) to (A_2, B_2) , where $(A_2 > A_1, B_2 < B_1)$, that is, by allocating, relatively, yet more resources to A and yet fewer to B. In such a case, then there would be no cycle; rather, the situation would be the same as if consumers' preferences had changed originally from (A_0, B_0) to (A_2, B_2) , $(A_2 > A_0, B_2 < B_0)$, but entrepreneurs' adjustments to the change would be slower, that is, there would be no cycle, but only what appeared to be slow response to an original change from (A_0, B_0) to (A_2, B_2) . Moreover, the misallocated resources would not take the form of too many of the type required for the production of A and too few of the type required for the

⁸ Here is the analogue to our sun-rain example: the government misallocates resources in terms of these consumer items. But then, accidentally, consumers' tastes change in precisely the direction in which, and to the extent of, the governmental misallocation. If this occurred, then there would be no misallocation at all. Or try this. It is as if someone attempted to murder an innocent man, but instead shot a murderer making his escape.

⁹ The latter three of these points abstracts from the random, minor, self-correcting errors made by entrepreneurs.

Reason Papers Vol. 30

production of B, but rather of too few of the type required for A and too many of the type required for B. That is, the relative additional resources devoted to the production of A would not have been misallocated, nor would the decrease in resources allocated to the production of B be a misallocation, as in the ABCT case; rather, the misallocation would be in the form of too few for A and too many for B—the exact opposite of the ABCT case.

Hummel also compares (1) a situation in which government taxes away money consumers would have spent on good A and spends it instead on good B, and in which entrepreneurs reallocate resources in line with the changed pattern of demand with (2) a situation in which consumers shift their expenditures away from A and in favor of B, and in which entrepreneurs reallocate resources in line with the changed pattern of demand. He then maintains:

Now, one can say that [in the first situation] the economy is discoordinated with the desires of consumers, that resources spent on the production of B are wasted, and that if the government stops its expropriation, the market will shift back again. One cannot, however, contend that the demand for B manifested by the government with its ill-gotten gains is illusory or that the effect it has on the economy is any different from the effect of [the second situation].¹⁰

Certainly, from an objective point of view Hummel is correct. However, what is important in economics is the subjective meaning human beings place on that objective reality. It is true that in both situations we would expect to see the same goods produced¹¹ in the “first round” and subsequent similar reallocations of resources by entrepreneurs from goods necessary to the production of A to those necessary to the production of B. But this ignores the fact that in the real world there are innumerable goods, some of which are neither A nor B, nor used in the production of either.

Moreover, the scenario of tax-induced reallocations is not necessarily self-reversing. As long as the government continued to tax funds that would have been spent on A and spends them instead on B, the misdirection of

¹⁰ Hummel, “Problems with Austrian Business Cycle Theory,” p. 42.

¹¹ We abstract from “second order” considerations, such as distribution effects. Even the objective course of production and distribution will necessarily be different. This can be seen by asking, “Who would receive the B purchased by government?” Those people will be wealthier than otherwise and the taxpayers poorer. In subsequent periods of time this will lead to different patterns of demand and production than would otherwise have happened in the case where preferences changed in favor of B without a redistribution by government from taxpayers to the “fortunate” recipients of governments’ largess in the form of B.

Reason Papers Vol. 30

resources will continue. However, that is not true if the misdirection is caused by an increase in money/credit. Then, the misdirection is self-reversing because either the government continues to increase money/credit, in which case the situation will inevitably, sooner or later, end in a monetary hyperinflation and subsequent collapse; or because at some point before such a catastrophic event occurred, the government will stop the money/credit expansion, in which case there will inevitably be a crisis followed by a bust.¹²

2. Asymmetry

Hummel puts forth his challenge to ABCT as follows:

During the boom when the structure of production is lengthened, the capital goods industries (or goods of the higher orders) expand while the consumers' goods industries (or goods of the lower orders) contract. Labor is bid from consumers' goods industries to capital goods industries. During the depression, when the structure of production is shortened, the reverse takes place. The *consumers'* goods industries expand, the capital goods industries contract, and labor is bid from the latter to the former. Why are these two processes not symmetrical in their effect? Why is the expansion of the capital goods industries and the contraction of the *consumers'* goods industries accompanied by *general* prosperity and full employment, while the expansion of the *consumers'* goods industries and the contraction of the capital goods industries accompanied by *general* depression and unemployment?¹³

¹² It is true that the government can forestall or ameliorate the bust through fiscal and/or regulatory wedges, but that is not relevant for this paper. A fiscal wedge is a tax or subsidy that causes a divergence between the prices that would have prevailed in a free market and the actual prices that obtain. A regulatory wedge achieves similar effects by means of, you guessed it, regulations. Such wedges mitigate against the reallocation of resources necessary to alleviate the misallocations that constituted the false boom. The effect is to moderate the intensity of the recession/depression while prolonging it, or in the best of worlds, "merely" to reduce the post-recession/depression growth of the economy. For more on wedges, see William Barnett II and Stuart Wood, "Business Cycles and Stagflation," *Proceedings of the Eighth Annual Austrian Scholars Conference* (2002), pp. 2, 4, 6, 9, and esp. 24-28, available online at http://www.mises.org/journals/qjae/pdf/qjae4_1_4.pdf.

¹³ Hummel, "Problems with Austrian Business Cycle Theory," pp. 42-43.

Reason Papers Vol. 30

Several responses are in order here. First, in the case of a shift in preferences, the contraction in the consumers' goods industries during the boom is only a *relative* one. In fact, both consumers' goods industries and capital goods industries expand; however, the latter increase more than the former. That is, there is not a zero-sum substitution of production of capital goods for production of consumers' goods.¹⁴ To the contrary, total production expands. This is made possible by both a more intensive and extensive use of labor and capital goods. Regarding the first, workers put in more hours on the job (overtime), factories put on extra shifts, and offices are used earlier and later than previously. Regarding the latter, potential workers who previously were "idle,"¹⁵ for example, college students, housewives, and others at leisure, become employed, and previously "idle"¹⁶ factories, mines, office buildings, etc. are brought into use. Therefore, in the sense of optimal use of resources, in the boom there is *excess* employment of resources in the market. That is, more resources are used by the market in an artificial boom than in a period of increased capital formation resulting from changed preferences.¹⁷ Similarly, fewer resources are used by the market in a bust than in a period of decreased capital formation resulting from changed preferences. Put another way, if preferences change, resources are shifted from production of the less preferred to the more preferred goods, regardless of type, but there is no reason to expect an increase or decrease in the level of resource use, unless the shift in preferences is to or from leisure. In the case of a monetary-policy-induced change in the allocation of resources, not only are resources initially shifted from the less preferred to the more preferred

¹⁴ The only consumers' good that necessarily decreases is leisure.

¹⁵ We note that such people are idle only in the sense of not being employed in the market; certainly according to his own values, each was putting his time to its best use, including in some cases non-market labor.

¹⁶ Again, that a resource is idle in the sense of not being physically used in the production process does not mean it was not being put to its most valuable use as determined by its owner(s).

¹⁷ What of the possible objection that this occurs in both scenarios? That is, that more resources are used by the market due to credit expansion, but also because of a decrease in time preferences. We answer as follows: In both cases there will be an increase in production of interest-rate-sensitive goods. However, if this takes place as the result of decreased time preference, it will be part and parcel of a shift from production of short-term consumers' goods and, perhaps, some reduction in leisure. However, if it is because of an artificial credit expansion, there will be no shift of production from short-term consumers' goods, though there will be a reduction in leisure.

Reason Papers Vol. 30

good, that is, from non-interest-rate-sensitive goods¹⁸ (NIRSG) to interest-rate-sensitive goods (IRSG), but additional resources are brought into production; when the inevitable crisis and bust occur, not only is the former shift reversed, with resources shifted back, from IRSG to NIRSG, but some resources are withdrawn from production.¹⁹

A second response is that the worry is depression, not unemployment; as long as there is complete and total wage flexibility, there need not be any joblessness at all. Hummel is quite correct when he asks: “Why is not frictional unemployment equally great in both directions?”²⁰ It *is* or can be expected to be equally great in both directions; thus, there would be no necessary difference in unemployment in the two scenarios.

However, matters are quite different in three other dimensions. First, while there is no reason to expect frictional unemployment to be different, that leaves cyclical unemployment, which is asymmetric. What Hummel fails to understand is that in the case of a shift to lower time preferences, resources are shifted from less interest-elastic to more interest-elastic industries, and vice versa for the case of a shift to higher time preferences. It is possible that there would be some change in terms of “idle” resources, but there is no reason to expect this to be systematic. However, in the case of an artificial credit expansion, resources are not shifted so much from less interest-elastic industries, but rather from idleness, both to more-interest elastic and to more interest-inelastic industries, and vice versa in the case of an artificial credit contraction. In terms of labor, this means that the labor force expands in the false boom and contracts in the subsequent bust, in a way it does not in the cases of changed time preferences. It is this difference in labor force participation that gives rise to the asymmetrical unemployment effects.=

Second, there is the issue of leisure. When interest rates fall below natural levels due to governmental monetary mismanagement, labor is increased at the expense of leisure, since wage rates in the higher orders of production are bid up. There is no symmetrical effect in the opposite

¹⁸ Interest-rate-sensitive goods are those the demand for which is financed in substantial part by credit.

¹⁹ It is imperative that we distinguish between two cases: (1) comparison of symmetry between policy (artificially) induced boom and market (naturally) induced shift in preferences from present to future; and (2) policy induced boom (initiated from “equilibrium” by credit expansion) and policy induced bust (initiated from “equilibrium” by credit contraction, and not initiated by inevitable crisis at climax of policy induced boom).

²⁰ Hummel, “Problems with Austrian Business Cycle Theory,” p. 43.

Reason Papers Vol. 30

direction when interest rates rise above natural levels due to this source of misallocation.

Third, a movement toward a lower discount rate creates a situation that has rightly been characterized as “9 bricks available, 10 planned for.”²¹ But this only applies in the first case when the government intervenes into the economy with artificial credit expansion, not the second case of exogenous changes of tastes on the part of market participants.

As to symmetry in ABCT, it is not to be found between the phases of the cycle, that is, the boom and the bust, but, rather, what symmetry exists is between cycles differentially initiated. Compare the standard Austrian account of the money/credit cycle initiated by new money lent into existence by government, with one that is initiated by existing money borrowed out of existence by the state. In the latter case, as the government sells securities, their prices decline and the yields thereon increase. Moreover, the central banking authorities retire the money so acquired. Then, the rise in interest rates will induce a shift in demand and subsequently production from IRSG goods to NIRSG. Also, the decrease in the stock of money will cause price deflation. In the interim during which people are adjusting to the reduced stock of money, that is, before prices fall very much, there will be a decrease in economic activity, along with the shift from IRSG to NIRSG. That is, in addition to the decrease in total economic activity, there will be a relative reduction in the IRSG relative to the NIRSG sector. However, such a decline in the money stock cannot continue indefinitely. If the central bank continues the monetary/price deflation, interest rates will collapse and people will begin to refrain from purchasing all but necessities in anticipation of ever-lower prices, resulting in a crack-up bust.²² The alternative available to government is to quit borrowing money out of existence before the process ends in the crack-up bust. If this is the path chosen, the bust ends with a crisis as interest rates decline. The catastrophe will give way to a boom/recovery when and as the decline in prices comes to a halt, and the structure of prices, and therefore that of expected prices and production, is realigned with peoples’ preferences.

Compare the two cycles, the one that begins with money being lent into existence, the other with money being borrowed out of existence, both courtesy of governmental intervention. The former begins with an unsustainable, artificial boom that either (1) ends in a crack-up boom or (2) ends in a crisis that gives way to a bust and recovery. The latter begins with

²¹ This refers to Roger Garrison’s “Ivan and the Brickyard,” available online at <http://www.auburn.edu/~garriro/ivan.ppt>.

²² Instead of the hyperinflation (and subsequent barter) threatened by government monetary policy in the other direction, here the threat is of direct barter.

Reason Papers Vol. 30

an unsustainable, artificial bust that either (1) ends in a crack-up bust or (2) ends in a crisis that gives way to a boom and recovery.

The asymmetry, both with respect to employment and “the way individuals generally perceive their economic fortunes,” between phases of the ABC is caused by an absolute expansion in the boom and an absolute contraction in the bust. That is, not only is there a relative shift from the production of NIRSG to IRSG in the boom, but the total of resources, including, importantly, labor, and thus total production of goods increases. The malinvestment that constitutes forced saving includes not only the unwarranted production of some capital goods (those that are IRSG),²³ but also of those durable consumers’ goods that are IRSG, and in recent times, given the ubiquitous availability of credit, even some nondurable consumers’ goods and services that are IRSG.²⁴ Forced saving implies a misallocative reduction in consumption. The production of durable goods, consumers’ as well as capital, is a form of saving. To the extent that there is an unwarranted shift in resources from the production of nondurable goods of either type, to durable goods of either type, forced saving occurs. Moreover, as there is an improper uneconomic increase in the quantity of labor used in production, leisure, a form of consumption, decreases, and this unwarranted reduction in consumption is an additional source/form of forced saving.

Furthermore, not only is there a relative shift from the production of IRSG to NIRSG in the bust, but the totality of resources, including importantly, labor, falls. Thus the total production of goods decreases.

For Austrians, a necessary element of the business cycle is the “cluster of error.”²⁵ Without such a cluster, there can be no ABC. Yet, money creation on the part of the Federal Reserve certainly qualifies as a cause of such a cluster. Such machinations cause a cluster of errors because they send to entrepreneurs market signals that do not accurately reflect the underlying time preferences of society.

²³ Consider the case of paper napkins. When they appear on a table in a restaurant, they are of course a capital good; in the home, a consumer good. However, no matter where they make their presence, they are clearly not IRSGs.

²⁴ There can be no facile correlation, let alone equation, of durability and higher or lower orders of capital goods, on the one hand, and interest rate sensitivity, on the other. Their relationship is a complex one in that durability can appear at any stage. For example, a first-order capital good may be an IRSG if it is very durable, and not if not, and the same exact situation applies to higher-order capital goods. Paper clips or cotton balls, for instance, can take part in production at any stage of the structure, and are NIRSG wherever they appear. It is typically the very opposite with steel.

²⁵ Rothbard, *Economic Depressions*, p. 11.

Reason Papers Vol. 30

Can a back-and-forth alternation between high and low time preferences engender a similar cluster of error? There is no reason to believe that this is the case. After all, business can more or less accurately predict, and thus act in accordance with, other “fickle” consumer preferences: rising and falling hemlines in women’s dresses, different and continually changing styles in women’s shoes. Entrepreneurs, too, have dealt successfully with novelty items such as the pet rock and the hula hoop.²⁶ Music has come to us in many variations: 78 r.p.m., 45 r.p.m. records, tapes, cassettes, disks, etc. True, there is no back-and-forth movement in any of these examples (except for the length of skirt hemlines), but the essence of the issue is not endless repeatability. Rather, it is the question of whether accurate market signals can be generated or not. If they can, there is no cluster of error. If not, there is. Hummel has not offered any reasons to suppose that market prices cannot function in the face of change, while it is no less than an unchallenged staple of Austrian economics—even by Hummel—both that credit expansion falsifies market price communication and that the weeding-out process of the marketplace²⁷ tends to ensure that the challenges of change are not beyond the ability of entrepreneurs.

Finally, let it be noted that the asymmetry is a consequence of the natural imperfections of the real world. If, for every change in the “data,” whether individual preferences, technology, or stock of resources, every individual’s understanding of the economic significance of such events were correct, then they would act so as to adjust all prices. Therefore, all relative prices would fully and accurately reflect the new data. If it were costless to shift resources from one use to another on the basis of the revised structure of production, then there would be continuous correct resource allocations, and there would be symmetry between expansions and contractions. The asymmetry comes about because the world is imperfect and therefore there are such things as contracts, etc., that cause asymmetry in adjustments to changed data. For example, wage contracts are likely to be more flexible in an upward direction than in a downward one. At the extreme, zero is a floor beneath which wages cannot fall, but there is no such limitation in the opposite direction. Wages can conceivably rise without end, but not fall below zero.²⁸

²⁶ Those that have not are entrepreneurs no longer.

²⁷ Henry Hazlitt, *Economics in One Lesson* (New York: Arlington House Publishers, 1979).

²⁸ Strictly speaking, we must abstract from the possibility of negative wages in making this claim.

3. Definitions of the Money Stock

Hummel starts out this section in a reasonable enough manner:

What is needed is a defining criterion for what constitutes a money substitute, so that this wide spectrum of financial instruments can be clearly divided between those that are money substitutes and those that are credit instruments.

The reason a clear dividing line is necessary relates to the various means by which a genuine change in time preferences on the part of consumers can manifest itself.²⁹

Who, after all, can oppose clarity of definitions, *ceteris paribus*? But even here there are problems, specifically, those of continua. While it may be *desirable*, and not only from an aesthetic perspective, for the world to be divisible into watertight compartments, such is not always the case. For example, though the light spectrum can be broken up into red, orange, yellow, green, blue, indigo and violet, they all shade into one another. Just because they do, however, does not mean no useful differences can be drawn. So it is with money substitutes and credit instruments.

A more important criticism of Hummel's call for this distinction is that it is not necessary to ABCT. The key to ABCT is the distinction not between money substitutes and credit instruments but between the allocation of resources in the production and consumption processes. This may also be referred to as the structure of production and consumption as they would be in the presence versus absence of government intervention in the credit markets. Government intervention in credit markets causes, *ceteris paribus*, interest rates to differ from what they otherwise would be.³⁰ The usual case is intervention which causes them to be *lower* than otherwise. But in either case, the artificially distorted interest rates affect the demand for IRSG relative to NIRSG. It is the reallocation of resources necessitated by this intervention that constitutes the artificial boom or artificial bust. Resources are not used optimally. Moreover, because such "false" interest rates affect the production of both durable capital and consumers' goods, they affect the structure of

²⁹ Hummel, "Problems with Austrian Business Cycle Theory," p. 45.

³⁰ Examples include: governmental guarantees of repayment of principal which reduce a lender's risk and therefore the interest rate on a loan; differential treatment of interest paid (allowing or not allowing interest paid to be deducted from income for the purpose of calculating taxable income) which, *ceteris paribus*, results in higher (lower) interest rates, respectively; and, credit market expansions that affect expectations of inflation and, thus, interest rates.

Reason Papers Vol. 30

production and consumption into the future, such that even after the distortions of the initial phase of the cycle are eliminated they still alter the future course of the economy. This is because the liquidation of the distortions is not, in the vast majority of cases, physical in nature, but rather takes the form of temporary “idleness” followed by revaluation. The physical goods that constitute the distortions are integrated into the structure of production on the basis of their new “correct”³¹ valuations. The whole issue of time preference is thus something of a red herring. If interest rates change because of the voluntary actions of individuals, then the reallocations of resources, that is, the alterations in the structure of production, induced are thereby warranted. If, however, interest rates change because of government intervention, resources are misallocated as a consequence. Another red herring, of course, is Hummel’s emphasis on money substitutes vis-à-vis credit instruments; as we can see, they have played no role in our analysis of the ABC.

In Hummel’s view:

The dividing line between money substitutes and credit instruments is the margin between cash balances and investment. If this margin is not well defined, then it becomes theoretically impossible to distinguish between changes in the stock of money and changes in time preferences brought about by non-neutral shifts in the demand for money relative to investment spending.³²

Certainly, the dividing line between money substitutes and credit instruments is clear. “A medium of exchange which is commonly used as such is called money.”³³ A money substitute is a claim to a specific amount of money that can instantly be exchanged for money without expense.³⁴ What Mises omits is that when a money substitute, and *a fortiori*, money itself, serves as a medium of exchange, that is, when it is given by a buyer and accepted by a

³¹ It cannot be denied that these new valuations will only be “correct” in equilibrium, and that the economy never reaches this nirvana-like state. But at least these new evaluations are not systematically altered by governmental monetary mismanagement, and, except for random mistakes, are closer, if not much closer, to market clearing valuations.

³² Hummel, “Problems with Austrian Business Cycle Theory,” pp. 45-46.

³³ Mises, *Human Action*, p. 398.

³⁴ *Ibid.*, pp. 432-33: “Claims to a definite amount of money, payable and redeemable on demand, against a debtor about whose solvency and willingness to pay there does not prevail the slightest doubt, render to the individual all the services money can render.”

Reason Papers Vol. 30

seller in exchange for some good, the transaction is complete—the buyer is under no further obligation with respect to that transaction. For example, when an exchange is effectuated by means of a check drawn on a demand or “checkable” deposit account, once the check clears, the buyer is under no further obligation to the seller. However, had a credit instrument been used instead, the buyer would be under an obligation to redeem, at some time in the future, the credit instrument by payment of money or money substitutes. The margin between money substitutes and credit instruments is, then, well defined.

Moreover, certainly in the modern world, the “dividing line between money substitutes and credit instruments is” *not* “the margin between cash balances and investment,” as the amount of consumers’ credit is immense.

Hummel then enters into even more treacherous waters. He states:

An individual with a money income continuously faces three possible ways of allocating that income. He can spend it on consumers’ goods, he can spend it on investment goods, or he can increase (or decrease) his cash balances.... But non-neutral changes in the demand for money can also affect the structure of production. A neutral change in the demand for money would be, say a fall in cash balances that increased equally both consumption and investment spending, thus maintaining the same aggregate consumption-investment ratio.³⁵ If ... cash balances fall primarily by adding to investment spending, this is, in effect, a fall in time preferences. Similarly, if cash balances fall primarily by adding to consumption spending, this represents a rise in time preferences.³⁶

There is a fundamental confusion in the foregoing quotation. First, Hummel’s trichotomy is false. There are more choices than he lists, unless he is lumping all expenditures that are not made for the purchase of *currently* produced consumers’ goods³⁷ into the category of expenditures on investment goods.³⁸

³⁵ Obviously, in this context “equally” should be taken to mean that the ratio of additional expenditures on consumers’ goods to those on investment goods should be equal to the ratio that existed prior to the new expenditures. (This footnote added to the excerpt by us.)

³⁶ Hummel, “Problems with Austrian Business Cycle Theory,” pp. 45-46.

³⁷ We assume that Hummel is not including “used” consumers’ goods in his category “consumers’ goods,” but rather that it refers to “currently” produced consumers’ goods. However, even if he does include such expenditures in his category, our point

Reason Papers Vol. 30

In addition to the purchases of such goods, an individual can spend his money on used consumers' goods, used capital goods, and more important, on non-money financial assets, including foreign monies that do not function as money in his domestic economy.

Moreover, there is a stock-flow confusion involved here. At the aggregate level cash balances do not fall when purchases, whether of consumers' or capital goods, are made by A from B; rather, A's cash balance falls and B's rises by the exact amount of the decline in A's balance. Cash balances can rise or fall for any one individual, but not for all of those who comprise an economy, since the money must be owned by someone at all times.³⁹

Furthermore, to say that an increase in expenditures on investment goods or consumers' goods represents a decrease or increase, respectively, in time preference is to enter the realm of thymology,⁴⁰ not praxeology. In praxeology there is only preferring A to B. There are no *rates* of preference, time or other. So just as there is no praxeological meaning to "I prefer the red shirt twice as much as the blue one," there is no meaning to "My rate of time preference is X," whatever X may be, for example, 10% or even 10% per annum.⁴¹

requires only a slight modification, to wit, the deletion as alternatives of those categories he has lumped together.

³⁸ We assume that his category "investment goods" refers to newly produced capital goods and does not include financial assets.

³⁹ Suppose Mr. Monte Burns uses a \$100 bill to light his cigar. Then, strictly speaking, the statement in the text is incorrect, so we implicitly extract from such money destruction. However, in this case, there would be a tendency for the value of all the money to rise, and this would to some degree compensate for that loss.

⁴⁰ Following Mises, *Human Action*, "thymology" herein means the knowledge of human valuations and volitions.

⁴¹ But if people increase the ratio of expenditure on investment goods vis-à-vis consumers' goods, e.g., the triangle gets flatter, is that not equivalent to a lowering of time preference, even putting aside by how much it gets lowered? Yes, it is equivalent from the perspective of thymology; however, from a *praxeological* point of view, all we observe at any point in time is the choice of A over B (as seen by the actor—all a third party sees, if he sees anything, is the choice of A). The ascription of the choice presumes a motive, and yes we do so through *verstehen*, but though indeed useful, it is not praxeological. That is, today you choose the combination of consumption and saving/investment (C_0, I_0) and tomorrow you choose (C_1, I_1); who, other than the actor may say that the *value* of $C_0 <$ the *value* of C_1 and the *value* of $I_1 >$ the *value* of I_0 (or vice versa)?

Reason Papers Vol. 30

Time preference is a categorical requisite of human action. No mode of action can be thought of in which satisfaction within a nearer period of the future is not—other things being equal—preferred to that in a later period. The very act of gratifying a desire implies that gratification at the present instant is preferred to that at a later instant. He who consumes a nonperishable good instead of postponing consumption for an indefinite later moment thereby reveals a higher valuation of present satisfaction as compared with later satisfaction. If he were not to prefer satisfaction in a nearer period of the future to that in a remoter period, he would never consume and so satisfy wants. He would always accumulate, he would never consume and enjoy. He would not consume today, but he would not consume tomorrow either, as the morrow would confront him with the same alternative.⁴²

What is the relevance of this statement? The point is this: Mises does not even so much as refer to the “*rate* of time preference” in contradistinction to plain old ordinary “time preference,” as mentioned above. In fact, that term never appears in any of his writings, to the best of our knowledge.⁴³

Time preference is just that, a preference, as Mises, says, for a “satisfaction within a nearer period of the future” rather, *ceteris paribus*, than in a later period. But there is no way to generate a *rate* of time preference from this.⁴⁴ Certainly, in this sense, a rate is a ratio, for example, 10% or 10% per annum. However, there is no way to take a ratio of satisfactions, unless perhaps we have an objective theory of value and measure satisfactions in, say, utils.⁴⁵

⁴² Mises, *Human Action*, p. 484.

⁴³ A perusal of the electronic version of Mises, *Human Action*, fails to reveal this phrase in the entire book. Naturally, we can only make this claim with somewhat less confidence regarding all of his other publications. However, in Ludwig von Mises, *Theory and History* (New Haven, CT: Yale University Press, 1957), pp. 141-42, he does employ the phrase “amount of time preference,” which tends to vitiate our previous claim in his behalf.

⁴⁴ We acknowledge that Hummel is far closer to the Austrian mainstream (if we can be permitted to use such an expression) on this matter than are the present authors.

⁴⁵ It is interesting to note that Mises, himself, falls into this trap when he states: “Originary interest is the ratio of value assigned to want satisfaction in the immediate future and the value assigned to want satisfaction in remote periods of the future”; see

Reason Papers Vol. 30

Another difficulty arises with Hummel's tripartite division of goods⁴⁶ into consumption, investment, and money. In contrast, regarding goods we hold a binary perspective. In our view, there are only two, not three, types of goods: consumption and investment. For us, money is an investment good, and does not belong in any third category, apart from these two. This is neither the time nor the place for a full rehearsal of the arguments in favor of a binary, and opposed to a tertiary, distinction.⁴⁷ Suffice it to say at this point that human action is a binary phenomenon: it admits of two choices, not three: consumption (including leisure) or production. But as every act of production is either an act of consumption or saving/investment, all one can do is either consume or save/invest, buy or sell, prefer or set aside. In the present case, either money gives intrinsic satisfaction, or it is an intermediary, a means toward an end. Since it is the latter that commonly motivates people with regard to money, it is a capital good, not an item of consumption.⁴⁸ That being the case, the difficulty raised by Hummel becomes obviated.

That said, Hummel's statement about the "theoretical impossibil[ity] [of] distinguish[ing] between changes in the stock of money and changes in time preferences brought about by non-neutral shifts in the demand for money relative to investment spending"⁴⁹ is confusing. What is brought about by

Mises, *Human Action*, p. 526. Elsewhere, however, he contradicts this erroneous position. Of course, for him value is subjective: "There is no standard of greater or lesser satisfaction other than individual judgments of value, different for various people and for the same people at various times. What makes a man feel uneasy and less uneasy is established by him from the standard of his own will and judgment, from his personal and subjective valuation"; see *ibid.*, p. 14. And, "There are in the sphere of values and valuations no arithmetical operations; there is no such thing as a calculation of values"; see *ibid.*, p. 122.

⁴⁶ We assume he is here ignoring financial assets.

⁴⁷ We have done this elsewhere; see William Barnett II, Walter Block, and Joseph Salerno, "Relationship between Wealth or Income and Time Preference Is Empirical, Not Apodictic," *Review of Austrian Economics* (forthcoming).

⁴⁸ The best counterexample known to the authors is the case of Scrooge McDuck, of comic book fame. He would enjoy taking baths in money: throwing it up over his head, and letting it cascade down upon him. Thus, for McDuck and all others of his ilk, money is a consumer good. But people of this sort also use money in the normal way, and when they do so, money becomes a capital good. There is nothing intrinsic *within* money that makes it a capital or consumer good; it all depends upon the purposes of the economic actor. But the same can be said for seed corn, or water, etc. There are perverts out there who, presumably, can use these items, too, in weird and exotic ways.

⁴⁹ Hummel, "Problems with Austrian Business Cycle Theory," pp. 45-46.

Reason Papers Vol. 30

non-neutral shifts in the demand for money relative to investment spending is not changes in time; therefore, it must be changes in the stock of money that are brought about by such non-neutral shifts. But given stability in the monetary base on the part of the authorities, the stock of money is determined by the public's desired ratio of currency to demand deposits, not by non-neutral shifts in the demand for money. Unless the central bank/government changes the monetary base and/or the public changes its desired currency to deposit ratio, the money stock will not change regardless of any change in the demand for money, neutral or not. It is changes in preferences that alter these shifts in the demand for money, not the other way around.

Hummel's hypothetical about an economy in which the banks issue time deposits only, and that has no central bank, is also problematical.⁵⁰ He then assumes that "... the quantity of time deposits increases over a period until a banking panic wipes them all out. Such a sequence of events, especially in the absence of a central bank, may not be very likely, but it is at least theoretically conceivable."⁵¹ He has, of course, implicitly assumed that the banks are operating on a fractional or perhaps zero reserve basis vis-à-vis their time deposits. Let us be clear that time deposits are not money. If, by explicitly positing that banks issue only time deposits, he has implicitly assumed that such deposits are money, then we have to call into question his concept of money, else he really is dealing with an imaginary economy the relevance of which to ABCT is nil. Given, then, that time deposits are not money, one wonders how the quantity of time deposits increased. It is one thing for someone with money to put it in a time deposit; it is quite another for someone to borrow funds to place in a time deposit, unless the banks are paying their depositors a higher rate of interest than that which they are charging their borrowers. But if people are not borrowing for the purpose of acquiring time deposits, it is difficult to see how "the quantity of time deposits increases," in contrast to a system in which there are demand deposits, and in which people borrow for the purpose of acquiring such deposits, which serve as media of exchange.

Although Hummel maintains that his scenario "is at least theoretically conceivable," let us see what is necessary for such a conception.

⁵⁰ Obviously, there must be money in this economy, else what is it that the banks are receiving in return for issuing time deposits? And, as there are no banknotes or demand deposits, this must be one of the following: (1) commodity money, (2) commodity money with 100% backed government paper, (3) commodity money with government paper that is not 100% backed, or (4) government paper that has no backing.

⁵¹ Hummel, "Problems with Austrian Business Cycle Theory," p. 46.

Reason Papers Vol. 30

First, because the deposits are time deposits, only those that mature today can be the object of a panic.⁵² Now unless all such deposits mature “today,” they cannot all be wiped out in a panic at present. Moreover, to the extent that the banks have some actual reserves, only the excess of maturing deposits over the amount of reserves would be “wiped out,” and in such a case they would not really be wiped out, as the depositors would still be in the pool with others whose time deposits had not matured that day. Furthermore, the bank would necessarily have some assets, besides its investments, that it could liquidate to pay off depositors as their deposits matured. Additionally, they might be able to raise cash by selling bonds, if their investments were viewed as sound. Deposits would be wiped out only to the extent that maturing deposits exceeded banks’ reserves plus cash flow from maturing investments plus cash that could be raised from sales of bonds or other longer term financial assets plus cash that could be raised by sale of the banks’ other assets.

Only if there are not enough reserves plus maturing sound loans to cover today’s maturing deposits will some depositors be left holding the bag. In general, for his scenario to occur, banks would have had to mismatch their maturity dates, that is, they had to have borrowed short and lent long. Moreover, a sufficient number of banks would have had to have done this for there to be a simultaneous run on banks in general, not merely on the relatively few mismanaged banks. Of course, in a free market system, such banks would tend to be eliminated via differential clearings almost as quickly as they had come into existence, and, therefore, there would be few if any around at any given time, and almost certainly not enough for a panic. Thus, Hummel has implicitly assumed that banks, as a rule, are mismanaged, in spite of the competitive pressures of the market that eliminate the inefficient.

4. Net Investment

Hummel sets out his challenge with regard to net investment as follows:

Lengthening the structure of production entails positive net investment. Maintaining the structure of production intact at its current length entails zero net investment. Shortening the structure of production entails disinvestments. During depressions, therefore, net investment should be negative. But in U.S. history, the only depression in which measured net investment was actually negative

⁵² Any deposits not redeemed when they mature must be deposited for a set period of time, else they become demand deposits, of which Hummel assumes there are none. Moreover, if he assumes the minimum maturity period of time deposits to be very short, he has time deposits *de jure*, but demand deposits *de facto*. But one important characteristic of Austrian theory is that it attempts to deal with substance, not form.

Reason Papers Vol. 30

was the Great Depression. In all the others for which data are available, net investment fell but still remained positive. Does this mean that Austrian theory is irrelevant to all but one major depression in U.S. history?⁵³

There are several responses that can be made to this challenge. First, net investment may shorten the structure of production.⁵⁴ Consider a situation in which there is no net investment, say, an Evenly Rotating Economy (ERE). The purpose of net investment would be to alter the situation in such fashion that after it is incorporated into the economy and there is once again no net investment, either (1) the *time* structure, that is, the period, of production is unchanged and yet there is greater output per unit of inputs than previously, so that from producing and waiting for the same amount of time we obtain more output; or (2) the time structure of production is lengthened and yet there is sufficiently greater output per unit of inputs than previously, so that from producing and waiting for a longer period of time, we get sufficiently more output to make the additional production and waiting time worthwhile; or (3) the time structure of production is *shortened* and yet there is (a) at least as much output per unit of inputs than previously, so that from producing and waiting for the shorter period of time we get at least as much output as previously or (b) less output than before, but the loss in satisfaction resulting from the reduction in output is less than the gain in satisfaction from the shortened period of production/waiting. Indeed, what would seem to be most desirable would be a net investment that once integrated into the economy and returned to a no net investment situation would *shorten* the period of production to virtually zero. Instantaneous production, after all, is our goal. Producers in such a situation could provide desired goods to consumers virtually the instant they desired them.

⁵³ Hummel, "Problems with Austrian Business Cycle Theory," pp. 46-47.

⁵⁴ One can perform a thought experiment that is not farfetched, involving Robinson Crusoe in which positive net investment results in a shortened structure of production once net investment has returned to zero, and yet output per period is greater than before. Certainly, if it is possible for Crusoe to shorten his period of production, that is, increase his leisure, and yet be able to produce more consumers' goods per period, societies should be able to do so also. Moreover, one can use the same thought experiment to conclude that negative net investment can result in a lengthened structure of production. The biggest problem is defining what one means by the period, or length of the structure, of production. For this radical critique of the usual Austrian assumptions about the triangle, see Barnett, Block, and Salerno, "Relationship between Wealth or Income and Time Preference Is Empirical, not Apodictic."

Reason Papers Vol. 30

Second, if ABCT is relevant only to one depression in U.S. history, as Hummel wonders, or, even to none at all, so be it. Praxeological reasoning cannot be shown to be erroneous just because it is not widely applicable, and truth, not applicability, is surely the criterion on the basis of which ABCT should be judged.

Third, even if we revise Hummel to eliminate his erroneous assertions regarding the relationships among changes in the time structure of production, stages of the cycle, and net investment, to say only that there should be positive net investment during the boom and negative net investment during the bust, his argument is still problematical. It is quite possible that during the boom, measured net investment is positive while real net investment is negative. This is because investments are measured for the purpose of the National Income and Product Accounts (NIPA)⁵⁵ at current market value, whereas the very idea of malinvestment carries with it the idea that, at the time of their production, the market value of the capital goods whose production constitutes malinvestment is necessarily overstated. Were it not, the capital goods would not be malinvestment. Of course, not all investment during the boom is malinvestment. In fact, there is no way to know at the time, else, again, there would be no malinvestment. It is possible, then, that if measured investment were reduced by the amount of malinvestment in the boom, the resulting number might be negative, that is, there might be actual *disinvestment* during the boom. Similarly, and for similar reasons, it is possible that in the bust, measured net investment is negative, while real net investment is positive.

Furthermore, it is only possible to measure correctly “net investment,” or, indeed, any other kind of investment, not to mention any other macroeconomic variable, at equilibrium. For it is only at equilibrium that prices reflect economic phenomena accurately. (And even then, one must assume that the expectations upon which the market clearing actions are based are themselves correct.) However, we never in the real world attain the ERE, without which proper assessment cannot be made of net investment. Thus, Hummel’s evidential claims cannot support his position. Moreover, the use of government data on net investment may not be relied upon to make his point, as such data are at best bureaucratic estimates.=

Fourth, government statistics on investment seem to be a weak reed on which to label praxeology incorrect. If it can be shown that there were other depressions, and even recessions, which were accompanied by a fall in net investment, this would show the wider applicability of ABCT. But suppose it cannot be shown that depressions and recessions other than that of

⁵⁵ Available online at <http://www.bea.doc.gov/bea/an/nipaguid.pdf>.

Reason Papers Vol. 30

1933 were accompanied by disinvestment. If this were true, then we would have to concede that ABCT is of virtually no consequence, save as a theoretical curiosity, because it has no other relevance for the real world, that is, its applicability would be so severely limited as to make it practically trivial, if theoretically valid. Even under these heroic assumptions, by no means demonstrated by Hummel, there is nothing wrong with practically trivial, but theoretically valid economic analysis. It is, first, valuable for its own sake. Second, while impractical at present, it might become rendered less so, or not at all, in the future.

Hummel ends this section on the following note: “A depression could be forestalled if the increased real saving that otherwise would have further lengthened the structure of production is sufficient to maintain the malinvestments induced by the credit expansion.”⁵⁶ There is little doubt that, after a depression is created by governmental credit expansion which extends the structure of production further than that amount justified by changing time preferences, *if* time preferences are then subsequently lowered, then the worse effects of the depression can be avoided. But there will still be some resource misallocation compared to the scenario where the time preferences were lowered (or entrepreneurs predicted that they would be, and acted accordingly), and this led to entrepreneurial lengthening of the structure of production. The differences stem from timing. In Hummel’s scenario, there is discoordination, until (and unless!) time preferences propitiously change in the proper direction and to the precise extent called for in order to justify the rash acts of the central bank. Improper investment initially takes place, which is only later vindicated by later events, that is, what was a mistaken allocation of resources *ex ante* becomes a correct allocation *ex post* because sometime after the misallocation began, peoples’ preferences changed to favor that allocation—a fortuitous happenstance, indeed. In contrast, in the case where there is no government intervention, and consumers lower their time preference rates, followed by (or better yet, anticipated by) proper entrepreneurial behavior, there is no such discoordination.⁵⁷

5. Deflation

In this section Hummel announces he will discuss “all the additional events other than credit expansion that will, according to a consistent

⁵⁶ Hummel, “Problems with Austrian Business Cycle Theory,” p. 48.

⁵⁷ An analogy may shed light on this distinction. Hummel’s scenario would be akin to A shooting B to death, attempting to murder him, and its later turning out that B was in the act of attempting a murder of his own against an innocent person, C, and thus A’s act was really justified, in that it prevented this other murder. Or, it turns out that B was already dead, shot by someone else, D, right before A did this, and thus A was not guilty of murder, but merely of shooting a dead body.

Reason Papers Vol. 30

application of Austrian theory, cause a depression. All of them can cause depressions with no previous boom; a few seem to facilitate a trailing boom.”⁵⁸ In contrast, it is our contention that the *only* possible cause of the ABC is governmental central bank (e.g., Federal Reserve) mismanagement: credit expansion.

a. Capital consumption

States Hummel: “As time preferences rise, the structure of production will shorten, and a depression will continue until time preferences stabilize. Capital consumption will always involve depression.”⁵⁹ But this is perilously close to equating depression and disequilibrium. One might as well claim that every time a person goes on a diet, reducing his consumption of chocolate and increasing his purchase of carrots, there will be a depression in the chocolate industry, and a boom in carrots. In fact, if there is no government intervention, an increase in time preferences will lead to capital consumption; however, that is not synonymous with depression. Instead, resources would be shifted from the production and maintenance of capital goods to the production of consumers’ goods. There would, of course, be transition phenomena similar to those that occur any time there is any sort of change in preferences, or technology for that matter. But this does not equate to a depression. Capital consumption no more inevitably leads to a depression than capital formation always leads to a false boom. As warranted capital formation results in a structure of production more in keeping with individuals’ preferences, so also does warranted capital consumption also result in a more harmonious structure of production. And as unwarranted capital formation impairs the structure of production, so also does unwarranted consumption. In the former case, a false boom ends with a crisis that turns into a depression during which prices adjust and resources are reallocated in accord with people’s preferences. In the latter case, a depression is followed by an expansion in which prices adjust and resources are reallocated in accord with people’s preferences.

b. Deflation

Hummel erroneously equates deflation and credit contraction when he refers to “Deflation or, more precisely, credit contraction ... ,”⁶⁰ but the two are very different. We have had price deflation, without any government intervention whatsoever, in goods such as television sets, cars, air travel, and computers. When these products were first introduced to the market, they were playthings for the rich, luxury items, or were restricted only to large

⁵⁸ Hummel, “Problems with Austrian Business Cycle Theory,” p. 48.

⁵⁹ Ibid.

⁶⁰ Ibid.

Reason Papers Vol. 30

commercial use. But with innovation, large-scale production, assembly-line technologies, and a relatively hands-off policy by the state, prices fell and the goods became accessible to the masses. This all occurred, Hummel to the contrary notwithstanding, without any discernible depression.

As to credit contraction, Hummel states that

it will drive the loan rate of interest above the natural rate. If credit contraction occurs as a secondary feature of a depression already caused by previous credit expansion, it will bring about more shortening of the structure of production than is necessary and aggravate the depression.⁶¹

That one consequence of the depression phase of an ABC may well be a secondary deflation comes as no surprise, having been noted as far back as 1939 by Hayek.⁶² That once the excesses of the boom have been appropriately incorporated into the structure of production through relevant price adjustments and restructuring, the economy returns to its natural growth path is also standard Austrian fare.

Hummel continues: “If credit contraction occurs with no immediately preceding credit expansion, it will cause a depression with no prior boom.”⁶³ However, the consequences of a credit contraction that begins without a prior credit expansion depend on the nature of the monetary system and the cause of the credit contraction.

In a modern monetary economy, interest rates are set in credit markets.⁶⁴ Mainstream Austrian theory posits time preference as the sole

⁶¹ Ibid., p. 48.

⁶² Hayek, “The Present State and Immediate Prospects of the Study of Industrial Fluctuations,” p. 176.

⁶³ Hummel, “Problems with Austrian Business Cycle Theory,” p. 48.

⁶⁴ This is not standard Austrian fare in which “the *interest rate is equal to the rate of price spread in the various stages*”; see Rothbard, *Man, Economy, and State*, p. 317. However, in a world of scarcity, instantaneous production, heterogeneous time preferences, and money, where there would be no stages and therefore no price spreads between stages, there would still be interest and interest rates. Let us now invert matters: suppose a situation where there are indeed stages of production but no credit market. Would there be an interest rate? Our answer is that there would not be. But what of the price differentials between otherwise homogeneous goods at different stages? These, to be sure, would still exist, but they would be “merely” price differentials, not interest rates. Yes, in an ERE world of both credit markets and production stages, there must be an equilibration between the two. But this does not

Reason Papers Vol. 30

reason for the existence of interest, though it must admit that other factors affect the rate of interest. If the credit contraction occurs in a system with 100% reserve backing for banknotes and demand deposits and is strictly the result of voluntary action, then it will *not* “drive the loan rate of interest above the natural rate,” nor, for that matter, will it drive the loan rate below the natural rate.⁶⁵ Whether the natural rate will increase or decrease depends on the factors that caused the credit contraction in the first place. In fact, a credit contraction can increase or decrease the natural rate of interest, with concomitant increase or decrease, respectively, in the loan or market rate, which will adjust to the natural rate with a lag, the length of which will depend on a variety of factors. If the credit contraction occurs because of a decline in the demand for credit not offset by an equal or greater increase in its supply, market rates will *decline* in keeping with the *lower* natural rate. Alternatively, if the contraction occurs because of a decrease in the supply of credit that is not offset by an equal or greater increase in demand, then market rates will rise in keeping with the higher natural rate. However, in both of these cases, the volume of credit would contract.

In either case, the structure of production will be shortened, but this will be in accord with changed time preferences. Resources will be shifted from the production of higher-order goods to lower-order ones, including especially, consumers’ goods. There will be no depression. Of course, the reduction in production of capital goods will shift the economy to a lower growth path, but that is a downward change in the trend, not a depression.

However, if the credit contraction is the result of governmental monetary policy, that is a different matter entirely. Then, the contraction would drive the market rate above the natural rate. Hummel is correct in maintaining that a depression would ensue, though incorrect when he contends that when consumers’ preferences are reasserted, a “trailing boom” would follow; actually, it would not be a “boom,” but rather an expansion that would return the economy to its natural growth path, as modified by the “injection” and distribution effects of the governmental monetary policy and its effects on the structure of production.

c. Consumption spending

Hummel makes several mistakes in this section. First, he states: “If new money, rather than entering the loan market, is spent exclusively on consumption”⁶⁶ But this is a false dichotomy. He conflates two issues:

logically imply that the two are indistinguishable. They are; one is an interest rate, the other is not.

⁶⁵ Hummel, “Problems with Austrian Business Cycle Theory,” p. 48. This is true whether it is a system of commodity or fiat money.

⁶⁶ Ibid.

Reason Papers Vol. 30

the way new money comes into existence, and what the new money is used to purchase. New money is either lent or spent into existence. ABCT is typically concerned with the former case, in which the supply of credit is increased, depressing interest rates and causing a misallocation of resources in the direction of the higher orders that results in a distorted structure of production. It does not at all address the consequences of new money being spent into existence, that is, a “pure” inflation, which is one of the bases of Hummel’s attack in this section. Moreover, regardless of the way new money comes into existence, it may be spent on consumers’ goods or on capital goods, or, for that matter, on financial assets on foreign currencies, in turn used to purchase whatever. There is no necessary connection between a pure inflation and purchases of consumers’ goods, as Hummel implies.

Second, he takes the position that “war time monetary expansions have been neutral with respect to the structure of production” since they “have not been accompanied by depressions”⁶⁷ and they would have been so accompanied, had these expansions not been neutral in this regard.

The problem, here, is in thinking that government can invest, for example, that government expenditures can elongate the structure of production. But, as Murray Rothbard has shown, this is an impossibility.⁶⁸ The state may, indeed, spend money on things (airplane factories, steel, rubber) such that if private individuals did so we would have no compunction about labeling them as investment; nevertheless, when *government* does so, it *cannot* be considered investment and *must* be considered consumption. So, contrary to Hummel, the government must of necessity be non-neutral, at least in his terminology. It must *always* create a depression, if we credit Hummel’s economic analysis, and combine it with the Rothbardian insight.

Perhaps more important is that wartime governmental policies include fiscal and regulatory, as well as monetary, policies and, it is virtually impossible in such historical contexts to separate the effects of these different policies, especially since some may reinforce others, while they interfere with yet others. As Austrians, unlike Friedmanites, are wont to say, an economic theory is either correct or it is not, but in neither case can it not be tested empirically.⁶⁹

⁶⁷ Ibid.

⁶⁸ Murray N. Rothbard, *Power and Market, Government and the Economy* (Menlo Park, CA: Institute for Humane Studies, 1970), p. 173.

⁶⁹ Hans-Hermann Hoppe, *Praxeology and Economic Science* (Auburn, AL: Von Mises Institute, 1988); Hans-Hermann Hoppe, “On Praxeology and the Praxeological Foundation of Epistemology and Ethics,” in *The Meaning of Ludwig von Mises*, ed. J. Herbener (Boston: Dordrecht, 1992); Mises, *Theory and History*.

Reason Papers Vol. 30

The third difficulty is that Hummel maintains: “If one assumes an underlying progressing economy, then some of the depression effects will be offset by falling time preferences.”⁷⁰ The implication here seems to be that there is a negative correlation between wealth and time preference rates: the greater (lesser) is the former, the lower (higher) will be the latter. Nor is this, merely, an empirical observation on Hummel’s part. His statement is much too definitive to be interpreted in any such manner. Rather, he sees some necessary connection between the two.

This is precisely the error committed by Hoppe, and refuted by Barnett, Block, and Salerno.⁷¹ The gist of the latter argument is that there is no praxeological requirement that the income effect of a gain in income or wealth be associated with a fall in time preference rates. Although this may be correct enough as an empirical generalization, there is no logical contradiction implied by supposing that a man gains wealth, and, yet, chooses a higher, not a lower, time preference rate.

6. Constant Rate of Credit Expansion

There are three separate claims in this section that must be dealt with. We do so in order of presentation.

(1) According to Hummel:

[N]owhere is the outcome of a credit expansion at a steady rate clearly specified. Presumably, since such a policy cannot generate a continuous boom, it must either result in (a) a continuous alternation of booms and depressions or (b) a boom followed by a continuous depression. Much Austrian writing is ambiguous between these two alternatives.⁷²

There is good and sufficient reason for this lacuna. It is unlikely in the extreme, and Austrians have had their hands more than full addressing actual events, or, at least likely ones, and so much so that they have not devoted precious time resources to all but impossible ones.

If we are strictly and accurately to interpret this statement, “a credit expansion at a steady rate” means just that, through good times and bad times,

⁷⁰ Hummel, “Problems with Austrian Business Cycle Theory,” p. 48.

⁷¹ See Hans-Hermann Hoppe, *Democracy—The God that Failed* (NJ: Transaction Publishers, 2001); and Barnett, Block, and Salerno, “Relationship between Wealth or Income and Time Preference Is Empirical, not Apodictic.”

⁷² Hummel, “Problems with Austrian Business Cycle Theory,” p. 49.

Reason Papers Vol. 30

through thick and thin, an undeviating sticking to one's guns no matter what the result. In other words, the government announces a credit expansion, of, say, 5% per annum, at a daily rate, and does not deviate from this policy by even one iota, ever. Eventually, this will become fully anticipated, and incorporated into expectations. It does not matter whether this program features a public announcement or not. That will only reduce the time it takes for people to take this situation into account in their planning.⁷³

According to what Hummel might classify as "classical ABCT," such a policy would, in the first instance, elongate the structure of production, enticing capitalist entrepreneurs to devote more resources to investment in higher-order capital goods, and less to lower-order investments and consumers' goods, than would otherwise have been the case. After all, the credit expansion lowers the market rate of interest below the natural rate, fooling, enticing, or inducing businessmen into thinking that profits will be increased by such reallocations of resources.

Richard Wagner criticizes ABCT on the ground that all entrepreneurs would eventually become expert in these insights.⁷⁴ That being the case, they would refuse to act so as to elongate the structure of production in response to a credit increase on the ground that it would not be sustainable. But this is erroneous, for several reasons. First, academic economists, let alone entrepreneurs, have at least so far proven impervious to the niceties of ABCT. It will be only in the *very* long run before any such thing is likely to come to pass, on the assumption that knowledge of this perspective definitely and strongly raises profit levels.

However, there is no necessary causal relationship between an understanding of correct (e.g., Austrian) economics, and entrepreneurial success. The two are epistemologically separate. It is akin to expecting a theoretical physicist or mathematician to garner great success in the computer or engineering businesses. Surely, the former cannot be an impediment as far as the latter is concerned, but the one is certainly no guarantee of the other.

Another difficulty is that Wagner does not properly distinguish between a stock and a flow.⁷⁵ Just because the investment in the higher order of production cannot be sustainable in the long run (given that the underlying time preference rates have not been lowered by the credit expansion, which would have made them viable), this does not preclude the possibility of getting in and then out, while the getting is good, before the bottom drops out

⁷³ Or, perhaps, increase it depending upon people's experiences with the veracity, or lack thereof, of governmental pronouncements.

⁷⁴ Wagner, "Austrian Cycle Theory."

⁷⁵ Ibid.

Reason Papers Vol. 30

of the higher orders of production.⁷⁶ Moreover, there is no necessary reason that investments in higher-order goods need go uncompleted, or be abandoned if already completed, when the crisis hits. Certainly those that would not have been made but for the artificially lower market rates of interest, deserve the appellation “malinvestments” and must be liquidated. However, abandonment and mothballing are not the only ways to liquidate such investments. Financial liquidation may do the trick. If the capital value of such investments can be, and is, written down sufficiently, these higher-order goods can be integrated into a/the new sustainable structure of production.

Furthermore, there is a relevant difference between Wagner and Hummel. The former incorporates the real-world assumption of a Federal Reserve free to change policy at whim. The latter imposes upon this institution the requirement, as we have seen, that credit policy remains entirely unchanged throughout. To compare the two, Wagner has in mind a moving target, Hummel a stationary one. The problem with Hummel’s choice between (a) a continuous alternation of booms and depressions or (b) a boom followed by a continuous depression, is that it leaves out a third option: (c) an undetermined, or better yet, indeterminable, state of economic affairs.

For, on the one hand, given full information as to the stable goal, no rational profit maximizer would be misled into malinvestments. On the other hand, he is being subsidized into doing so, but only on the assumption that he can get out before the time of the crash, leaving someone else to hold the bag. If we assume that full and complete information has been incorporated into *all* decision-making, that is, that it is *false* that “a sucker is born every minute,” then it cannot be denied that no one would bite. However, people miss not only moving targets, but stationary ones as well. So which is true? One cannot say, given the assumptions provided. It is undetermined. It is akin to dividing a number by zero. The result is not “infinity,” but rather, “undefined.” Something similar is operating in the present context. Thus the answer to Hummel’s question: “a or b,” is “neither of those, but rather c,” that is, not only is it uncertain, but it is indeterminable.

(2) In Hummel’s view, “a constant rate of increase in credit has the same impact on the structure of production as a once-and-for-all fall in time preferences that moves the consumption-investment ratio to a new stable level.”⁷⁷

We are doubtful of this contention. In our view, “a once-and-for-all fall in time preferences that moves the consumption-investment ratio to a new stable level” can indeed lengthen the structure of production, and do so on a

⁷⁶ For a rejoinder to Wagner, see Block, “Yes, We Have No Chaff.”

⁷⁷ Hummel, “Problems with Austrian Business Cycle Theory,” p. 49.

Reason Papers Vol. 30

stable basis, *ceteris paribus*. However, “a constant rate of increase in credit” either is not sustainable due to a runaway inflation or, if we can somehow ignore that possibility, is unstable since it does not accord with the underlying time preference rates of the populace, which, we are assuming, have not changed.

(3) Hummel’s third claim in this section is “Obviously, there must exist *some* rate at which credit expansion will maintain the lengthened structure of production.”⁷⁸

It is not readily apparent to us as to why this must be the case. Indeed, based on our foregoing comments, it would appear to be the case that there is no such rate that would accomplish this task. And this is completely apart from *finding* such a rate, assuming that it exists, which would be more of a central-planning problem than anything else.⁷⁹ No, our claim is more radical: that it does not exist, indeed, that it *cannot* exist.

As a final point on this issue, it must be noted that this entire argument of Hummel’s is built on a faulty foundation. Consider his statements: “The reason for this conclusion is that, *ceteris paribus*, a constant rate of increase in credit has the same impact on the structure of production as a once-and-for-all fall in time preferences that moves the consumption-investment ratio to a new stable level”; and “In sum if time preferences and the demand for money remain the same, then a constant rate of credit expansion will maintain an artificially lengthened structure of production. Only if anticipations change time preferences or the demand for money [sic] will the rate of credit expansion have to accelerate.”⁸⁰ He seems to recognize that a constant rate of credit expansion leads to inflation. Does he not understand that the experience of inflation causes people to adjust their expectations thereof? And, does he not realize that expectations of inflation lead to decreases in the demand for money, that is, the famous “flight into reals”? It seems Hummel has assumed his way to his conclusions, with most unrealistic assumptions. As soon as his assumptions are relaxed in favor of more realistic ones, his argument fails. He assumes a constant rate of credit expansion with no increase in demand for money, that is, he says “Only if anticipations change time preferences or the demand for money [sic] will the rate of credit expansion have to accelerate.” But that “only if” gives the game away. It is like saying “only if massive increases in the supply of money cause prices to increase” That is, Hummel’s assertion is correct only in a

⁷⁸ Ibid.

⁷⁹ Friedrich Hayek, “New Confusion about ‘Planning’,” *Morgan Guaranty Survey* (January 1978), pp. 4-13.

⁸⁰ Hummel, “Problems with Austrian Business Cycle Theory,” pp. 49 and 50.

Reason Papers Vol. 30

world in which credit expansion at a steady rate does *not* cause, via anticipations, changes in time preferences or in the demand for money. To put this more colloquially, Hummel is assuming a 600 pound gorilla that cannot scratch itself, and then deducing the presence of such an incapacitated animal.

7. International Aspects of ABCT

Hummel in this section calls for further Austrian research in an international environment: “of competing national central banks”; of a “central bank in one nation and a decentralized fractional-reserve banking system in another”; and of “a central bank in one nation and a commodity, 100 percent reserve standard in another.”⁸¹ We join him in wishing that an Austrian analysis of these situations take place.

8. Conclusion

Hummel offers five challenges to praxeological analysis, and one (set of) requests for further research. We cannot see our way clear to agreeing with him that the former call in question any basic tenets of Austrianism, but we do join with him in wishing for the latter.

⁸¹ Ibid., pp. 50-51.