

CHAPTER 6 — PRODUCTION: THE RATE OF INTEREST AND ITS DETERMINATION

CHAPTER SUMMARY

In the evenly rotating economy (ERE), capitalists must earn the same rate of return per time period, regardless of the good or the stage in which they invest. (Outside the ERE, arbitrage brings about a tendency for this result.)

Individuals can place various units of future goods on their value scales, along with various units of present goods. For example, an individual might prefer two units of steak next year over one unit of steak this year. (Because of time preference, an individual will always prefer the *same* quantity of a given good earlier rather than later.) A different individual, however, might consider one unit of present steak to give more utility than two units of future steak. There is thus a potential gain from trade, with the first individual selling one unit of present steak in exchange for the other individual's promise to deliver two units of steak next year. The *pure rate of interest* (i.e. exchange rate between present and future goods) will be established by the various individuals' time preferences in the same way that any other price is established.

The pure rate of interest manifests in every aspect of the "time market," whether this is the formal market for loans (with the rate of interest explicitly set by contract), or in the market for producer goods, where the rate of interest is implicit in the *price spread* between a collection of inputs and their future output.

The role of the capitalists is to provide an "advance" to factor owners in exchange for the future consumer goods that these factors help yield. Because present goods exchange for future goods at a premium, the capitalist who invests in a particular process ends up with more capital funds than he started with. This "excess" return is not due to the productivity of the inputs, but instead to the fact that present goods are subjectively preferred to future goods. (Although land and labor owners sell future goods in exchange for present goods, this is only necessarily true in their "pre-income" state. After they have been paid for their original factor services, they may invest the proceeds in future goods themselves.)

The mainstream view of the ERE is very misleading. By focusing on "value added" at each stage, the mainstream theorist overlooks the importance of *gross investment* by the capitalists. This leads to a faulty emphasis on consumer spending as the barometer of an economy's health, when in fact this is relatively unimportant and will take care of itself. *Production* is the real challenge. Once the appropriate goods are produced, it is not difficult to coax people into consuming them.

The mainstream explanation of the determination of the rate of interest is also superficial. The "eclectic" theorist posits an interaction between subjective time preferences and objective rates of return. However, these rates of return are merely the price spreads in various stages of production, and themselves can only be explained by time preference.

There are many forces that affect an individual's rate of time preference, other things equal. For example, as his supply of present goods falls, his time preference increases.

CHAPTER OUTLINE

1. *Many Stages: The Pure Rate of Interest*

Up to this point, our analysis has assumed complete vertical integration, in which capitalists buy all of the factors of production and wait until the final consumer good is sold before recouping their investment. But in the real world, the production of a good is broken up into many stages, where different capitalists buy factors and capital goods from a higher stage, and then sell the resulting processed capital good to someone else at a lower stage in the process. In this case, the capitalists must actually receive interest income at these intermediate points (and not merely earn the appropriate overall rate of interest at the end of the process, given its total duration).

In the evenly rotating economy (ERE), there is no uncertainty and hence no pure profits. However, there is time preference, and a corresponding discount on future goods. Thus capitalists still earn interest income in the ERE. The rate of return (per unit of time) on capital investments must not only be equal for each good (as established earlier), but it must also be equal for every stage of each good. (If the rate of return were higher in a given stage, then capitalists would enter it, bidding up the prices of the inputs and pushing down the price of its output. This would continue until the rate of return were equal to that of the other stages.) These facts are all summarized in Figure 41 (p. 369).

In the Austrian view, the role of the capitalists is to provide an “advance” to factor owners in exchange for the future consumer goods that these factors help yield. For example, a hired hand who fertilizes a field wants to be paid *now* so that he can buy his dinner, even though his labor will not actually produce food until several months have passed. Because present goods exchange for future goods at a premium, the capitalist who invests in this process ends up with more capital funds than he started with. This “excess” return is not due to the productivity of the farmland, or of the capital goods such as tractors used on the farm, but instead is due to the fact that present goods are subjectively preferred to future goods.

2. *The Determination of the Pure Rate of Interest: The Time Market*

The *pure rate of interest* is the premium on present goods that exists in the ERE. That is, it is the ratio of the price of present goods to present *claims* on those same goods to be delivered in the future. For example, if the pure rate of interest is 5 percent per annum, then in the ERE 100 gold ounces today will exchange for 105 oz. delivered in one year. This pure rate of interest will manifest itself in all “time markets,” including not only the loan market but also markets for the factors of production. The pure rate of interest is ultimately determined by subjective time preferences.

3. *Time Preference and Individual Value Scales*

An individual can rank prospective and currently held *future* goods on his or her value scale, just as he or she can rank any goods in the current time period. Thus, an individual might prefer two units of steak next year over one unit of steak this year. (Because of time preference, an individual will always prefer the *same* quantity of a

given good earlier rather than later.) A different individual, however, might consider one unit of present steak to give more utility than two units of future steak. There is thus a potential gain from (intertemporal) trade, with the first individual selling one unit of present steak in exchange for the other individual's promise to deliver two units of steak next year. The pure rate of interest (i.e. exchange rate between present and future goods) will be established by the various individuals' time preferences in the same way that any other price is established. The *demand* for present goods is constituted by the *supply* of future goods, and vice versa. Although we cannot compare the marginal utility that various individuals enjoy from present and future goods, we can certainly compare their time preference schedules.

4. *The Time Market and the Production Structure*

Although we can isolate the net return to capitalists—which, we recall, is due to the delay between the time of investment and turning over the resulting product to either a capitalist in a lower stage or to the final consumer—it is important to remember that the capitalists must decide every period to repeat their *gross investments* if a given production process is to be maintained. (The typical treatment in mainstream macro, especially its warnings about “double counting” in calculating GDP, tends to consider only *net* investment.) Production processes do not continue automatically; the capitalist at each stage of a process has the ability to drop out and spend all of his or her revenues (from last period's sale) on consumption. The mainstream emphasis (in both academia and the media) on the importance of consumer spending is totally unwarranted. It is ultimately the *price spreads* (i.e. the difference between the prices of inputs and the price of corresponding output) and their relation to the prevailing rate of time preference that determine the profitability of a given operation. The absolute amount of money that consumers are willing to spend on a given product is, by itself, completely irrelevant.

5. *Time Preference, Capitalists, and Individual Money Stock*

An individual's marginal rate of time preference will depend on his or her cash balance (both in the present and the expected cash balance in the future). For example, as an individual enters the time market by selling present goods in exchange for (a greater number of) future goods, the marginal utility of present goods rises while the marginal utility of future goods falls. At some point the individual will refrain from selling an additional unit of present goods, no matter how high the rate of interest.

6. *The Post-Income Demanders*

We may analyze the time market decisions of individuals in their pre- and post-income states. For example, a landowner necessarily sells future goods in exchange for present goods when he rents his field to a sharecropper in exchange for gold ounces. However, after receiving this income, the landowner may then enter the time market and use his gold ounces to buy a bond from a corporation.

7. *The Myth of the Importance of the Producers' Loan Market*

The typical mainstream view of interest claims to be “eclectic” as opposed to the allegedly dogmatic or one-sided Austrian emphasis on time preference alone. The mainstream view is that the equilibrium rate of interest is determined by the interaction of both subjective time preference and objective “investment opportunities.” This approach is epitomized in the diagram of the loanable funds market (p. 421), where the supply curve is admittedly determined by time preferences of lenders, but where the demand curve is allegedly determined by the rates of return on various projects. Thus, at a rate of interest of 5 percent, a businessperson will borrow funds to invest only in those projects that yield at least a 5 percent return (revenues over expenditures), while at a lower interest rate the businessperson would borrow a greater quantity of funds because now *more* projects are profitable. The fallacy here is that the supposedly “given” rates of return on various projects are nothing but the *price spreads* in those particular stages of production, and are themselves ultimately determined by time preference. If it were not for time preference, why wouldn’t the prices of inputs for some given project be bid up to the expected future revenue (and hence lead to a zero rate of return)? Indeed, we can imagine an economy with no formal “producers’ loan market” at all, where capitalists directly invest in inputs without resort to a financial intermediary. Hence the pure rate of interest has nothing essentially to do with the producers’ loan market.

8. *The Joint-Stock Company*

Various individuals may pool their capital and exercise *joint ownership* over the assets and liabilities of a company. There are various methods of exercising control over such an entity; one popular method is to allow each shareholder one vote per share of stock.

9. *Joint-Stock Companies and the Producers’ Loan Market*

In the ERE, there is no essential difference between a corporation’s shareholders and its creditors; both groups “own” portions of the corporation. In the ERE, the *contractual* rate of interest will equal the *natural* rate of interest. In other words, the formal premium granted to lenders will be the same premium implicit in the price spreads in factor markets. However, if a particular line of production is unusually odious or revered, the rate of return may be lower or higher than the prevailing contractual rate. For example, if most investors believe cigarettes are a disgusting product, then they may require a higher rate of return to invest in this line than they require to invest their funds in the production of teddy bears. (This distaste must be very widespread to have such an effect.)

10. *Forces Affecting Time Preference*

Although praxeology cannot explain ultimate value judgments, it can make *ceteris paribus* statements regarding preferences. The higher a person’s real income in the present, the lower will be his time preference. If the world were expected to end in one week, on the other hand, everyone’s time preferences would rise incredibly.

11. *The Time Structure of Interest Rates*

Although mainstream writers often contrast the long rate of interest with the short, and construct the equilibrium long rate of interest as a function of the expected short rates, this approach fails to explain why there should be any divergence in the first place. As we have already seen, in the ERE the rate of return must be the same for a given duration of the investment.

APPENDIX
SCHUMPETER AND THE ZERO RATE OF INTEREST

Joseph Schumpeter reached the famous (and controversial) conclusion that in long-run equilibrium, the rate of interest would be zero, since the prices of products would be imputed back to the prices of their inputs. Only with technological development could a positive interest rate be maintained. The Austrians, in contrast, stress that even in the “stationary,” certain world of the ERE, there will always be time preference, and hence there will always exist a price spread between inputs and their outputs, i.e. the natural rate of interest will still be positive.

NOTABLE CONTRIBUTIONS

- Rothbard’s Figure 41 (p. 369) is perhaps the most economical depiction of the Austrian approach to capital and interest. Like the mainstream “circular flow diagram,” Figure 41 shows how, in the ERE, total expenditures (100 oz. of gold) equal total income (17 oz. to capitalists and 83 oz. to land and labor owners). However, Figure 41 goes far beyond the typical macro diagram by depicting the structure of production, i.e. the fact that goods take *time* to mature from original factors into final consumer goods.
- Rothbard’s critique (p. 401) of the concept of *gross national product* is relevant event today.

TECHNICAL MATTERS

- At several places in this chapter, Rothbard states that a multi-year rate of interest (in the ERE) must equal the appropriate multiple of the annual rate. E.g. “A production process or investment covering a period of two years will, in equilibrium, then earn 10 percent, the equivalent of 5 percent *per year*” (p. 372). This simplification is common in economics (especially when the number of

years is low), but strictly speaking the appropriate two-year rate of interest would need to be 10.25 percent, because of compounding.

- Note that in Rothbard's discussion on pp. 380-384, he is assuming that the future ounces of gold will be delivered in ten years. That is why he says that a market rate of interest of 2 percent (not 20 percent!) implies that "12 future ounces would be the price of 10 present ounces" (p. 381). As noted in the point above, Rothbard is here ignoring compound interest, and simply assumes that 2 percent per year for ten years translates into a 20 percent increase overall.
- Rothbard's numerical choices illustrate an interesting possibility, that an individual might be neither a lender nor a borrower (p. 384). This may surprise the reader, who may have been thinking along the lines of, "If the interest rate is higher than an individual's initial time preference rate, he will lend, while if it is lower, he will borrow." This quick reasoning is not entirely valid, because of the difference in marginal utility of the $(N+1)^{\text{th}}$ unit versus the $(N-1)^{\text{th}}$ unit.
- Although his discussion is cogent (pp. 440-441), Rothbard fails to explain why there would even *be* investment trusts in the ERE. If there is no uncertainty, why would anyone pay others a fee for investing his money?
- Rothbard's critique (pp. 446-449) of Lutz's theory of the interest rate structure is perfectly valid in the ERE. However, many mainstream theorists would argue that *outside* of the ERE, it is perfectly reasonable that the annualized rate of return on, say, a ten-year bond would be more than the corresponding yields of one-year bonds rolled over ten times. This is because the ten-year bond "locks in" the investment, and hence has less *liquidity* than the successive investment in one-year bonds. (Of course, the ability to sell bonds before maturity mitigates this contrast.)
- When Schumpeter's disciples dismissed "time preference," they were not merely assuming their conclusion as Rothbard suggests (p. 451). For these theorists, *time preference* is defined as the subjective discount on future utility, and it is neither necessary nor sufficient for a discount on future *goods*. For example, a person might have no time preference in Clemence and Doody's sense, but might still prefer a present apple to a future apple (perhaps because his expected supply of future apples will be much higher than his current supply). This approach ultimately rests on a cardinal conception of utility (where time preference may be explicitly defined as the premium on a present *util*) and is, naturally, inconsistent with the Austrian view.

STUDY QUESTIONS

- (1) How is the analysis in this chapter more general than in the preceding chapters? (pp. 367-368)
- (2) Why is there a tendency for a uniform rate of interest? (pp. 370-371)
- (3) What is the “classical trinity”? (p. 373)
- (4) In what sense do laborers sell future goods and buy present goods? (p. 373-374)
- (5) Is it a violation of subjectivism to compare time preference schedules between individuals? (p. 385)
- (6) What is Rothbard’s critique of “gross national product”? (p. 401)
- (7) What are the components of the time market? (pp. 417-418)
- (8) What is the par value of a stock? (p. 430)
- (9) Is there an important distinction between dividends and “retained earnings”? (p. 440)
- (10) If everyone’s time preference is subjective, how can we speak of “the” natural rate of interest? Won’t it be different for different people?