

## THE RECESSION OF 1990: A COMMENT

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Arthur Hughes, in a recent article in the *Review of Austrian Economics*,<sup>1</sup> seeks to apply the Austrian theory of the business cycle to the recession of 1990. In submitting his case, Hughes presents the Austrian business cycle theory and applies it to the evidence he has gathered. This comment focuses on the theoretical aspects of Hughes's paper.

Hughes commits two theoretical errors in his article. The first is that he associates the length of time of production with the entrepreneur's investment-planning horizon. The second is that he fails to understand that the amount of "lead time" an industry uses is not dependent upon where in the structure of production the firm is located.

Hughes, correctly, argues that higher-stage firms<sup>2</sup> (i.e., firms that are "further" from the final consumers in the production process) are inherently more sensitive to interest rates. He cites evidence that higher-stage firms had wider swings than lower-stage firms during the 1990 recession, and suggests Keynesian economists should stop "looking in the wrong place" and adopt the Austrian business cycle theory (p. 123). The wider swings among the higher-stage firms are predicted by the Austrian business cycle theory; however, it is the manner in which Hughes justifies this stylized fact that is faulty.

Hughes's reason why higher-staged firms have a greater sensitivity to the interest rate is based on two false assumptions. First, he states, "One big difference between the companies in different levels in the structure of production is the time that must elapse before their investments return a profit" (p. 109). Hughes implies that a higher-stage firm must wait until its good is ultimately transformed into a final consumer good before anyone can receive a return. Thus, the present value of a good in the process of production is dependent upon the length of time it takes a good to complete the production process (p. 110–11). The present value is derived from the

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<sup>1</sup>Arthur Middleton Hughes, "The Recession of 1990: An Austrian Explanation," *Review of Austrian Economics* 10, no. 1 (1997): 107–23.

<sup>2</sup>When referring to stages of production, the reference is made to the Hayekian triangle, which is a continuous input/point output model.

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discounted future value. Therefore, according to Hughes, a longer production time leads to a greater sensitivity in changes of the interest rate.

Hughes's erroneous construction of the structure of production stems from a confusion between the length of the time it takes a good to reach its final stage and the period of time it takes a firm to transform the good for the next stage (p. 109). The "stages" of the Hayekian triangle do not mark any particular length of time. It is not a measurement of how long the production process takes. It is merely stating that there is an order to the production process. This action comes first, followed by the next, and so forth. If we were to use Hughes's idea that the value of a good still in the production process is simply the discounted present value of the object, then the time axis of Hughes's figure 1 (p. 109) would have to be an objective length.

In Austrian theory, a single rate of interest is used as a simplifying assumption. This interest rate is the rate of return for all stages of the structure of production. Markets that have firms which make more than this rate attract competitors, while firms that earn less than this rate suffer losses and could be driven from the market.

The rate of return is represented by a uniform slope (creating the Hayekian triangle). Furthermore, the relative distances to consumer markets do not change this rate. Suppose a company in the middle of the structure of production changes its position by changing its customers so that it moves farther from the final stage of consumption. Would Hughes argue that the company's profits change simply because it changed customers and thus moved in the triangle?

The second assumption that compounds Hughes's error is his idea that "[a] higher-stage firm, such as a coal mine or primary metal producer, often has a much longer lead time."<sup>3</sup> In other words, Hughes is stating that a firm higher in the structure of production "often has" a longer period of investment (in terms of both initial and subsequent investment time). This is not true, and Hughes does not prove his conjecture. It does not follow that just because a firm is at a higher stage, that it needs more time to build its product nor is a longer time to equip a plant or train workers implied.

To illustrate his point that higher-stage firms are more sensitive to interest rates than lower-stage firms because of the amount of lead time stemming from location in the structure of production, Hughes presents the following example (pp. 110–11). Suppose there is a food retailer who is close to the consumers, and a primary metals manufacturer who is not. Hughes posits that the food retailer invests in delivery trucks that can be immediately used in the production process. The primary metals manufacturer also invests, but he decides to build a new plant that will cost "many hundreds of millions of dollars, and take ten years from site purchase to full production" (p. 110). Hughes, by equating the relative closeness of the firms to the consumers with the period of time it takes for an investment to become a part of the production process, claims that the higher stage firm is relatively more sensitive to the interest rate.

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<sup>3</sup>By "lead time," Hughes means the time it takes an investment to be utilized in the structure of production (p. 109).

However, Hughes should never have linked these elements together. There is no reason to think the primary metals manufacturer is forced to invest in projects with long durations, nor does Hughes provide empirical evidence to support the claim that they do. Suppose the primary metals manufacturer bought the trucks, and the food retailer invested in a project to open a chain of stores that would take millions of dollars and tens years to complete. This reversal does not change our economic actors' relative closeness to the consumers, but it does reverse the conclusion of their sensitivity to the interest rate. The firm's location on the structure of production is not the primary factor of a firm's sensitivity to the interest rate. Methodological individualism indicates that it is the entrepreneurs who determine how sensitive they are to interest-rate risk. The expected rate of return on the investment (factoring in risk, which includes an increased riskiness for longer undertakings) coupled with the project's degree of capital specificity determines the entrepreneur's sensitivity to the interest rate.

Hughes's observation that higher-order goods have wider swings in a cycle is valid. Austrian theory does suggest that interest rates play a role in these swings, but for reasons other than what Hughes suggests. Hughes posits that higher-stage firms are more sensitive to the interest rate because those firms are tied to the calculation of the present value of the final goods to be sold at a future date, or they are more sensitive due to lead time (pp. 109–11). Instead, as the interest rate changes, the ability to create a more roundabout method of production changes. When economic actors change their time preferences, so that they save more and consume less, they are signaling to entrepreneurs (through the fall in the interest rate) that they are more patient for present goods. Resources are transferred to higher stages of production. When economic actors change their preferences, showing that they are less patient (i.e., a decrease in the loanable funds supply curve), resources are transferred to the lower stages of production. When the economy shifts like this, relative prices and profit margins guide entrepreneurs to specific enterprises. Each firm's profits must meet the interest rate. If it is lower, then the firm is driven from that market; and if the firm is making economic profits, then others enter and compete them away. Thus, the interest rate is a guide to entrepreneurs, but is not used as Hughes theorizes.

The interest rate, in equilibrium, is the same as a firm's rate of return. The higher-staged firms are more sensitive to changes in this rate in the following manner. A consumer buys a finished good. The retailer must replenish his inventory and demands a replacement good from the wholesaler. The wholesaler then demands from the manufacturer, and so on. This process of imputing demand curves extends to the market where original factor resources are sold. The resource owner's reservation demand constitutes the supply curve for this market, and a price and quantity relationship emerges. This supply curve is imputed "forward" through the structure of production, thus allowing markets to form at every stage in the production process.

Each of these markets is affected by the rate of return (equal to the interest rate in a stationary state) through entrepreneurs' adjusting their supply and demand curves so that they can receive normal economic profits. In other words, a retailer will adjust his supply curve (in the consumer good market) and his demand curve (in the market that exists between the wholesaler and himself) so that he will be making a normal rate of return.

When the rate of interest changes, it changes the rate of return that is necessary to obtain normal economic profits. Relative prices compound the effect of the change at every stage. Suppose that there is an increase in the supply of loanable funds. There will be two effects. First, as consumers dedicate more resources to their savings, retailers will face a decrease in the consumers' demand curves in their markets. As a result, retailers will decrease their demand of wholesaler goods in order that they may maintain a normal rate of profit. Second, the normal rate of profit will decrease (lower interest rates), thus cushioning the impact on the stage immediately higher in the structure of production (in this case the wholesalers) relative to the prior production stage (i.e., the retailers). The wholesaler will change his demand curve in the market between the manufacturer and himself according to the change in the retailers' demands (which is already dampened by the change in their rate of normal returns) *and according to the change in the normal rate of profit as seen by the wholesaler*. As the impact of the consumers' decrease in demand travels through the structure of production, the change in the rate of return is applied at each step. At some point in the structure of production, the compounding of effect of the change in the rate of return will dominate the change in demand. This is how the higher-order markets are able to expand while consumer market's demand curves are falling. There are two effects of this consequence. Larger swings in higher-order goods result, and it appears as though the prices of the goods are subject to the discounted present value formula. However, as explained above, while it may look as though this is the case, the change in relative prices stems from the factors illustrated above and not from the discounted present value formula.

Hughes also claims that the boom is brought to an end because the monetary authority, fearing a rapid increase in the price level, changes its policies by raising the discount rate or conducting contractionary open market operations (p. 113). While this may be true, the boom is always brought to an end due to shortages of real resources. The change in monetary policy only tends to hasten the realization of the malinvestments. As Hayek points out, there simply are not enough real resources to maintain the increase in both the new investment goods and consumers' goods.<sup>4</sup>

Austrian theory provides a powerful tool for the study of events such as the 1990 recession. I applaud Hughes's attempt to apply the Austrian business cycle theory to historical events. However, we must get the theory correct before the Keynesians will start looking in the places that we suggest.

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<sup>4</sup>Friedrich A. Hayek, *Prices and Production*, 2nd rev. and enlarged ed. (New York: Augustus M. Kelly, [1935] 1967), pp. 85–100.