

COST AND CHOICE — AUSTRIAN VS CONVENTIONAL VIEWS*

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The relationship between product prices and production costs is front page news today. President Carter assured farmers during the 1976 presidential campaign that his administration would raise farm prices sufficiently high to cover production costs. A year later there were farmer demonstrations in the President's home town and throughout the country, protesting the unfavorable relationship between farm prices and production costs.

There is also widespread sentiment for setting prices of electricity, oil, natural gas and other energy sources on the basis of production costs. Government intervention to base prices on cost requires that costs be calculated. Politicians and most economists (except for members of the Austrian school) have assumed that costs relevant to production decisions, can, in fact, be determined. Little attention has been given by conventional economists, politicians, and the public-at-large, however, to problems the outside observer faces in determining costs of any production process. This paper demonstrates that choice-influencing costs are inherently subjective and not subject to objective measurement, and stresses the implications for economic regulation and efficiency measurements of real world economic activity.

The primary purpose of this paper is to contrast Austrian and conventional concepts of cost. Cost in the logic-of-choice context of conventional neoclassical economic theory is contrasted with subjective cost relevant to individual decision-making. The Austrian subjective

concept of cost is shown to be sound as it relates to individual choice. The limitations of objective estimates of "cost" when used as a normative standard in evaluating observed market behavior are stressed. Implications of the findings are related to a number of policy issues and problems involving cost.

THE NATURE OF COSTS

Austrian (and virtually all other) economists define cost in terms of opportunity cost. The opportunity cost of any decision represents the value of opportunities foregone as a result of the decision made. Cost involves the conscious sacrifice of an available opportunity by the decision-maker. The cost of a vacation trip, for example, is the value placed by the decision-maker on the boat, refrigerator, or other alternatives which must be foregone if the trip is taken.

Opportunity cost stresses the relationship between the act of choice by the decision-maker and opportunities foregone. "Costs are equal to the value attached to the satisfaction which one must forego in order to attain the end aimed at".¹¹ This cost as it influences choice is based on the decision-makers' anticipations and cannot be discovered by another person. That is, no one else is capable of accurately assessing the value of the sacrificed alternative by the decision-maker. Thus, as recognized and emphasized by the Austrians, the opportunity cost of any activity is inherently subjective.

A recognition that cost is subjective has profound implications for the economic analyst. Since cost is experienced by the decision-maker at the moment of choice, it means that there is

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no way for outsiders to objectively measure the costs which are relevant to decisions actually made. Thus, the definition of cost in terms of opportunities foregone, though accepted by conventional and Austrian economists, is consistent only with the basic subjectivist approach of the Austrians.

Conventional neoclassical theorists implicitly assume that cost is objective, i.e. that the cost of production can be determined by outside observers. The market price of the resources used in production is typically taken in neoclassical theory to be an estimate of opportunity cost. The "cost" of producing corn, for example, is obtained by adding together the market values of land, labor, fertilizer and other inputs required to produce a bushel of corn.

The *ex ante* planning process, however, inevitably involves subjective judgment by the entrepreneur. Summing up production outlays is an objective procedure but does not provide the relevant cost of production which influences entrepreneurial behavior. The market price of an input may differ considerably from its opportunity cost to the entrepreneur, as illustrated by the following example. Consider the cost to be imputed to (say) land in producing corn. The cost of land in corn is the value of opportunities foregone by using land for corn instead of using land in its best alternative use. Cost by its very nature, however, involves choice, and choice cannot be predetermined and still remain choice.^[2] The cost of similar land in corn may well be quite different for Jones and Smith. Jones, for example, may anticipate a return to land of \$30 per acre when using the land for soybeans (the best alternative use). Smith, on the other hand, being more optimistic about future soybean yields or prices, may anticipate a return of \$50 per acre to land in soybeans. Thus, the opportunity cost of land used in producing corn is \$30 per acre for Jones and \$50 per acre for Smith, even though Jones and Smith pay the same rental price for land.

This example illustrates the fact that cost of land (and other inputs) as it influences the entrepreneurial decision (choice) is inherently subjective. It explains why Jones may be observed to plant corn and Smith soybeans even though a

conventional enterprise budget of costs and returns might show the same cost for each producer. Such budgets typically assume that yields and prices are given. In reality, of course, the entrepreneur must estimate both yields and prices. Production decisions are based on opportunity costs which exist only in the mind of the decision-maker. Since choice is among thoughts or things imagined, there is no way for an outside observer to determine these subjective evaluations.^[3]

Consider a second illustration of why the *ex ante* planning process under uncertainty involves subjective judgment by the entrepreneur as well as a capacity for arithmetical calculations. Expectations concerning future demand and cost conditions affect the decision of whether to continue to operate with present plant, machinery, and equipment or whether to make major adjustments in the productive facility. Expectations determine expected depreciation (including obsolescence) and, consequently, determine allowances for interest and depreciation. Here again, there is no way for the outside observer to determine the relevant costs which influence entrepreneurial choice. The depreciation and interest cost estimates by outside observers must be based on historical costs or on the observer's estimate of opportunity costs, which may bear little or no relationship to opportunity costs as perceived by the entrepreneur.^[4]

Hayek stresses the point that anticipating future changes is an entrepreneurial function and necessarily subjective. "In no sense can costs during any period be said to depend solely on prices during that period . . . in fact, almost every real world decision concerning how to produce depends at least in part on the views held about the future."^[5]

As shown later, the fact that expectations are subjective poses seemingly insurmountable problems for economic analysis of entrepreneurial choices.

In neoclassical economic theory, revenues and costs are assumed to be known. The major emphasis is placed on the logic of maximizing profits subject to given costs and returns. Given these data, profit maximization is an objective procedure.^[6] The Austrian subjectivist ap-

proach, on the other hand, stresses the fact that such data should not, in fact, be assumed to be given to the decision-maker. In reality, a key function of the entrepreneur is to estimate prospective costs and returns in choosing between alternative production plans or strategies.^[7] Alchian has shown that profit maximization loses meaning as a guide in choosing among alternative courses of action under conditions of uncertainty.^[8]

There is no hard and fast distinction between the Austrian and conventional neoclassical economists on the cost issue. In fact, some economists not usually identified with the Austrian school are more in the Austrian subjectivist tradition than in the conventional neo-Marshallian objectivist tradition on the cost issue. James Buchanan and Ronald Coase are good examples. Buchanan, along with G. F. Thirlby, recently edited a book which defends the subjectivist view of cost.^[9] The book presents a collection of articles mainly by economists identified at some time with the London School of Economics (Lionel Robbins, von Hayek, R. S. Edwards, G. F. Thirlby and Jack Wiseman). One of the articles is by R. H. Coase.

Coase's article consists of a shortened version of a series of articles which he wrote for *The Accountant* (a British publication) in 1938. In these articles, Coase clearly illustrates the problems posed to the accountant by the subjectivist nature of cost. Cost to the decision-maker involves an *ex ante* evaluation of uncertain future outcomes. Since the future is always uncertain, the evaluation of future outcomes will vary from person to person and will be influenced by numerous factors including the attitude toward risk. The result is that cost as it influences choice loses its objective content. As Coase states,

There is no one decision which can be considered to maximize profits independently of the attitude of risk taking of the business man. A further point is that the correctness of the decision cannot be determined by subsequent events. If a businessman undertakes to do something which entails certain risk, he considers that the chance of gain is worth the risk he runs, and whether he succeeds or fails has no relevance to his preference.^[10]

Although the subjective nature of cost

emerges clearly in his early work, Coase does not appear to have pursued the implications of this work as it relates to empirical applications of neoclassical price theory.

IMPLICATIONS

The distinction between the objective and subjective views of cost has a number of implications both theoretical and empirical.

Methodology

Cost theory in economic texts is handled quite differently by the Austrian school when contrasted with the conventional neoclassical school of economics. Since cost as it influences choice is inherently subjective, little use is made of cost curves in economic texts written by the neo-Austrians. Rothbard, in his *magnum opus*, *Man, Economy and State*, justifies this difference in approach between Austrians and other economists as follows:

It may be noted that, in this work, there is none of that plethora and tangle of "cost curves" which fill the horizon of almost every recent neoclassical work in economics. This omission has been deliberate, since it is our contention that the cost curves are at best redundant (thus violating the simplicity principle of Occam's Razor), and at worst misleading and erroneous.^[11]

The Austrians take the same methodological approach to cost theory as they take toward economic theory in general. The Austrians stress the logical theory of economic choice and deny the value of empirical testing of economic hypotheses. As Kirzner states in explaining the approach of Mises and other latter-day Austrians:

... empirical confirmation of the theorems obtained by abstract knowledge is neither possible nor necessary. It is not possible, because there are no constants in the realm of human actions; it is therefore impossible to investigate the consequences of changes in one variable with assurance that no disturbance is at the same time being caused by changes in other variables. On the other hand, confirmation of economic theorems is not necessary because the theorems themselves describe relationships logically implied by hypothesized conditions. The validity of these relationships can be tested by examining the reasoning employed to establish them.^[12]

There is a fundamental difference of opinion between Austrian and conventional economists concerning prediction and hypothesis testing. A

general discussion of these differences as reflected in Kirzner's comments is beyond the purview of this study. However, in the context of the topic of this paper it seems clear that there is no way for an outside observer to test hypotheses related to opportunity cost, since only the decision-maker is able to evaluate sacrificed opportunities.

Consider, for instance, the example of an outside observer who wishes to test the hypothesis that the cost for Jones of commuting by bus is lower than his cost of commuting by car. The analyst has no way to determine the relevant costs, the sacrificed opportunities, associated with a particular mode of travel. What, for example, is the value placed on flexibility, on time spent travelling, etc.? When the economic analyst arbitrarily assigns values to these variables, there is no reason to expect them to correspond with the actual opportunity cost experienced by the decision-maker. Thus, the result of such an analysis is not valid for normative purposes. It is invalid to conclude from such an analysis that the driver could reduce cost by changing his mode of travel.

In the conventional neoclassical theory of the firm, emphasis is placed on the logic of profit-maximizing behavior by the firm, assuming that information on costs and returns is given. Stress is placed on the relationship between marginal and average cost curves and product demand under equilibrium conditions.

A problem usually not explicitly recognized, arises in conventional cost theory when resources are specialized. Most conventional theory texts deal with a world of unspecialized resources. In the real world, however, land, labor, productive facilities, and entrepreneurship are specialized and differ between firms. The price theory book by Friedman is one of the few texts to point out the problem posed by specialized resources to conventional cost analysis.

The existence of specialized resources . . . makes it impossible to define the average cost of a particular firm for different hypothetical outputs independently of demand. . . . Take the copper mine of the preceding paragraph: its cost curve cannot be computed without knowledge of the royalty or rent that must be paid to owners of the mine, if the firm does not itself own it,

or imputed as royalty or rent, if the firm does. But the royalty is clearly dependent on the price at which copper sells on the market and is determined in such a way as to make average cost tend to equal price. . . . The equality of price to average cost . . . is forced on the firm by the operation of the capital market or the market determining rents for specialized resources.^[13]

The specific implications of specialized resources are further considered in a later section. In spite of the explicit recognition of problems posed to conventional cost theory by specialized resources in Friedman's text, there is no recognition of the problems involved in obtaining the cost data which lie behind cost curves.

Problems associated with the subjectivity of cost do not arise as long as concern is limited to the *logic* of choice, and much of conventional economic theory is concerned with this logic. The logic of choice, as it relates to cost, for example, instructs the decision-maker on which outlays are relevant for current decisions and which are "fixed costs". The rule "let bygones be bygones" is often difficult to apply in making real world choices. "Instructing the decision-maker as to how he should choose may produce 'better' choices as evaluated by his own standards."^[14] Thus, the logic of choice as it applies to cost can be treated independently of the process of determining cost.

In many cases, historical data can provide useful information to the entrepreneur in assessing future conditions. Today, there are private firms which specialize in providing cost estimates and (other) outlook information based on historical economic data. It should be clear, however, that operations research and econometric studies at most can provide useful information to the entrepreneur. The data provided will be interpreted in different ways by different entrepreneurs and do nothing to reduce the subjective nature of the entrepreneurial function.

The use of objective cost estimates poses no problem as long as they are considered to be *data* for use by the entrepreneur and not as choice-influencing costs. A serious problem arises in neoclassical theory, however, when objective "cost" estimates made by external observers are used for normative purposes and are assumed to represent the costs appropriate

to current decision-making, i.e. to the theory of choice. As shown by the above example relating to land cost in producing copper, there is no reason to expect a direct relationship between the objective cost estimates of neoclassical theory and the costs relevant to the act of choice.¹¹⁵⁾

The examples discussed below demonstrate how common it is to use objective cost estimates in a choice context (for normative purposes), viz. in determining "optimum" price and output levels and for evaluating the efficiency of firm and household decisions. The Austrian criticism of the use of cost and return estimates by outside observers for normative purposes appears to be unassailable. The results are not valid because the costs relevant to the act of choice in any economic decision are subjective. That is, outside observers cannot obtain objective cost estimates which are appropriate to the moment of choice. The inappropriateness of using objective cost estimates as though these estimates were costs appropriate to the act of choice will be discussed in three different contexts.¹¹⁶⁾

Economic regulation

A considerable amount of attention is devoted to the problem of monitoring firm costs in regulating public utilities and other "natural monopolies". State utility commissions are active throughout the U.S. estimating the cost of providing electricity, telephone services, etc., to be used as a basis for rate setting. This activity presumes that the government regulator has an objective basis for setting prices based on costs which would prevail under competitive conditions.

An appreciation of the nature of the role of the entrepreneur is necessary to understand the problems faced by regulators in setting prices. In the case of public utilities, regulatory commissions attempt to insure that these "natural monopolies" charge a competitive price (or rate of return) as determined by production costs. Since choice-influencing costs are subjective and incurred at the moment of choice, cost as it influences entrepreneurial behavior cannot be obtained from the firms' accounting "cost" records. Attempts to force utilities (or other

"natural monopolies") to set price equal to cost can be no more than hollow appeals.¹¹⁷⁾ Production decisions, as stressed by Hayek, hinge on views held about the future as well as current conditions, and there is no reason to expect the regulator's view to coincide with that of the entrepreneur. Thus, there is no objective procedure by which the regulator can determine whether prices should be increased or decreased if prices are to be based on "costs".

A closely related point concerns the nature of the market. The market, as Hayek stressed, is not merely an alternative way of discovering costs and prices which are capable of being determined by central direction. Competitive costs can only be determined by having competition. Yet, much economic regulation assumes that competitive costs can be determined through the regulatory process.

In view of these problems in measuring cost, it should not come as a surprise when economic studies find the effect of regulatory commissions on utility rates to be negligible. Stigler and Friedland, for example, in a pioneering study were unable to find any significant effect of the regulation of electrical utilities on utility rates.¹¹⁸⁾ Perhaps the apparent lack of effect of regulatory commissions in holding down rates in such cases is fortunate for the consumer. There is no reason to expect that the effect of holding down current rates (thereby curtailing future supply below the level of an unregulated public utility) will redound to the benefit of the public. It seems just as likely that the effects will be similar to those of current price controls on oil and natural gas. These controls reduced the production and supply of these products below the level dictated by the market, causing, or at least exacerbating, the shortage during the winter of 1976-1977.

The subjective nature of cost poses the same problems for all other regulatory agencies which are charged with setting prices in "the public interest". In some cases, however, the problem differs slightly from the case of utilities. In the case of milk (and other commodities produced under government price supports), the price is *deliberately set above* the competitive level. In the case of price supports for milk and other agricultural products,

minimum wages, etc., where price is deliberately raised above the market level, the lack of any objective basis in setting price is even more apparent than in the case of public utilities where the avowed purpose is to set price on the basis of cost. When the price is not set at the competitive level, the problem of determining the appropriate price is the same as that faced by Aristotle and others who sought the "just price".

The example of milk and other agricultural products where price is deliberately raised above the market level illustrates another important point. When price is set above the market level by government fiat, increases in product price will be capitalized into specialized input prices through competitive market forces so that production outlays will rise to meet returns. In the Austrian terminology, it is milk prices which determine milk costs and not production costs which determine milk prices. Consequently, attempts to set price based on production outlays (as proposed by Candidate Carter) are meaningless in the case of all production involving specialized resources since an increase in product price will be capitalized into increased production outlays. Under these conditions, the best estimate of cost is product price!

The phenomenon of input prices rising in response to changes in product price has also been observed in the case of farm real estate in recent years. Consider the effect of the price explosion of agricultural products in 1973 on the price of land. Farm real estate values in the U.S. have, on the average, more than doubled since 1972. Increases in land prices, however, are not responsible for high food prices. Instead, the expectation of high farm product prices in the future are responsible for high farm real estate prices. Lower farm product prices in 1977 dampened future expectations and reduced agricultural land prices in some states.

Assessing economic efficiency

The correctness of entrepreneurial decisions made under uncertain conditions, as Coase pointed out 40 years ago, cannot be determined

by the outcome of subsequent events. Yet, the economics literature is replete with examples purporting to measure economic inefficiencies. The sources of inefficiency identified are definitional, however, and not related to the only appropriate norm for measuring efficiency, viz., the goal of the decision-maker. Efficiency, meaningfully defined, means that the decision-maker has no preferred alternative at the time the decision is made, given the circumstances.^[19] When the subjective nature of choice is recognized, it becomes clear that it is impossible for the outside observer to identify any action or choice as inefficient or irrational in terms of the costs and benefits experienced by the decision-maker at the moment of choice.^[20]

Empirical studies which compare the costs and benefits of regulatory agencies, for example, can never establish that such agencies are inefficient in a planning or choice sense. The costs and returns relevant to choice are those related to the expectations and goals of the entrepreneur when the program was initiated. These data, of course, are subjective, and not available *ex post* to economic analysts. If the expected gains and costs at the moment of choice could be fully specified, the regulatory agency would appear rational or efficient.

Recent studies have shown the FDA, FCC, FTC, and ICC and other regulatory agencies to be contrary to purpose and ineffectual as perceived by the empiricist using historical data.^[21] This does not mean, however, that they are inefficient in the planning or choice sense since, as Coase stresses, correctness of decisions made under uncertain conditions cannot be determined *ex post*, i.e. by subsequent events.

Even though an outside observer can never establish that an action of a particular firm is inefficient based on a measurement of costs and returns which motivate choice, the economic analyst is not completely helpless in evaluating the degree to which the entrepreneur is successful. In a world of uncertainty, the relationship between purposive behavior and success is likely to be ambiguous. Success may be due to chance rather than to superior motivation or foresight. Alchian has proposed survival as a

criterion for evaluating firm success.^[22] This means that success should be judged on results rather than on motivation. In a market economy, realized positive “profits” may be taken as the criterion by which successful and surviving firms are selected. If monetary losses are large enough, the firm will be driven out of business regardless of its goals. As indicated above, success in some cases is accidental while in others it is due to entrepreneurial astuteness. Regardless of the reason for success, however, survival of the firm is achieved by those whose actions are most appropriate in terms of adapting to market conditions.

What is the process by which traits associated with success are acquired by firms? Trial and error is likely to play an important role since the firm must always operate in a climate of uncertainty. In addition, whenever successful firms are observed, we might expect that the elements common to success will be copied by competitors in their quest for success. In explaining past results (success), the economist may be able to determine the attributes which were important to survival, even though individual participants were not aware of them^[23] This does not imply that purposive behavior is absent from reality. It does mean that the economist can select the most successful firms and predict the effects of higher taxes, wage rates, etc. under market conditions without assuming that participants are aware of and act according to their cost and revenue curves.

The ability of the economist to identify firms on the basis of success is largely negated under a regime of economic regulation. Under government regulation, “profits” do not determine firm survival since prices can be raised or taxes can be used to cover losses. Thus, there is no presumption that surviving firms are efficient in terms of meeting the market test. It is significant that most goods and services provided through the government sector are sold at a price which requires a government subsidy.

Although survival provides a criterion for identifying the most successful firms, identification of the traits associated with success will always be tentative. Firms differ in an almost infinite variety of ways, including differences in size, location, capital facilities, and

management, and it is not generally possible to select traits which are necessary for survival. At one time, for example, economists placed a great deal of emphasis on determining the “optimum size” firm. However, since a range of firm sizes persists over time, there is no reason to think that there is an optimum size of firm.

Alchian realizes that it will not be easy for economists to determine the more viable types of economic interrelationships.^[24] Similar difficulties are faced in isolating the effects of economic regulation.

Economic regulation — why hope springs eternal

Machan points out that empirical cost and benefit studies can never discredit attempts at regulation:

Empirical objections to a particular proposal for regulation cannot in themselves invalidate the *general* course of conduct. So what if studies demonstrate that this particular effort of such and such a regulatory agency has not worked? The *next one might*. Especially if we change some features of the policy in what appear to be significant ways.^[25]

Machan’s point is closely related to the *ex ante* versus *ex post* distinction noted above. The relevant costs and benefits in evaluating any decision are those appropriate to the decision at the moment of choice. The fact that there is a discrepancy between the net benefits anticipated when the decision was made and those realized when the program was implemented doesn’t mean that the original decision was “bad”. To so conclude would be to judge a decision on the basis of subsequent events.

The astuteness of a decision must be based on *ex ante* data, i.e. on the expected costs and benefits at the time the decision was made. As Machan indicates, the fact that one type of regulation is generally agreed to be counter-productive doesn’t necessarily lead to the expectation that other types of regulation will also be counter-productive or unfavorable in the sense of its anticipated cost-benefit ratio. Why? “Better regulation” is always a possibility. The lack of effectiveness of Nixon era price controls, for example, was attributed by J. K. Galbraith (and others) to the fact that the people in charge weren’t sufficiently dedicated to the concept of price controls. For Ralph Nader

and many people in the "consumerist" movement, the basic problem with government regulation lies in laxity, ineptitude, or venality by the regulators. In this view, the ICC, CAB, and other regulatory agencies can achieve their objective by placing better people in charge.

There are almost an infinite number of similar arguments which might be used to lead people to think that new regulation will be more effective than current regulation. The effectiveness of regulation might be improved by moving it from the federal to the local or state level, i.e. by moving it "closer to the people". Or, it might be improved by moving it from the local or state level to the federal level to avoid the corruption of local and state politicians, to standardize the level of service among wealthy and poor states, etc. The administration of regulatory agencies might be improved by increased "consumer" representation, by eliminating "petty rules", by allowing for a greater diversity of consumer tastes, by "sunset" features in legislation, by a new Consumer Advocacy Agency, etc.

Since government regulation can vary in an almost infinite number of ways, it seems unlikely that empirical cost and benefit studies of existing regulation will ever discredit the concept of government regulation. At the same time that the Carter Administration professes dissatisfaction with airline regulation, for example, it is waging the "moral equivalent of war" to regulate further energy and medical care. The failure of past government regulation to achieve stated goals appears to have little or no influence on the momentum to regulate further currently unregulated areas.

SUMMARY AND CONCLUSIONS

Cost is defined in terms of sacrificed alternatives by both Austrian and conventional neoclassical economists. The latter group holds that cost can be measured by an outside observer, while the former group stresses the fact that only the decision-maker is able to assess the value of the sacrificed alternative. This paper has attempted to demonstrate that the distinction between the Austrian and conventional views of cost is important and greatly

influences the way the economist's role is viewed. In conventional neoclassical theory, the role of the entrepreneur is minimized, as emphasis is placed on the allocation of *given* means among *known* alternative ends. The Austrian approach stresses the fact that information about means and ends is not given to the entrepreneur, but that the entrepreneur's success hinges on how effectively he gains control of and uses resources in a world permeated with uncertainty.

Can the conventional and Austrian approaches to cost be reconciled? No problems arise in conventional economic theory so long as the task of cost theory is viewed in terms of the logic of choice. That is, there is no problem so long as cost theory is viewed as a system of logic by which the decision-maker can make "better choices". The problem arises when attempts are made to estimate costs which influence entrepreneurial choice.^[26]

A recognition of the fact that choice-influencing costs cannot be objectively measured by outside observers places a new perspective on efforts by government to set prices on the basis of cost in the case of farm prices, petroleum prices, hospital prices, utility prices, etc. A recognition of this fact also makes it clear that government regulatory agencies cannot base prices on costs which motivate entrepreneurial behavior. So long as this basic subjective nature of cost is not realized, central planners, public policy makers, consumer interests, and other groups will continue to demand of government regulation that which it cannot provide, viz. cost data relevant in setting utility rates and product prices. Objective "cost" data and cost estimates are often useful to the entrepreneur. It should not be forgotten, however, that objective "cost" estimates are not the costs which influence individual choice and, hence, cannot be used for normative purposes.

NOTES

1. Ludwig von Mises, *Human Action* (Chicago: Henry Regnery Co., 1966), p. 97. Rothbard, closely identified with the "subjectivist economics" of the Austrian school, also stresses the subjective nature of cost. "In the first place, it must be stressed that these costs are subjective and cannot be precisely determined by out-

- side observers or be gauged *ex post* by observing accountants." Murray Rothbard, *Man, Economy and State* (Los Angeles: Nash Pub. Co., 1970), p. 291.
2. J. M. Buchanan, "Is Economics the Science of Choice?" in *Roads to Freedom — Essays in Honour of Friedrich A. von Hayek*, E. Streissler (ed) (New York: Augustus M. Kelley, 1969).
 3. "Choice is necessarily amongst thoughts, amongst things imagined. For when experience is actual and proceeding, outside the realm of ideas, it is unique and already chosen." G. L. S. Shackle, *Epistemics and Economics: A Critique of Economic Doctrines* (Cambridge: Cambridge University Press, 1972), p. 130.
 4. Shackle clearly demonstrates the relationship between cost and the entrepreneur's expectations. "The material possessions, the equipment of the business or of the economic society as a whole, would have no more value than the most casual objects and features of the scene, were they not embraced in a technology, an organization, a policy and, at any moment, a plan of action specified as to the persons whose interests it is to serve or whose orders or desires it is to satisfy, and as to its location and its timing. . . . The 'facts' at best are like a few pieces of coloured stone or glass intended for a mosaic as a whole from the suggestions offered by these few disconnected fragments. A slight, accidental re-arrangement of the scattered fragments can reveal new possibility. . . ." Shackle, *Epistemics*, p. 428.
 5. F. A. Hayek, *Individualism and Economic Order* (Chicago: Univ. of Chicago Press, 1974), p. 198.
 6. Shackle points out that there is no place for choice in this approach. "In economics of the accepted Western, maximizing kind we are confronted with a basic contradiction: men are choosers, they choose the best, each for himself; what is the best can always be known to each person, either by merely consulting his own tastes or by applying the techniques of engineering or, where knowledge lacks a *simple* precision, by applying statistical techniques which turn ignorance of the particular into knowledge of the aggregate. . . . And so we have men in this situation: what is 'the best' for him is known to him uniquely and for certain; how to attain it is dictated by circumstances, and can be inferred from them. What, then, is left for him to do in the way of choosing?" G. L. S. Shackle, *Decision, Order, and Time in Human Affairs* (Second ed., Cambridge: Cambridge Univ. Press, 1969), p. 272.
 7. Israel M. Kirzner, *Competition and Entrepreneurship* (Chicago: The Univ. of Chicago Press, 1973).
 8. "Under uncertainty, by definition, each action that may be chosen is identified with a distribution of potential outcomes, not with a unique outcome. . . . It is worth emphasis that each possible action has a *distribution* of potential outcomes, only one of which will materialize if the action is taken, and that one outcome cannot be foreseen. Essentially, the task is converted into making a decision (selecting an action) whose potential outcome *distribution* is preferable, that is, choosing the action with the optimum *distribution*, since there is no such thing as a maximizing distribution". A. A. Alchian, "Uncertainty — Evolution and Economic Theory", *Journal of Political Economy*, 58 (June, 1950), p. 212.
 9. J. M. Buchanan and G. F. Thirlby (eds.), *L.S.E. Essays on Cost* (London: Weidenfeld and Nicholson, 1973).
 10. *Ibid.*, pp. 104–105.
 11. Rothbard, *Man, Economy and State*, p. 529.
 12. I. Kirzner, "Divergent Approaches in Libertarian Economic Thought", *Intercollegiate Review* (January–February, 1967), p. 107.
 13. Milton Friedman, *Price Theory* (Chicago: Aldine, 1976), p. 147.
 14. ". . . the logic reduces to the economic principle, the simple requirement that returns to like units of outlay or input must be equalized at the margin in order to secure a maximum of output. . . . If a potential chooser is made aware of the principle in its full import, he will weigh alternatives more carefully, he will think in marginal terms, he will make evaluations of opportunity costs, and finally, he will search more diligently for genuine alternatives. The norms for choice can be meaningfully discussed, even if the specific implementation takes place only in the internal calculus of the decision-maker." Buchanan, "Is Economics the Science of Choice?" pp. 48–49.
 15. J. M. Buchanan, *Cost and Choice* (Chicago: Markham Pub. Co., 1969), p. 35.
 16. "The false step is taken when the explicitly objectified payoff structure that is postulated for use in the abstract theory of economic behavior is translated into direct guidelines for the explicit manipulation of choice alternatives. This procedure must assume that the actual *choice-maker* in the real world *behaves* strictly as the pure economic man of the theorist's model." Buchanan, "Is Economics the Science of Choice?" p. 60. Moorhouse makes the point in a slightly different way, ". . . social phenomena are inherently subjective. Men act according to their *perception* of relevant data. Subjective evaluation of external stimuli, though unobservable and hence, nonquantifiable, are part and parcel of the phenomena economists wish to explain". John C. Moorhouse, "The Mechanistic Foundations of Economic Analysis", *Reason Papers* No. 4 (Winter, 1978), p. 65.
 17. E. C. Pasour, "Regulation's Fatal Flaw," *10 Reason* (October, 1978), pp. 26–30.
 18. G. J. Stigler and Claire Friedland, "What Can Regulators Regulate? The Case of Electricity", *Journal of Law and Economics* (October, 1962).
 19. E. C. Pasour, Jr. and J. B. Bullock, "Implications of Uncertainty for the Measurement of Efficiency", *Am. Journal of Ag. Econ.*, Vol. 57, No. 2 (May, 1975), pp. 335–339.
 20. "Human action is necessarily always rational. . . . The ultimate end of action is always the satisfaction of some desires of the acting man. . . . It is a fact that human reason is not infallible and that man very often errs in selecting and applying means. An action unsuited to the end sought falls short of expectation. It is contrary to purpose, but it is rational, i.e., the outcome of a reasonable — although faulty — deliberation and an attempt — although an ineffectual attempt — to attain a definite goal". Ludwig von Mises, *Human Action* (Chicago: Henry Regnery Co., 1966), pp. 19–20.
 21. A good discussion of the problems of a number of present government regulatory agencies is presented in *The Crisis of the Regulatory Commissions*, Paul W. MacAvoy (ed.) (New York: W. W. Norton & Co., 1970).
 22. Alchian is not advocating "scientism", i.e. that economists emulate the procedures of the natural

- sciences. Instead, he seeks to increase an understanding of the precise role and nature of purposive behavior in the presence of uncertainty and incomplete information. Hayek's comments on "prediction and control" in biology apply even more strongly in economics and the social sciences. "The theoretical understanding of the growth and functioning of organisms can only, in the rarest of instances, be turned into specific predictions of what will happen in a particular case because we can hardly ever ascertain all the facts which will contribute to determine the outcome". F. A. Hayek, *Studies in Philosophy, Politics and Economics*, pp. 33-34.
23. "It is not even necessary to suppose that each firm acts as if it possessed the conventional diagrams and knew the analytical principles employed by economists in deriving optimum and equilibrium conditions. . . . The fact that an economist deals with human beings does not *automatically* warrant imparting to these humans the great degree of foresight and motivations which the economist may require for his customary analysis as an outside observer or 'oracle'" Alchian, "Uncertainty", p. 216.
24. "The undiscerning person who sees survivors corresponding to changes in environment claims to have evidence for the 'Lysenko' doctrine. In truth, all he may have is evidence for the doctrine that the environment, by competitive conditions, selects the most viable of the various phenotypic characteristics for perpetuation. Economists should beware of economic 'Lysenkoism'" *Ibid.*, p. 215.
25. Tibor Machan, "Costs and Virtue, the Debate on Planning", *National Review* (June 11, 1976).
26. "The failure of economists to recognize that the sense data upon which individuals actually choose in either market or political choice structures are dimensionally distinct from any data that can be objectively called upon by external observers led directly to the methodological chaos that currently exists". Buchanan, "Is Economics the Science of Choice?", p.64.

The Austrian school promotes a quantitative theory of money, which suggests that all prices are determined based on the assumption of a constant money supply and that any newly printed money can never represent real productivity. It also suggests that inflation is never uniform, but rather that it leads to a redistribution of resources from more efficient to less efficient endeavors, creating malinvestment, asset bubbles, and economic crises.