AN ANALYSIS OF RISK
IN FINANCIAL INVESTMENT

by

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ABSTRACT

This essay attempts a preliminary explanation of the behavioral content in financial investment, and stops short of measuring it. In the past insufficient attention has been given to the analysis of risk-taking behavior in terms of expected utility and to the relationship between that behavior in financial investment and some of the variables in social structure such as occupation and wealth. These issues are presented in Chapter 1.

Chapter 2 presents and discusses the scope and method of the essay, some contemporary research trends in economics, sociology, and anthropology, the analytic focus of economic sociology and anthropology relevant to the essay, markets and exchange, and the state of interdisciplinary research in this connection.

Two chapters are devoted to decision-making theory; in Chapter 3, the theories of riskless and risky choices, the Bernoulli hypothesis, and game theory; in Chapter 4, unmeasurable uncertainty, a psychological criticism of the theory of risky choices and a review of risk-taking behavior as a function of the situation, the individual, and the group.

Chapter 5 presents a standard economic analysis of the investment function and the liquidity preference theory, and adds a review of two early studies (Marx, Weber) on financial investment.

In Chapter 6 the problem is restated in relation to the above considerations. Macrostructures are defined and the substructures differentiated. The unit of analysis is a microstructure of financial investors drawn from one of Vancouver's brokerage firms, and the tool of analysis is a survey.

In Chapter 7 the empirical data are presented and discussed in terms of the theoretical considerations. Since our data are crude, we have limited ourselves to conjectures which can be given a preliminary test. Specifically, we set forth (a) that occupation and wealth greatly affect risk-taking behavior; (b) that the higher the income and stock of wealth as indicated by portfolio composition the greater the risk aversion, and that the investment utility is a source of amusement or serves as a hedge against inflation; (c) that the smaller the income and stock of wealth as indicated by portfolio composition the higher the risk-taking behavior because of its greater utility, and that the investment utility contributes to make ends meet or provide work satisfaction.

In the remaining section of the essay (Chapter 8) we appraise our research design and suggest future lines of research.

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PREFACE

The main purpose of this essay is to show that there is a behavioral content in financial investment, though we have not set out to measure this behavioral content. It has been submitted by Belshaw (1965:138) that from the sociological standpoint the investment function covers an enormous range of creative behavior. Although Belshaw was clearly referring, in his text, to real investment, we feel that neither of these two kinds of investment activity have been sufficiently examined from the behavioral point of view. Our purposes of analysis clearly demand an interdisciplinary approach, which we have attempted to give, not without facing formidable problems due to the incipient theoretical stage of interdisciplinary research.

Data collection posed rather difficult problems, since we did not have full access to and support of a brokerage house. As a result the meager data we could collect are crude. Consequently, in our conclusions, we have limited ourselves to proposing a series of testable conjectures that may be considered for future research.

The organization of this essay is as follows:

Chapter 1. The problem: We raise the issues that we propose to analyse.

Chapter 2. Scope and Method: We discuss the scope and the methodological problems, such as: contemporary research trends and methods in sociology and economics; analytic focus of economic sociology and anthropology, markets and exchange, and the state of interdisciplinary research.

Chapter 3. The Decision Making Theory I: The theories of

riskless and risky choices are explained, the Bernoulli hypothesis is reproduced, as well as game theory and its possible implications for social theory.

Chapter 4. The Decision Making Theory II: Unmeasurable uncertainty is differentiated and discussed. Psychological criticism on the theory of risky choice is presented, as well as a review of risk taking behavior as a function of the situation, the individual, and the group.

Chapter 5. Investment Theory: Investment theory and the theory of liquidity preference are set forth. A review of two early (Marx, Weber) studies on financial investment is presented.

Chapter 6. A Restatement of the Problem: We restate our problem in relation to the considerations set forth in previous chapters. We define our unit of analysis, and choose the proper tools of analysis.

Chapter 7. The Empirical Data: We discuss research procedures and data collection. The empirical data are presented and discussed in relation to the theories presented. Tentative generalizations are offered and from them a social model of risk taking behavior in financial investment is set forth.

Chapter 8. Conclusion: Criticism of the research design, and suggestions for further research.

Vancouver, March 1970

CHAPTER 1

THE PROBLEM

In Matthew (Ch. 25, vs. 14-28) we read the following parable:

> For the Kingdom of heaven is as a man travelling into a far country, who called his own servants, and delivered unto them his own goods.
>
> And unto one he gave five talents, to another two, and to another one; to every man according to his several ability; and straightway took his journey.
>
> Then he that had received the five talents went and trading with the same, and made them other five talents. And likewise he that had received two, he also gained other two.
>
> But he that had received one went and digged in the earth, and hid his lord's money.
>
> After a long time the lord of those servants cometh, and reckoneth with them.
>
> And so he that had received five talents come and brought other five talents, saying, lord, thou deliveredst unto me five talents: behold, I have gained beside them five talents more.
>
> His lord said unto him, well done, thou good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy lord.
>
> He also that had received two talents come and said, lord, thou deliveredst unto me two talents: behold, I have gained two other talents beside them.
>
> His lord said unto him, well done, good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy lord.
>
> Then he which had received the one talent come and said, lord, I knew thee that thou art a hard man, reaping where thou hast not sown, and gathering where thou has not strawed.
>
> And I was afraid, and went and hid thy talent in the earth: lo, there thou hast that is thine.

> His lord answered and said unto him, thou wicked and slothful servant, thou knewest that I reap where I sowed not, and gather where I have not strawed:
>
> Thou oughest therefore to have put my money to the exchangers, and then at my coming I should have received mine own with usury.
>
> Take therefore this talent from him, and give it to him which hath ten talents.

This parable illustrates the kind of behavior that we will attempt to analyse throughout this essay, namely that of risk taking in financial exchange. The above parable comes from one source that has historically shaped our civilization and values, that is, Judeo-Christian religion.[1] In the parable, from the sociological standpoint, we can see that a lack of enterprise (or avoidance of risk) was punished, and the opposite rewarded. We begin by raising the following issues:

1.1. We believe that risk taking behavior has not been sufficiently examined in the context of financial investment, and particularly as it relates to some variables of social structure, i.e. occupation, income, and wealth.

1.2. We think of "wealth as being useful and exchangeable (and take) the position that exchange and the market are central features of the economy". (Belshaw, 1965:2-3) Further, the idea of wealth as being useful and exchangeable leads to the notion of utility. But:

> utility refers not to some objective criterion of technical effectiveness but to the purely subjective notion of the actor that the good or service is valuable to him, that he wants it. Why he wants it (for aesthetic or pleasurable reasons, because of religious or secular values) is quite irrelevant to the notion of utility. This usage of economists should be carried over into anthropology and sociology. (Belshaw, 1965:3)

In this essay, we will analyse risk taking behavior as it relates to the Bernoulli (1783) hypothesis of expected utility. It must be pointed out that this analysis of behavior in terms of expected utility is an exploratory attempt, for to date it has not been sufficiently explored by sociologists and anthropologists. A detailed exposition of expected utility will be set forth in (3.3.1.).

1.3. It has been suggested that the investment function belongs to the area of "admitted indeterminacy" in economics upon which substantive behavioral theory must be brought to bear (Parsons and Smelser, 1956:185-241). In addition, by the considerations set out in (1.1. and 1.2.), our analysis will require an integral approach, that is, it will operate simultaneously from economic, psychological, and social anthropological standpoints.

1.4. Although interdisciplinary research has been successfully carried out by numerous scholars, it poses formidable methodological problems that we will discuss in our chapter on methodology.

CHAPTER 2

SCOPE AND METHOD

There are many conceptual and operational problems underlying our analysis of financial investment and risk taking. Presumably this is due to a kind of interrelationship between the economic, psychological, and sociological systems (as defined in 1.1.; 1.2.; 1.3.). This is well exemplified by Klausner (1967:VIII):

> A change in the class structure implies a change in the flow of investment, which, in turn implies a change in the forms of political influence, which, in turn may imply a change in the role of the military.

Hence, we should like to define each of the concepts, and theories that shall be used in this essay, i.e. economy and society, exchange and market systems, social structure; and, in addition, a statement on interdisciplinary research. Investment theory and decision theory will be subjects of separate chapters.

2.1.1. Economy and Society

2.1.1. Trends in economic research

Our basic assumption is that "social organization and culture...affect economic organization and performance," (Dalton, 1969:65). But it is obvious that social organization and culture have been studied within the domain of the behavioral sciences;[2] and that economic organization and performance have been studied within the domain of economics. These scientific disciplines have been developed historically, based upon different sets of assumptions and problems. Rather than attempting to analyse the historical circumstances that may account for this

developmental differences, we shall focus on the research trends of these disciplines. Presumably this approach may yield to us an understanding of how one system affects the other and vice versa. Consequently we will attempt to outline the research trends in economics first and later those of the behavioral sciences.

Simon (1967:1-2) has stated that

> economics (is) the science that describes and predicts the behavior of several kinds of economic man - notably the consumer and the entrepreneur.[3]

While this definition may be literally correct, the literature in economics has principally focused and can be classified according to two dimensions:

a) whether it is concerned with industries and the whole economy (macroeconomics) or with individual economic factors (microeconomics); and

b) whether it strives to describe and explain economic behavior (descriptive economics), or to guide decisions either at the level of public policy (normative macroeconomics) or at the level of the individual consumer or businessman (normative microeconomics). (Simon, 1967:2)

The profession and the literature in economics are largely preoccupied with normative macroeconomics, and research emphasis have been significantly determined by relevance to policy (i.e. business cycle theory). Normative microeconomics is carried forward under such labels as "management science", "engineering economics", and "operations research"; and it is now "a flourishing area of work having an uneasy and ill-defined relation with the profession of economics, traditionally defined." (Simon, 1967:2)

It follows that economists have had little interest in descriptive economics (or understanding the behavior of human

economic agents), except in as much as it provides a foundation for macroeconomics. The normative microeconomist does not care about a theory of human behavior, since he wants to know how people ought to behave, rather than how people actually behave. On the other hand, the macroeconomist's lack of concern about empirical human behavior stems from the following considerations:

> First, he assumes that the economic actor is rational, and hence he makes strong predictions about human behavior without performing the hard work of observing people.
>
> Second, he often assumes competition, which carries with it the implication that only the rational survive. (Simon, 1967:2).

For an example can be cited Friedman's Essays in Positive Economics (pp. 22-23) which will amaze anyone brought up in the empirical tradition of the behavioral sciences, though it elicited little criticism among economists.

To be sure there is an area of human behavior that fits the assumptions of economists reasonably well; an area where economic theory with its assumptions of rationality is a powerful tool, i.e. real investment theory.

Parsons and Smelser (1956:XVII-XIX) in their timely attempt to integrate economy and society, have argued in the following manner on the past relationship between economics and the behavioral sciences:

> On the side of economics, we might suggest three barriers. First, economists have become increasingly preoccupied with the great potentialities of the technical apparatus of economic theory (to which Marshall himself made such a major contribution). Second, the pressing problems of public policy have required immediate contributions from economists; under such a pressure, exploration of theoretical side-roads to neighboring disciplines seemed inappropriate. Finally, the elementary level of sociological theory itself - including the fact that most of the best sociological theory has remained

> until recently in languages other than English - for a long time provided little to which economists could turn. For the sociological tradition, a major isolating factor has been a revolt, perhaps, against the subtle ways in which the "ideology" of economic thinking has permeated the wider intellectual atmosphere.

We could go on citing reasons for the separation between economics and the behavioral sciences that are caused not only by the methodology of the discipline or its particular emphasis or developmental stage, but also due to the "professionalism" of both disciplines. Tucker (1964:2-3) writes:

> No real rapprochement between economic theory and social theory (exists)...since their fundamental characteristics are, at this point in time, incompatible. That is, to accept either is to deny the ultimate validity of the other. The situational analysis of sociology is not only different from price theory, it is an implicit denial of the assumption upon which price theory is based. This does not mean that one body of theory is right and the other is wrong, of course. What it suggests is that both are incomplete, partial, suspect. It seems to me that in this set of circumstances the student should be encouraged to consider both points of view. But the approach in college and universities is normally such that the young scholar is forced to choose and to cleave unwaveringly to the discipline of his choice. Often the faculty sets the example of parochialism, arguing vehemently about which set of halftruths is correct - or worse, refusing to consider that such argument is even worth entering into.

In any case, what is important for our purposes is the fact that there have appeared promising efforts towards a rapprochement between economics and the behavioral sciences. (We must not forget that, historically, the works of Marx, Weber, Marshall, and Pareto largely dealt with this issue.) For example, Katona (1963) has submitted the hypothesis that economic processes stem directly from human behavior and that this simple but important fact has not received its due in modern economic analysis.

Katona (1963:3) writes:

> Although economic analysis in the main continues to disregard empirical psychological studies, it is not devoid of psychological assumptions. Most commonly it proceeds on the premise that human beings behave mechanically. If it were true that human beings could be counted on to show invariably the same reactions to the same developments in the economic environment, the human factor could rightfully be excluded from economic studies.....It is this "mechanistic psychology" - the assumption that under given external conditions, human reactions are entirely determined by those conditions - which has led economic analysis to what may be called the reification of economic data.

Further, we should like to point out that Katona's "rediscovery" - that economic processes stem from human behavior - has been the main research emphasis of Marxian economics as expounded particularly by Mandel (1968), Sweezy (1968), Baran (1968), and Sweezy and Baran (1966). These aforementioned scholars argue that it has been the influence of the Cold War that has sustained among "bourgeois scholars" a systematic hostile indifference towards the research trend of Marxian economics.

We find today a growing interest in the rapprochement of economics and the behavioral sciences borne out of the realization that these disciplines as they stand today cannot satisfactorily solve by themselves some problems that social scientists have become increasingly interested in, e.g. socio-economic development. Thus, the appearance of this trend is problem oriented and is shared by different types of social scientists. The economist Simon has pointed out the specific areas wherein the traditional theoretical analysis of economics and/or behavioral sciences alone leaves something to be desired. Simon (1967:3) remarks:

> Economics has been moving steadily into new areas where the power of the classical equilibrium model has never been demonstrated, and where its adequacy must be considered anew. Labour economics is such an area, oligopoly or imperfect competition theory another, decision-making under uncertainty a third and the theory of economic development the fourth.

To summarize: we have mentioned several specific causes by which economics and the behavioral sciences have grown in isolation from each other, i.e. different research emphases, professional attitudes, political considerations; and we have also cited the growing need for the description of human behavior in terms of something more than a featureless adaptive organism, particularly in areas where classical economic theory may not be operational.

2.1.2. Assumptions of Economic Analysis and Its Implications for the Behavioral Sciences.

Before we proceed further, we would like to stop and look at the importance of the "givens" in economic analysis.

In economic models (i.e. microeconomics) the behavior of various dependent variables - prices, level of production, etc. - rests on the operation of economic forces of supply and demand. But out in the real world, dozens of variables affect prices and production; and if an economist would want to give a fairly complete picture, he would have to include these variables in his models.

But commonly the economist handles this empirical complexity by the following method. He realizes that non-economic variables affect supply and demand conditions; however, for the "purposes of analysis" he assumes that these variables do not change. For example, Samuelson (1961:15) points out that

economic analysis takes institutions and tastes as given; by "given" it is meant that potential variations do not occur.

An important "given" in economic analysis is that of economic rationality as manifested by (homo oeconomicus). An individual in an economic setting presented with a situation of choice will behave so as to maximize his position. It is obvious that this postulate has little or no empirical relevance in everyday life, though this simplification has proved to be a powerful analytical tool in some areas of human economic activity (see 2.1.1.). In addition, this simplification has allowed the economist to proceed as if the only independent variables were measurable changes in income and price. Naturally, this simplified world has allowed the economist to produce elegant and highly analytical models as theoretical solutions of economic problems.

However this method has proved to be inoperational if we want to take into account the complexity of the non-economic world, particularly in cross-cultural studies. Most of the criticism of the limitations of the "givens" in economic analysis has come from the behavioral sciences, in particular from sociology and anthropology. Even as far back as the 19th century, in the sociological analysis of economic life, the theme was integration, particularly as found in the thought of Spencer, Durkheim, and Weber.

> Sometimes the performance of the integrative functions resides with the political authorities; at other times integration may be effected primarily by customs or codes that do not issue directly and immediately from the political authorities. (Smelser, 1965:12).

The above scholars attempted to explain economic activity in complex societies, though Spencer and Durkheim with their evolutionary approach made reference to homogeneous societies. In complex societies one can note structurally defined and distinct economic organizations, i.e. banks, firms; records of distinct transactions (price changes, book accounts). The study of economic activity in complex societies is facilitated by the highly visible institutions of exchange. The anthropologist studying a simple society does not have the above advantage, for economic activity in simple societies may be embedded in their kinship structure, magic, politics, or religion. Raymond Firth (1951:122) has well conceptualized the problem:

> The principles of economics which are truly general or universal in their application are few. Most of those which purport to be general have been constructed primarily within the framework of ideas of an industrial, capitalist system. This means a machine technology, a monetary medium of exchange, an elaborate credit system using stocks and shares and banking institutions, developed private enterprise, and social structure of an individualistic, Western kind. The anthropologist struggles with a diversity of types.
>
> Many are peasant systems....Some are truly primitive.....The anthropologist's problem, then, is one of applying or translating economic principles in novel contexts.

Anthropological research has continually shown that economic activities in simple societies are "embedded in and guided by principles of chieftainship, clanship, and kinship". (Smelser 1965:18).

Malinowski (1922) put forth a pathbreaking study of economic activity among the tribes of Melanesian New Guinen archipelagoes. He observed that in production and exchange the systems of kinship and chieftainship are critical in inducing

individuals to undertake specific types of economic activity. For example, Malinowski (1922:158) points out that individuals do not exchange labor for a specific wage payment (i.e. in the construction of canoe); rather the goal of economic activity is one of "providing the chief or head man with the title of ownership of a canoe, and the whole community with its use". As far as labor is concerned, Malinowski (1922:160) reports that communal labor is based upon the duties of relatives-in-law. That is, whenever a man needs cooperation, his in-laws will assist him. For a chief whole villages will turn out, and for a commoner only a few people will turn out. After work has been done, there is always a distribution of food, hardly in proportion to the amount of labor done.

On the basis of these observations, Malinowski launched an attack on the postulates ("givens", i.e. economic rationality) of the supply and demand theory. Malinowski, further, stressed the integrative significance of magic for economic activity. For example, the construction of a canoe is accompanied by a set of magical rituals. He interpreted this magic as a supplementary craftsmanship, supplying "the psychological influence which keep people confident about the success of their labour, and providing them with a sort of natural leader". (Malinowski, 1922:116).

In the field of exchange, Malinowski identified forms such as the pure gift, without expectations of return (i.e. between husband and wife). Forms of exchange that involve payment for services are strictly regulated by custom. In other situations, material goods are exchanged for non-economic items, i.e. titles.

In 1925, Marcel Mauss produced The Gift, which was a survey of the anthropological literature on ceremonial exchange patterns. Mauss observed that exchange implied binding obligations, i.e. the giver to give, the receiver to receive, and the receiver to reciprocate; however, the timing and proportion of the return gift varied greatly.

Mauss also found traditional utilitarian economic theory inoperational in the analysis of traditional exchange. Instead, Mauss (1925:70-71) emphasized the gift as a symbolic binding together of a kinship unit or tribe, and he further emphasized the "total" character of these primitive phenomena:

> These phenomena are at once legal, economic, religious, aesthetic...and so on. They are legal in that they concern individual and collective rights, organized and diffuse morality...They are at once political and domestic, being of interest both to classes and to clans and families. They are religious; they concern true religion, animism, magic, and diffuse religious mentality. They are economic, for the notions of value, utility, interest, luxury, wealth, acquisition, accumulation, consumption, and liberal and sumptuous expenditure are all present...Nothing in our opinion is more urgent or promising than research into "total" social phenomena. (Mauss, 1925:76-78).

It is clear that the work of Malinowski and Mauss represent a rather negative criticism of traditional economic theory. It is the work of Raymond Firth that is significant for us. For his approach constitutes a serious and profound effort to synthesize anthropological research and economic theory. Firth in his monographs on the Maori of New Zealand (1929) and the Tikopia (1939) organizes his analysis around traditional economic categories of division of labor, income, capital, distribution and rational calculation. Moreover, he also shows how these

traditional categories are conditioned by the social dynamics of kinship, magic, chieftainship, and prestige systems.

Firth (1946) in a more recent work on the economic structure of the Malay fishermen, demonstrates how certain spheres of economic activity, particularly marketing and credit, lend themselves to technical economic analysis; whereas other spheres, such as production and labor supply, are determined by sociological categories, i.e. family, religion, magic, etc. Such efforts as Firth's have significant implications for the analysis of social phenomena where the methods and theories of economics, and the behavioral sciences alone - that is without a simultaneous approach - have been shown to be fruitless. Such social phenomena are, for example, decision-making under uncertainty, socio-economic development, labor economics, etc. In addition, the limitations of traditional economic analysis, i.e. its assumptions or "givens", may be amended through empirical social analysis. In other words, efforts like Firth's and others (i.e. Belshaw, Boulding, Smelser, etc.) may lead to the development of a theory of economic activity rooted in sociological categories.

2.1.3. Research trends in the Behavioral Sciences.

It has been postulated that "economic, anthropological, and sociological ideas (are) disciplines (that) should constitute one system". (Belshaw, 1965:V). This postulate is in accordance with our analysis set out in (2.1.2.), in which we have shown that the assumptions of economic analysis while powerful tools in some areas, in other areas may need to be amended to be integrated into a system. A case in point is our topical consideration: financial investment and social structure. As a matter of

fact, we have already seen (i.e. Firth, 1946) that certain orthodox economic concepts have been successfully used in the analysis of social data. It has also been suggested that while economic anthropology "studies the relations between variables such as market conditions and purchases, strains and the formation of new social groups,...these variables lie at the social and behavioral levels. To connect these variables, certain intervening psychological states must be postulated". (Smelser, 1965-34). This postulate can be verified in the following examples, as cited by Smelser (1965:34-35):

a) "Morale" and "Satisfaction" of workers are psychological states that are largely determined by social conditions of the work place, supervision, participation in decision-making, etc.; (see, for example, Katz's research in Dennis et.al., 1949). From our standpoint, these are intervening variables between economic activity and social variables.

b) "Attitudes" are psychological states that intervene in the same manner. For example data collected by Katona and Klein (1951-1953) have shown that attitudes assume significance as determinants at different phases of business cycles.

c) Finally, motivational patterns of persons who enter a particular occupational role are also intervening variables in economic activity in a behavioral context (see Henry:1948-1949). Since psychological variables may constitute intervening variables, we will mainly focus on sociological and anthropological research trends. However, "the similarities between social and cultural anthropology on the one hand and sociology on the other vastly outweigh the differences; and the differences are

frequently matters of shading". (Smelser, 1968:31). Moreover:

> Anthropologists and sociologists traditionally have studied social life in different settings. Anthropologists have concentrated on small, simple, often nonliterate societies, whereas sociologists have chosen to study large, complex, literate civilizations. Particularly in the last two decades this distinction has been breaking down, as sociologists and anthropologists alike study caste in Indian villages, and anthropologists take up investigations of places like East London, and as sociologists broaden their comparative scope. (Smelser, 1968:32).

With these ideas in mind, we can speak of "sociology" and "social anthropology" as having the same focus of analysis.[5] Now we can proceed to review the research trends in sociology and social anthropology. The task of specifying variables and relations is much more difficult in sociology than in economics. Widespread disagreement exists among sociologists and anthropologists about the fundamental concepts and problems of their discipline. This "has led to a mushrooming of variables. Because of this superabundance, sociological analysts are unable to present simple and coherent models; instead, analysis often focuses on categorizing social facts". (Smelser, 1965:27). Thus, our analytic characterization of sociology and social anthropology will have to be approximate.

The sociological analysis of a problem begins by identifying some variation in human behavior and framing explanatory questions about this variation. Such variation becomes the dependent variable - that which is to be explained.

> After isolating a certain problem, the investigator must specify concrete units that identify the dependent variable. The concrete units are found in the units of social structure and in variations of human behavior oriented to social structure...

> "Social Structure" is a concept used to characterize recurrent and regularized interaction among two or more persons. The basic units of social structure are not persons as such, but selected aspects of interaction among persons, such as values (e.g. businessman, husband...) and social organization, which refers to structured clusters of values (e.g. a bureaucracy, a clique...) social organization refers to more than goal-oriented collectivities (e.g. business firms, hospitals...); it may refer to informal organizations (such as gangs...) and diffuse collectivities (such as ethnic groupings). The important defining features of social structure are that interaction is selective, regularized, and regulated by various social controls. (Smelser, 1965:27).

In addition, in the analysis of social structures, three basic concepts are particularly important:

(1) Values refer to beliefs that legitimize the existence and importance of specific social structures and the kinds of behavior that transpire in social structure (i.e. the value of "free enterprise").

(2) Norms refer to standards of conduct that regulate the interaction among individuals in social structures (i.e. property law, normssof contract).

(3) Sanctions - including both rewards and deprivations - refer to the use of various social resources to control the behavior of personnel in social structures (i.e. control of deviance from expected role performance, coercian, ridicule, etc.). (Smelser, 1965:27-28).

Institutionalization is the concept that unifies the elements of social structure (i.e. roles, values, norms, etc.); and this refers to distinctive enduring expectations whereby these elements are combined into a single complex (i.e. we speak of the institutionalization of American business).

The question arises as to what are the major types of social structure. This question has been usually answered by turning to some notions of directional tendencies of social systems, or

what some analysts have called the "functional exigencies" of society. As typical exigencies, we can include:

(1) Modes of creating and maintaining the cultural values of a system (i.e. socialization processes).

(2) Modes of producing, allocating, and consuming scarce goods and services (sometimes called the economic functions).

(3) Modes of creating, maintaining, and implementing norms governing interaction among units in the system (sometimes called the integrative functions).

(4) Coordinating and controlling the collective actions of the system or a collectivity within it, usually by the sate (political function)... The notion of structure, then, is used to identify theoretically significant properties of concrete,clusters of activities devoted primarily but not exclusively to meeting some social exigency. (Smelser, 1965:28).

In point 2 above, we notice that an essential function in sociological analysis concerns economic life, or the focus of economic analysis itself.

At this point, economics and sociology overlap; nevertheless, economics is mainly concerned with variations in the level of production, distribution of goods and services, etc.; while sociology is mainly concerned with variations in social structure and variations in behavior oriented to this structure.

We would also like to introduce at this point Blau's dynamic conceptualization of social structure. Blau (1967:283-311) writes:

> A social structure is composed of patterned social relations among individuals and groups, including the recurrent conduct in which these relations find expression. The term "microstructure" is used to refer to the interrelations between individuals in a group, and the term "macrostructure" to the interrelations of these groups in a larger collectivity or of these larger collectivities in a still larger

one. The elements of macrostructures, therefore may be either microstructures or themselves macrostructures.

Thus far, the sociological concepts listed revolve around the notion of social structure. These concepts do not constitute explanations. It is necessary to take into account independent variables. The most important of these are the following concepts:

1. Strain. Social systems are never perfectly integrated. The sources of malintegration... may arise from outside or inside the system. The general presumption underlying (this) concept is that it imposes integrative problems on the system and subsequently causes adjustment... or a breakdown.

   (Among the types of strain the following are common in social systems:)

   (a) Ambiguity in role expectations, in which information regarding expectations is unclear or lacking...

   (b) Conflict among roles, in which role expectations call for incompatible types of behavior...

   (c) Discrepancies between expectations and actual social situations...

   (d) Conflicts of values in a system...

2. Reactions to strain. The initial reactions... tend to be disturbed reactions which are frequently...deviant and malintegrative from the standpoint of the social system...

3. Attempts to control reactions to strain. Two lines of attack are available at the social level to reduce the possibly disruptive consequences.

   (a) Structuring the social situation so as to minimize strain.

   (b) Attempting to control reactions to strain once they have arisen. (Smelser, 1965:29-30).

Our division and simplification of sociology into dependent and independent variables is the result of taking the elements of social structure as a starting point for exposition. But, one may ask how are the above variables related?

Although much of the sociological analysis still involves classifications that organize facts, we can isolate two types of explanatory models in sociology:

1. Process models. These refer to changes of variables within a given social structure.

2. Change models. Attempts to control strain and restore the social system to equilibrium sometimes fail, giving rise to a new type of equilibrium. (Smelser, 1965:30).

Finally, are there any "givens" in sociological analysis? Every sociological statement implies a certain underlying assumption about human nature, i.e. to assert that role ambiguity is a source of strain is to assume that ambiguity is a source of anxiety that ddrives men to react against strain. Such psychological postulates are open to empirical doubt. Sociology does not display the conspicuous continuity that economics does with some of its assumptions, i.e. economic rationality.

To summarize, the above analytical characterization has been presented in order to define the methodology of the discipline in which most of the sociological research is carried out. Likewise, in section (2.1.1.) we attempted to show the structural characteristics of economics and its research trends. In the next section we will expound the research methods that may be available in both economics and sociology, to later shift our attention to the analytical focus of economic anthropology and social economics.[4]

2.1.4. Research Methods in Economics, Sociology, and Social Anthropology.

It is the work of Smelser (1965) that is of major interest for us in this particular topic. Smelser (1965:31-32) has suggested the following methodology for a simultaneous approach of economics and sociology/anthropology in any particular problem.

2.1.4.1. Experimental method. This is the most rigorous form of investigation in social scientific analysis. It consists of creating similar experimental and control situations. Both must be alike in all respects except for one presumed causal factor. When this factor varies in the experimental situation, we can compare the outcome with the control situation, in which the factor is not varied. With the exception of small-group analysis, this method is seldom suitable for use in economics or in sociology/anthropology.

2.1.4.2. Statistical method. Certain factors are held constant or canceled out by statistical manipulation, i.e. suppose we wish to trace the long-term trend of potato prices over years, we calculate the average seasonal variation for fifty years, and cancel out seasonal fluctuations for each individual year by adding or subtracting the average seasonal variation from the actual prices. Thus we may get an uncontaminated long-term price trend, which may relate with other variables. Statistical analysis and various tests of association (regression analysis) receive wide application in economics and sociology.

2.1.4.3. Comparative method. This method if employed widely in sociology, and in economics (mainly by economic historians and those interested in developmental studies). It is also known as

the historical method. Classical examples can be found in the work of Weber, Marx, Sombart, etc. Weber in his study on religion suggested that historically certain societies had developed rational bourgeois capitalism. Weber asked what were the common characteristics of these societies. Then he turned to societies that had not developed rational bourgeois capitalism (i.e. Indian, China), and asked in what respect they differ from the former societies. Through this method Weber attempted to demonstrate that the religious factor accounted for this difference.

Smelser (1965:31) posits that the comparative method is frequently used "when the number of cases is too small to permit statistical manipulation". This is not the best characterization of the comparative method, for in many works where comparative method has been used it has been used with statistical manipulation as well. A clear example is Marx's Capital, or Sweezy and Baran (1966). The comparative method is essentially historical and has been used probably since the 5th century of this era when St. Augustine's Civitates Dei attempted to show the historical development and continuity of Christianity vis a vis the historical development of Roman paganism and its inevitable decline. Later, of course, this method has been called philosophy of history, historiography, etc.; and its best exponents are Bossuet, Voltaire, Herder, Kant, Hegel, Marx, etc.

2.1.4.4. Mathematical models. Mathematical models are used more frequently in economics than in sociology. Economic data (prices, income, etc.) are more readily quantifiable than sociological data (with the possible exceptions of the analysis of

behavior in small-groups, population, and mobility); hence, economists have produced neat, simple, and quantified models.

2.1.4.5. Case study. Case studies are used in economics and sociology. In economics, case study has been used in the analysis of patterns of imperfect competition in particular industries. In sociology, case study has been used in the study of social class behavior in a local community.

2.1.4.6. Survey method. A sample of the population with the desired data is interviewed. In economics this method is widely used to collect facts about households and firms - their assets and expenditures, their attitudes about future states of the market, etc. In sociology it is even more widely used to collect attitudes and opinions, etc. The attitudinal data produced by surveys supplement the recorded statistics (i.e. newspapers, census data, etc.). But one must bear in mind that attitude data gathered in interviews can be superficial.

2.1.4.7. We could also name other procedures used by anthropologists and sociologists in their data collection on economic activity, such as: kinship analysis, where most of the economic activity is embedded in simple societies; participant observation and/or observation, used, for example, in the analysis of labor exchange or reciprocity as well as in industrial sociology.

2.1.5. Analytic Focus of Economic Anthropology and Sociology.

Smelser (1965:32) has suggested a definition of economic sociology and anthropology as being:[5]

> the application of the general frame of reference, variables, and explanatory models of sociology (anthropology) to that complex activities concerned with the production, distribution, exchange, and consumption of scarce goods and services. The

> first focus...is on economic activities alone (i.e.) how these activities are structured into roles and collectivities...(etc.) The second focus...is on the relations between sociological variables as they manifest themselves in the economic context and sociological variables as they manifest themselves in non-economic contexts.

Furthermore, Smelser (1965:33) points out, the interplay of sociological variables in the economic and non-economic spheres can be observed in the following settings:

> (1) Within concrete economic units (i.e. the study of status systems, power, and authority relations within the industrial firm).
>
> (2) Between economic units and their social environment. (This leads to "large issues", i.e. public policy, labor-management conflict, and relations between economic classes.)
>
> (3) Finally, (the study of) distinctively sociological aspects of the central economic variables themselves - money as one of many types of sanctions in social life.

Smelser's position may be too general if we raise the following question: what do we do with the body of theory accumulated by economists that purports to explain economic activity in Western society? We find Raymond Firth's position as being the most comprehensive and the one that circumscribes best the analytic focus of economic anthropology and sociology. We shall, then, reproduce Firth's position.

Firth (1951) asserts that the social analyst (anthropologist or sociologist) is interested in the structure and organization of the economic activity for two reasons: First, most social relations have an economic coefficient. Second, many social relations are primarily concerned with economic values. Consequently, the economist has set out to discover the principles of economics - the abstract body of theory attempting to explain the

economic aspects of human behavior at its most general and universal level. But the task of the social analyst is to examine how these principles work in specific social or cultural contexts. To put it in other terms:

> Economic organization is a type of social action. It involves the combination of various kinds of human services with one another and with non-human goods in such a way that they serve given ends. (Firth, 1951).

There is value given to these goods and services, and choice is exercised in relation to these values. Choices are not discontinuous or unrelated. They form a system and display an indiscreet relation in time and action sequence. Choices are also related in terms of values; that is, in regard to a "series of qualities assigned to the relations involved in action". Then, it follows that economic organization is embedded in a social framework of relations between groups and persons that are expressed in different conceptual ways and emphasis, such as values, symbols, rules of conduct, and patterns of behavior.

An inspection of economic propositions indicates that most of the economic propositions, except the formal and abstract ones, are set forth in terms of institutionalized concepts. Obviously these institutions are peculiar to the societies where the contemporary economic theory has been fostered. In addition, from the theoretical standpoint, economic analysis is based upon assumptions about social behavior (see 2.1.2.); and economists have tended to analyse transactions as separate entities. But, if the economic system described belongs to the real world, then there is need for empirical data to provide a basis for the assumptions as to what people will really do in response to

changes in their economic conditions and by how much their behavior will be likely to vary. It is in this sense that the contributions of the social analyst become pertinent.

The social analyst, in order to translate general propositions of economic theory to a particular society or a particular segment of a society, must expound the social factors which are of most relevance in the preference scale of the members of a society; and the regularities or irregularities of the system of wants must be made clear quantitatively if possible. The body of economic theory is accepted as valid by the social analyst. So we can say that if:

> economics deals with the principles of the use of resources in general, economic anthropology deals with concomitant social relations or the specific ways in which the principles are exemplified in a range of given social situations. Economic anthropology is an empirical study, and a comparative one. (Firth, 1951).

Firth has also defined very pointedly the social situations that may be the subject matter of economic anthropology and sociology such as: simplicity of technology, social context of choice-making in resource allocation, exchange systems. He also proposes a characterization of the principal features of peasant economies. For our purposes we do not need to reproduce these elements in detail. As a final note, Firth (1951) offers the following statement that integrates most of the aforementioned contentions:

> Economic activity is subordinate to social ends. It is only by studying those ends that one can see how particular economic systems work.

2.1.5.1. For the sake of completeness, though not directly related with this essay, we should like to expound briefly the

ongoing debate in economic anthropology between the Formalists and the Substantivists.

As we have shown elsewhere (see 2.1.2.), Malinowski's approach to the analysis of economic activity among primitive people was essentially negative. However, during the 40's, anthropological analysis carried out by Firth, Herskovits, and Goodfellow began systematically using economic theory in their analysis. A concomitant result was that anthropological analysis of primitive and peasant economics began growing in sophistication, particularly in economic organizations similar to those of the Western world. For example, Sol Tax's (1953) Penny Capitalism is a successful application of conventional economic theory among Guatemalan peasants. Likewise, Nash (1961) argued for the universality of profit-oriented behavior, as well as decision making behavior, and the applicability of conventional economic theory in analysing these forms of behaviors.

Along these lines appeared Parson and Smelser's (1956) Economy and Society, where it is suggested that the economy is a part of the social system, and there exists some kind of meaningful equilibrium between society and economy.

Karl Polanyi, an economic historian, appeared on the scene as a leading counterreactionary figure to the above approach. He essentially argued for the existence of two meanings of "economic", the "Substantive" meaning and the "formal" meaning of "economic", the distinctions being the following:

> The substantive meaning of economic derives from man's dependence for his living upon nature and his fellows. It refers to the interchange with his natural and social environment...

> The formal meaning of economic derives from the logical character of the means-ends relationship as apparent in such words as "economical" or "economizing". It refers to a definite situation of choice, namely that between the different uses of means induced by an insufficiency of those means... (Polanyi, 1957, as quoted in Le Clair and Schneider, 1968:122).

Polanyi suggests that there is no necessary connection between the two and goes further by saying that in non-market oriented societies, choice does not exist in the "formal" meaning of "economic", and it follows that choice making is a characteristic of market-oriented societies. The core of this theoretical debate between "formalist" and "substantivist" seems to lie in the relevance of formal economic theory to non-market situations.

2.2 Exchange and Markets[7]

It has been set forth (Belshaw, 1965:4) that "all enduring social relations involve transactions which have an exchange aspect".

Economists like Boulding (1941) have also argued in a similar manner. In effect, Boulding (1941:3-8) states that the system of production, distribution (exchange), and consumption constitute the spheres of activity with which economists are primarily concerned; furthermore, Boulding argues that almost all of the economist's activities are eventually related to exchange.

Other economists like Robbins (1937) have taken the position that economics is "concerned with a special point of view about all action" (Belshaw, 1965:4). The implication of this position for sociology and anthropology, particularly as it relates to

economic anthropology, has been set out by Raymond Firth, "and is consistent with the position taken by Talcott Parsons in The Structure of Social Action (1949). Robbins' (1935:1-21) definition of economics is as follows:

> Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.

To avoid confusion on the implications of this statement, Belshaw (1963:4-5) suggests some of Robbins' own illustrations amended to fit cross-cultural analysis:

> We do not say that the production of potatoes (rice, yams) is economic activity and the production of philosophy (Buddhist religion, ceremonial satisfactions) is not. We say rather that, insofar as either kind of activity involves the relinquishment of other desired alternatives, it has its economic aspects.

Furthermore:

> When time and the means for achieving ends are limited and capable of alternative application, and the ends are capable of being distinguished in order of importance, then behavior necessarily assumes the form of choices. Every act which involves time and scarce means for the achievement of one end involves the relinquishment of their use for the achievement of another. It has an economic aspect...If, in a limited lifetime, I would wish to be both a philosopher and a mathematician (or a canoe builder and a clerk of a Native Authority and a Politician), but my rate of acquisition of knowledge is such that I cannot do both completely, then some part of my wish for philosophical or mathematical competence or both must be relinquished.

It has been the contribution of Raymond Firth to analyse Prof. Robbins' conception of economics and differentiate its implications for economic anthropology. In this context Belshaw (1963:5) remarks:

> Raymond Firth makes this problem of choice (within a framework of cultural imperatives) a central issue of social organization. If one starts with

> this kind of assumption, actions are not economic or non-economic. There are not separable categories of economic acts and social acts...But how can acts, whether of individuals or of corporate groups acting together, be shown to be interconnected if we are looking merely at aspects of them?

There are two answers to this question, points out Belshaw:

a) From the economic standpoint, actions in a social context involve exchange. "Exchange becomes that aspect of behavior which provides interconnections between individual acts of choice, and the possibility of institutionalized mechanisms of adjustment, such as price reaction." (Belshaw, 1963:5). Economics may analyse the actions of a specific individual, but through the social phenomena of exchange an economy becomes a system.

b) From the social and cultural standpoints, action is goal-oriented. (For the economist "goal" would be equivalent to "wants".) A goal selection implies choice, which in turn implies some psychological mechanism whereby the cost/benefit is judged. But this choice is determined and made within the context of a cultural system of a society. "Thus the interconnectedness of actions is based upon a premise of a value system produced by cultural processes (the anthropological theme in action)." (Belshaw, 1963:6).

Within the spectrum of the cultural and/or value systems, certain regularities emerge which determine the formation of social roles and its relationships among them. A system of roles (social structure) provides another framework for action and its interconnectedness. Once more, economic interconnectedness may be based upon a social structure.

If we wish to study financial investment, we must also specify the meaning of exchange. For one cannot conceive of any

type of investment without exchange.

Belshaw (1963:6) has remarked that exchange as an institution "penetrates through the social fabric and may be thought of as a network holding society together". This concept is pertinent whether we think of an Oceanic culture in which reciprocal services and obligations link together in reflection of social structure and values, or capitalism and communism where exchange system is another aspect of the regularities of social relationships. Homans (1962) has also set forth similar views. Exchange as found within a market system has had particular attention among economists. Nevertheless, there are varied conceptions as to what a market constitutes. The economist's conception of market is rather abstract and can only apply approximately to empirical situations. Fraser (1937:131-33) defines market in the following manner:

> The word "market" need not detain us long. In economics it means, not a particular building or locality, but a state of affairs. There is a "market" in a commodity (i.e. a commodity class) when there are a number of buyers and sellers, and when the unit price offered and paid by each is affected by the decision of all the others. The market is said to be "perfect" when each buyer has full knowledge, and the ability to use it, of what every seller is demanding, and each seller has full knowledge, and the ability to use it, of what every buyer is offering...
>
> Both the concept of a commodity class and the concept of a perfect market are essentially abstract and "functional" terms. An approximation to their realization is to be found in the financial world... But outside this circumscribed area the conditions envisaged by the theory of pure competition are not to be found in all their purity.

The above conditions can hardly be found even to an approximate degree. This raises the problem we have discussed in (2.1.2.),

or that of the "givens" (assumptions) of economic analysis. Certainly, the above simplification of variables can generate highly analytic models, but their relevance is limited to small sectors of our own economy (i.e. entrepeneurs).

Bohannan and Dalton (1962) have addressed themselves to this problem, and they speak about the applicability or inapplicability of the "market principle" in reference to the institutions they have empirically examined as being market places. Accordingly, market places are "sites with social, economic, cultural, political, and other referents, where buyers and sellers meet for purposes of exchange". But to what degree do they use market principles? It is a varying aspect, but we may seldom find market principles wholly absent, and we may find market principles being applied in other institutional contexts.

Belshaw (1963:8) carries this taxonomic approach one step further, and suggests that the market principle is not just one principle, but a compendium of principles. Hence we should be asking the characteristics of exchange systems with respect to:

(1) the impersonality of otherwise of the interaction of buyers and sellers (this we will have to translate into more adequate sociological categories);

(2) the systematization of exchange values (that is, prices), so that we may see whether and how they affect one another;

(3) the degree to which buying and selling of specific goods and services are specialized functions;

(4) the range of goods and services for which buying and selling are conventionally valid;

(5) the degree to which exchange transactions enter into the stages of production from raw resources to consumable product or service;

(6) the degree and nature of competition in buying and selling; and

(7) the degree to which buying and selling may be differentiated through the interposition of a medium of exchange (if there is no medium of exchange, barter is an act of both buying and selling on the part of each individual).

All these variables are essential elements of the market principle. Exchange systems and markets, particularly as set forth by Belshaw, constitute a whole field, barely scratched, that may bring forth valuable theoretical implications.

2.3 A Statement on Interdisciplinary Research.

An interdisciplinary approach in the analysis of social phenomena is eventually linked up with the total study of a total society. By total society is basically meant a nation-state, which can be considered as a dominant form of human organization. The boundaries of a nation-state coincide with political and economic institutions that define a national way of life. The culture of these institutions is embedded in politics, education, economic organization, etc., all of which are subject to the authority of the nation-state. Further, power groups (at the national and the international levels) determine policies and the like, within a nation-state.[8]

In the past, most of the interdisciplinary research has been carried out within the context of the total analysis of a total society, while our purposes are not to analyse risk in financial investment within the context of a total society, but risk in financial investment in a specific segment of a society; nevertheless, we shall review interdisciplinary research in total study models of society.

We must, first, point out that a total study of society implies that the study would cut across concrete spatial and organizational segments with the concepts abstracted according to the rules of disciplines such as psychology, sociology, anthropology, economics, and geography.

Hence, a rearticulation of these disciplines would seem necessary, bringing together the pertinent contributions of these various disciplines and stating relationships between the events conceptualized from several perspectives. This could be considered to be the general modus operandi for a total study of a society. During the 19th century Durkheim argued for epiphenomenalism or separate disciplines. In his Sociology and Philosophy,[9] he takes propositions purporting to relate propositions from psychology and physiology, and posits that were one to accept the contention that "the memory is solely a property of the tissues, there is no mental life (and) no real field for psychology". Mental phenomena, being epiphenomenal to the physical world, would simple replicate physical laws. Durkheim suggests that mental processes are produced through the interaction of mental elements. Thus, the existence of a domain of mental phenomena sui generis, and similarly, the existence of a social reality sui generis analytically independent of the psychological substrate.

> On the other hand, it would be inconceivable that psychological and sociological variables would be independent of one another since both are aspects of the same concrete behavioral event. A model of a "total society", while recognizing the distinctness of various theoretical levels, must be concerned with statements which link a term on one level with a term on another...The issue becomes one of identifying transformation concepts which

> link concepts on two or more theoretical levels. These transformation concepts will refer to "mechanism" by which a change in the economy affects personality or a change in religion affects the secular polity. (Klausner, 1967:6).

2.3.1. Attempts to Integrate the Social Sciences.

There have been several methods used to arrive at valid interdisciplinary statements. "One approach has been to focus upon a sufficiently abstract level so that principles of structure and change among events become formal principles which hold irrespective of the substantive content which is so ordered." (Klausner, 1967:6). The efforts of Whitehead (1929) can be classified as following this particular trend. Whitehead (1929:4) attempts to develop a general notion of organism such that "everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme." A society of individuals or a society of body cells may constitute an organism, and nexus is a general concept of connections between events at any level.

The authors of the substantive The International Encyclopedia of Unified Sciences (1955) have attempted another orientation on this issue. For example, Charles Morris in his contribution to the encyclopedia entitled "Theory of Signs," treats science as a form of discourse. Science is considered to be as a set of statements formulated according to the rules of a relatively generic language. Hence, each science constitutes a particular language; and a language may be thought of as consisting of signs, objects, and behavioral events. The behavioral events are responses to signs, and define the meaning of the objects which the signs represent. The study of the relations

among signs, objects, and behavior, is called semiotics. Semiotics is offered as a metatheory of the interrelations among scientific concepts and it is divided into: semantics, or the relation between signs and objects; pragmatics, or the relation between signs and behavioral interpretations; and syntactics, or the relation among the signs themselves.

A third approach has attempted to assemble statements from each of the social sciences in such a way that each discipline studies parallelly but separately its own subject - matter in society, i.e. several books have appeared on nation-states, based primarily on data from the Human Relations Area Files, showing pertinent material on the economy, religion, family, agriculture, etc. In this trend, Murdock's (1949) work is a propos, and has taken the additional step of setting forth interdisciplinary propositions using data from the Human Relations Area Files.

> He (Murdock) correlates...family and economic patterns through ratings on both dimensions for a series of societies. These propositions do not present an integrated interdisciplinary model of a single total society. Rather, they are nomothetic statements which express the general correlation of, say, familial and economic factors in a number of societies. (Klausner, 1967:8).

Further, points out Klausner (1967:8), on this approach:

> Attempts to understand a total society by co-ordinating the contributions of a series of disciplines have been dwarfed by the emergence of new interdisciplinary, usually bi-disciplinary, sciences. Physical chemistry, biochemistry, and biophysics in the natural sciences are paralleled by social psychology, political economy, and culture and personality in the behavioral sciences.

Lastly, Parson's general theory of action exemplifies the fourth approach. Parson's (1951 a.; 1951 b.) theory of action is a substantive one. All social sciences begin with the provision of concrete acts of human behavior. Each particular discipline has a peculiar perspective on these acts, and an abstraction from them with reference to its own orientation.

> Action itself becomes a perspectival or abstract concept and a system of action is the set of abstractions from some particular perspective. The interconnections of the actions of an individual constitute the personality system. The social system abstracts from the process of interaction between two or more actors; the interaction process as such is the focus of the social perspective. A cultural system is constituted by the organization of the values, norms, and symbols which guide the choices made by the actors. (Klausner, 1967:9).

Traditionally, disciplinary specialists concern themselves with one or another of these systems, i.e. psychologists study personality, sociologists the social system, and anthropologists the cultural system.

From the Parsonian standpoint, a total study model of a society focuses primarily on the social system and its subsystems. Parsons and Smelser (1956) write:

> A society is a theoretically limiting case of the social system which, in its subsystems, comprises all of its important roles of the persons and collectivities composing its population.

Accordingly, the subsystems of the social system are differentiated according to their contributions to the workings of the broader system. As already pointed out (see 2.1.3.), Parsons distinguishes four such functions, which we will repeat here for clarity:

(1) The adaptive system involves processes which deal with the broader system's subjection to stressful inputs...(i.e.) means for coping with the environment which enable the system to attain its goals...(i.e.) the economy.

(2) Activities which contribute to the broader system's goal attainment...(i.e.) the organization of power...(that) orders the relation between a system and its environment...(i.e.) a polity.

(3) The integrative subsystem involves the patterning of relationships among actors within the broader system and the articulation of cultural value patterns with motivations of individual actors...(i.e.) religious institutions, stratification systems...

(The above three functions) involve processes of interaction among members of the society, or between them and members of other societies.

(4) A fourth system serves as a dual resource for all three of these interactive systems.

(a) Pattern maintenance, the maintaining of general cultural patterns from which the other systems draw specific norms and values...(i.e.) family, educational institutions...

(b) Tension management...the maintenance of motivation to act of actors in the interactive systems. This includes management of stress which might affect the allocation of individual and social energies. (Klausner, 1967:10-11).

The above social subsystems correspond - more or less - to academic specialties in current universities, i.e. economists concentrate on allocation of resources and its alternative uses, political scientists concentrate on power distribution and the like. There are some students and psychotherapeutic institutions concerned with tension management in family setting, education, etc.

2.3.2. We would like now to turn our attention to Klausner's (1967:12-13) suggestion on the conditions for a "good" bi-disciplinary statement, that is a statement which relates concepts from two disciplines at the time.

> A good bi-disciplinary statement satisfies two conditions.
>
> (2.3.2.1.) The first of these guarantees that it is bi-disciplinary. Each of its two principal variables belongs to a different system or subsystem: one referring to personality and the other to the social system...
>
> (2.3.2.2.) The second conditions is that the variables in the two systems be mediated by the third variable, the role of which is to transform a concept at one system level or referring to one type of system function to a concept to another system level or referring to another type of system function. Lacking this mediating or transforming variable or concept, the relation between the two systems would either be "unexplained", a mere co-occurrence, or the systems would be isomorphic.

In addition, a bi-disciplinary statement must take account of the fact that each of its main variables is defined by its position in a network of variables or its own system level. And the principal function of the transforming concept is to refer to a process which takes into consideration the different principles of conceptual organization on the two levels or the different functional orientations of the two subsystems. As an example of a bi-disciplinary statement, Klausner cites Erikson's (1958) Young Man Luther, where:

> pattern maintenance or tension management processes may constitute the mediating mechanism between personality and society. If this noninteractive subsystem is appealed to alone, the transformation remains socially indeterminate. However, the pattern maintenance - tension management subsystem has overlapping boundaries with - that is, serves as a cultural or motivational resource for - each of the

> three interactive systems. Consequently, it may operate through their interactive structures as a locus of personality-society transformation. (Klausner, 1967:17).

Erikson suggests that a personality variable can be ramified into a political variable by virtue of a resonant response on the part of others. The incident of Luther's falling dumb is interpreted by Erikson as a reflection of Luther's need to say something worthwhile in his native tongue. Luther's translation of the New Testament into German was partly due to this language need and a general verbal renaissance of the time; hence, by virtue of being read, he enjoyed audience response and contributed to the cultivation of the vernacular (an aspect of the development of nationalism). Thus, an individual personality variable (the need to communicate in vernacular) is linked up with the development of nationalism (a change in the national way of life). The mediating process is the dialogue between an author and an audience - an educative process (pattern maintenance system). The boundary structures are religious and political institutions.

> There are two steps in the transformation. In the interactive context of the religious institution, a matching of Luther's motive with the motives of many others ramifies or amplifies the motive into a social factor. Then the social-religious variable is transformed into a social-political variable across the pattern maintenance boundary constituted by the common language, an aspect of nationalism. (Klausner, 1967:18).

2.4 "Closed Systems and Open Minds".[10]

Notwithstanding the above developments (2.3;2.3.1.;2.3.2.), there still seems to remain the issue as to what really constitutes the domain of social anthropology and sociology vis a vis

other disciplines whose subject matter "overlaps" in some particular instances with the subject matter of social anthropology and sociology. Or putting it in another way: given a situation, faced by several social anthropologists and sociologists, i.e. Bailey (1964), in which the problem at hand for its analysis requires techniques somewhat different from an orthodox problem, the question becomes: what must be the "modus operandi"? Shall we just label the "unexplained" aspects as "given"?

Devons and Gluckman (1964:158-261) have made a substantial contribution in the analysis of the above problem. They begin describing the field of study of sociology and social anthropology in accordance with the view of A. R. Radcliffe-Brown. Reality - as Whitehead put it - is a "passage of events" in space-time. These events can be observed and have a varying duration. While some events (i.e. the earth and the sun) are "long events", others are "short events", perhaps even "transient events" like a spoken sentence. All these events can be observed, and we do not need to enter into the centuries-long epistemological problem of how these events are observed.

> Any event which influences how men live together may thus be part of the field which an anthropologist studies - the heavenly bodies and their movements, or rain and soil, as well as books and words and men's feelings. (pp. 159)

With this view, many of the difficulties that some social scientists are concerned with can be avoided, such as the idea that each discipline must have its own field of facts, and conceive these facts - in a Durkheimian fashion - as "things". Durkheim's attempt to delineate an "exclusive domain" for sociology in his The Rules of Sociological Method (1938) led to

many problems. For example, he had to concede that drinking, sleeping, reasoning, communications, also habitat and topography, were to be excluded from the domain of "social facts" and hence of sociology. But Durkheim pointed out that society is concerned that the above functions be exercised in an orderly manner. In accepting the Radcliffe-Brown view, we avoid these difficulties.

Furthermore, regularities of events in social life and individual behavior can be observed, and we can assume that these regularities of events depend upon one another in a systematic way. Different disciplines may study the same regularities of events, but they look for different kinds of interdependencies between the regularities, or different kinds of relations.

> The different (social sciences) are in the main distinguished not by the events they study but by the kinds of relations between the events which they seek to establish. Events themselves are neutral to the different disciplines. (pp. 160)

Accordingly, every situation can be viewed from different standpoints. For example, the behavior of workers in a factory has its economic, political, and psychological aspects. In a general sense all these aspects are part of the complex reality of life, and this is not separable into economic, political, etc. aspects. But if we want to analyse society, we

> ...must split up reality by isolating a particular aspect which presents certain regularities as is <u>relatively</u> autonomous and independent of the other aspects...If the aspects which one thinks are relatively independent, are in fact closely interrelated, then confining one's study to a particular aspect leads nowhere in terms of understanding reality. (pp. 161)

The issues appear now clearer. We are essentially facing two sets of questions. How does one decide where to demarcate a field of data out of a total flow? Secondly, how can an anthropologist decide whether or not to take notice of the work of other social scientists who are studying the same set of events by other techniques and modes of analysis? And finally a question closely related with the latter one, what limitations did these decisions impose on the anthropologist's ability to explain the nature of reality?

Considering the above sets of questions, Devons and Gluckman (1964:162-167) have suggested five procedures by which fields of study may be demarcated. These procedures are the following:

2.4.1. The anthropologist delimits his field in space and time. He circumscribes or cuts off a manageable field of reality from the total flow of events, by putting boundaries around it in terms of what is relevant to his problems, and how and where he can apply his techniques of observation and analysis.

2.4.2. The anthropologist may take as "given" facts some events which exert marked influence in his field. The anthropologist incorporates these facts into his field.

2.4.3. Frequently an anthropologist has to base his analysis on more complex combination of relations between facts, which are appropriately studied by other disciplines. Statements about a complex of facts falling outside the anthropologist's competence cannot be taken for granted or incorporated.

2.4.4. Conclusions by other scientists have to be summarized and often simplified. This procedure is termed abridgement. If

an anthropologist abridges research carried out by appropriate specialists, it is a validated abridgement. But where he has to make a judgment on some complex of relations in the absence of research by appropriate specialists, it is a postulated abridgement. He must "validate" his summary as well as he can and not build more of his analysis on it than it can justifiably carry.

2.4.5. Abridgement moves a step further when the anthropologist takes over not only complex combinations of fact, appropriate to the investigations of other disciplines but also their postulates and hypothesis. This procedure is called compression.

2.4.6. The anthropologist may also make naive assumptions about the complexes of events which lie at the boundaries of his circumscribed field or about aspects of these events that are studied by other disciplines.

2.4.7. The social scientist follows a quite different procedure within his circumscribed field. He has to simplify facts and variables, a procedure called simplification. Generally, the anthropologist simplifies relatively little, since he is concerned with complexities within narrowly circumscribed fields. In contrast, economists simplify to a relatively high degree, since they deal with fewer and more aggregated variables in wider fields.

CHAPTER 3

THE THEORY OF DECISION MAKING I

Our aim in this chapter is to present an exposition of decision making theory, derived from a competent decision making theorist. Unfortunately such a work is not available, nor can we attempt to make a "postulated abridgement" (2.4.4.) on this theory for that would constitute a book in itself due to the diffuseness of the theory. We will restrict ourselves to presenting an outline of the most salient points of decision theory in reference to our purposes. In this pursuit we shall follow the work of the psychologist Edwards (1954c), who is perhaps the only social scientist who has attempted to codify the diffuse domain of decision making theory, albeit this theory has been the main concern of economists since the days of Bentham (1748-1832).

3.1. The definitions offered thus far about decision theory have been ostensive definitions, such as saying: I cannot define an elephant but I know one when I see one. Rather than definitions, examples have been offered to illustrate what is meant by decision making. Thus, Edwards (1954c:380) offers the following as an instance of decision making:

> Given two states, A and B, into either one of which an individual may put himself, the individual chooses A in preference to B (or vice versa).

Borch (1968:3-4), in addition, offers the following examples:

(i) Let us assume that all metereological forecasts agree that it will be a dry summer. This should mean that "sensible" farmers will plant potatoes on all their land. If they do so,

the price of potatoes will fall dramatically, and the aberrant farmer who planted wheat will profit from a general shortage of wheat. This farmer may have been unrealistic or have outguessed the world by thinking of prices which are influenced by the decisions made by other farmers.

(ii) Let us assume that we have some money to invest in the stock market. After studying the prospects of various companies and the prices of their stock,we then select one particular stock as the "best buy" in the market. To reach this decision we have made use of advanced mathematics. But if we buy the stock in question, there is necessarily a seller who thinks that at the present time and at the present price it is right to sell the stock which we consider the best buy. If the seller has used the same procedures to reach his decision as we have, it may be useful for us to think twice.

These examples suggest that there are two types of decision problems which are fundamentally different.

> If our decision problem is what we can call a <u>game against nature</u>, we may have to take the problem as given. (Or) try to find out more about the laws of nature in order to reduce the uncertainty and make our decision easier...(i.e. the meteorological forecast). If, on the other hand, we have to make a decision in a <u>social context</u>, the problem may not be "given" in the same sense. The <u>data</u> of the problem may be determined by the decisions made by other persons who are in a situation similar to our own... (Borch, 1968:4)

Consequently "the economic theory of decision making is a theory about how to predict such decisions", (Edwards, 1954c:380). Decision theory has been broadly differentiated into riskless and risky choices; the latter is further divided into decisions of risk and uncertainty. The theoretical literature developed

by economists and mathematicians in these types of choices is overwhelmingly abundant. Consequently, no complete review of this literature is available, except for a few sporadic attempts. Kauder (1953a; 1953b) reviewed the early history of utility; Stigler (1950) and Viner (1925) reviewed the literature up to those dates, and Edwards (1954c) offers an extensive bibliography on the theory of choice since 1930. Economic theorists have been concerned with decision theory in relation to the problem of consumer's choice, or as we would call it, the theory of consumer's decision making.

3.2. The Theory of Riskless Choice

The procedure of those theorists concerned with this theory has been essentially an armchair method. They make assumptions from which they derive theorems that can presumably be tested, though it often appears that this testing will never occur. Edwards (1954c:381) pointedly remarks:

> The most important set of assumptions made in this theory of riskless choice may be summarized by saying that it is assumed that the person who makes any decision to which the theory is applied is an economic man.

What are the characteristics of this homo oeconomicus, to whom we have made brief reference elsewhere (2.1.2.)? According to Edwards (1954c:381), he has three characteristics: (a) he is completely informed, and assumed to know not only all the courses of action open to him, but also what the outcomes of any action will be; (b) he is infinitely sensitive and his available alternatives are continuous, infinitely divisible functions; (c) he is rational. This is a crucial characteristic, comprised of two elements: (1) he can organize into weak order the states

into which he can get. (In other words, he must state preference or indifference, given any two states, and all his preferences must be transitive.) Also, (2) he must make his choices as to maximize something; thus in the theory of riskless choice he is assumed to maximize utility, and in the theory of risky choice he is assumed to maximize expected utility.

It must be pointed out that characteristics (a) and (b) of homo oeconomicus can be relaxed somewhat with no serious change in the theory of risky choice or game theory.

This notion of maximization is mathematically useful, since this may allow a theory to specify a unique point or a unique subset of points among those available to the decider. Edwards (1954c:382) finds this notion unobjectionable with psychology. We also find that this notion does not contradict social anthropological analysis. For example, Firth has organized his discussion (i.e. Firth 1929; 1939; 1946) around orthodox economic notions such as rational calculation which clearly implies utility maximization. In addition, Belshaw (see 1.2.) has suggested that the economist's notion of utility be carried over into anthropological and sociological analysis. In general, studies of Firm Theory in microeconomics (i.e. Ferguson, 1969); principles in mental functioning (i.e. Freud, 1925); and political systems in society (i.e. Leach, 1954) "focus on something that seems real (yet incomplete). People do not always try to maximize money, or basic biological satisfactions, or power, though all of these certainly do enter into our decisions, and, in a general way, the more we have, the happier we expect to be." (Burling, in Le Clair and Schneider, 1968:181). The above

references support our contention that the concept of maximization *per se* appears to be relatively unobjectionable to the behavioral sciences. However, we should heed Edwards' (1954:382) warning:

> Assumptions about maximization only become specific, and therefore possibly wrong, when they specify what is being maximized.

It is easy, for any kind of behavioral scientist, to point out that the characteristics of *homo oeconomicus* are those of an ideal behavior rather than an operational one; and on these grounds theories derived from these assumptions have been usually rejected. Edwards (1954c:382) contends that the behavioral scientist's rejection of this method has been too hasty without considering the heuristic merit of it. If the theorems fit the data, then the theory has at least a heuristic value. However, we feel that Edwards' criticism of the behavioral scientist's hastiness does not apply to some of the research done in Economic Anthropology; for as we have shown earlier (2.1.2.) some of the economist's notions have been applied in field work by anthropologists, i.e. capital, saving, income, etc. Perhaps one of the best examples is Firth and Yamey's (1964) collection of papers on capital, credit, and savings in peasant societies.

Having stated the basic assumptions of the theory of riskless choice and having discussed the basic notion of maximization, which we found relatively unobjectionable to the behavioral sciences, we next turn to an explanation of how the assumption of utility maximization has been embodied in economic analysis. The literature on this subject is particularly extensive and

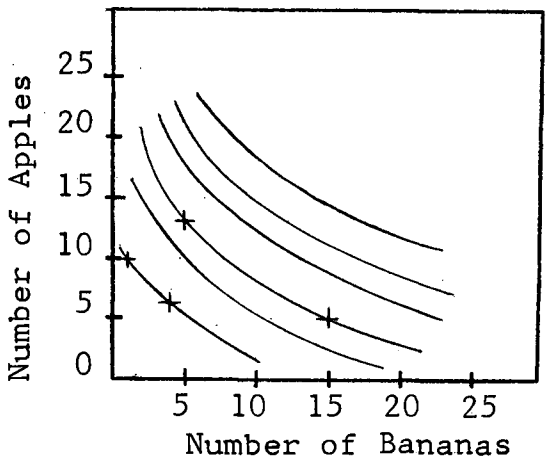
mathematical in presentation. We only wish to point out the most salient points.

Most of the classical economists (i.e. Jevons, Walras, Menger, and Marshall) made use of utility theory to establish the nature of the demand for various goods.

> On the assumption that the utility of any good is a monotonically increasing negatively accelerated function of the amount of that good, it is easy to show that the amounts of most goods which a consumer will buy are decreasing functions of price, functions which are precisely specified over the shapes of the utility curves are known. (Edwards, 1954c:383).

This effect is what the economists needed and is clearly a testable theorem. But complexities arise in the utility theory once we consider the relations between the utilities of different goods. Most of the classical economists had assumed that the utilities of different commodities can be combined into a total utility by simple addition. The economist Edgeworth, who was concerned with non-independent utilities (i.e. right and left shoe), pointed out that the total utility was not necessarily an additional function of the utilities attributable to separate commodities. In the process, he introduced the notion of indifference curves, and thus began the gradual destruction of the classical utility theory.

> An indifference curve is...a constant utility curve. Suppose that we consider apples and bananas, and suppose that you get the same amount of utility from 10-apples-and-1-banana as you do from 6-apples-and-4-bananas. Then these are two points on an indifference curve, and of course there are an infinite number of the other points on the same curve. It may also be true that you are indifferent between 13-apples-and-5-bananas, and 5-apples-and-15-bananas. These are two points on another higher indifference curve. A whole family of such curves is callen an indifference map. (Figure below represents such a map.) (Edwards, 1954c:384)



In general, this indifference curve approach in its various forms has firmly established itself as the structure of the theory of riskless choice. Its predictions have been worked out in detail, i.e. Johnson (1913); Slutsky (1915); Hicks and Allen (1934); Lange (1933); to mention only a few. Any attempt to summarize the above works is clearly a wishful one, not only because of the voluminous quantity of literature but also because of the large domain of this topic. To our knowledge not even economists have attempted it.

3.3. The Theory of Risky Choices.

Economists and statisticians have differentiated this field into risk and uncertainty; however, there does not seem to exist any agreement as to which concept should be associated with what term. We shall take Knight's (1946:233-264) definitions. He has argued that in a decision making situation we face risky or uncertain conditions. In one case, the situation may be amenable to measurement; this is termed as "risk". But in another case the situation may not be amenable to measurement and this is termed "uncertainty". Thus under "risk" situations, proposi-

tions about future events may be based on accepted probabilities, i.e. if I toss a coin, the probability that I will get a head is (.5). But what is the probability that after finishing this paper I shall drink a glass of beer? It is neither impossible nor certain, but it is impossible to find out what the probability might be, or even to set up generally accepted rules about how to find out. Such conditions are considered as cases of "uncertainty", rather than of "risk".

However, in the literature of risky choices, one does not find such a systematic differentiation of risk and uncertainty. It seems that if any study has something to do with game theory, then the study is considered as belonging to the field of "uncertainty"; and the other papers that deal with risky choices but not directly with game theory are related to "risk" conditions. We shall present some of the most important notions related to risky choice.

The traditional mathematical notion for dealing with games of chance is the idea that choices must be made so as to maximize expected value. Thus,

where: p = probability; $\$$ = value of an outcome;

and $p_1 + p_2 + \ldots + p_n = 1$.

then: $E\ V = p_1\$_1 + p_2\$_2 + \ldots = p_n\$_n$

Nonetheless, people do not behave the way this mathematical notion says they should. People are willing to buy insurance despite the fact that the person who sells the insurance makes profit. Consideration of this problem led Daniel Bernoulli to propose that it could be resolved by assuming that people act so

as to maximize expected utility.

3.3.1. Daniel Bernoulli (1700-1782), cousin of the celebrated Nicolas Bernoulli (1695-1726) Professor utriusque iuris of the University of Basle, while a member of the St. Petersburg Imperial Academy of Sciences wrote his famous paper (published post-humously in 1783) entitled "Specimen Theoriae Novae de Mensura Sortis". Exposing a new theory for the measurement of risk, Bernoulli (1783:23) begins by discarding the following generally agreed proposition:

> Expected values are computed by multiplying each possible gain by the number of ways in which it can occur, and then dividing the sum of these products by the total number of possible cases where, in this theory, the considerations of cases which are all of the same probability is insisted upon.

If this proposition is accepted - adds Bernoulli - what remains to be done is the enumeration of all the alternatives, their breakdown into equiprobable cases and, finally, their insertion into corresponding classifications. Furthermore, the examination of this proposition indicates that it rests upon the following assumption:

> Since there is no reason to assume that of two persons encountering identical risks, either should expect to have his desires more closely fulfilled, the risks anticipated by each must be deemed equal in value. (Bernoulli, 1783:24).

Accordingly, no personal characteristics should be considered, but only those aspects concerning risk. To clarify this matter, the following example is offered by Bernoulli: A very poor man somehow obtains a lottery ticket that will yield with equal probability either nothing or $20,000. Will this man evaluate his chance of winning at $10,000? Would he not be ill-advised to sell this lottery ticket for $9,000? For Bernoulli

the answer is in the negative. On the other hand, Bernoulli is inclined to believe that a rich man would be ill-advised to refuse to buy the lottery ticket for $9,000. Thus, Bernoulli concludes saying that "all men cannot use the same rule to evaluate the gamble", and the above proposition must be discarded. Hence:

> The concept of value (as it has been used above) must be defined in a way which renders the entire procedure universally acceptable without reservation. To do this the determination of the value of an item must not be based on its price, but rather on the utility it yields. The price of the item is dependent only on the thing itself and is equal for everyone; the utility, however, is dependent on the particular circumstances of the person making the estimate. (Bernoulli, 1783:24).

The above concept of utility - points out Bernoulli - if carried out further would only lead to a paraphrase of the same principle. Nevertheless, this hypothesis requires some elucidation, and the following fundamental rule is suggested:

> If the utility of each possible profit expectation is multiplied by the number of ways in which it can occur, and we then divide the sum of these products by the total number of possible cases, a mean utility (moral expectation) will be obtained, and the profit which corresponds to this utility will equal the value of the risk in question. (Bernoulli, 1783:24).

Thus, it is evident that a measurement of the value of risk must give consideration to its utility; however, it seems specious to make a generalization on utility, since the utility of an item may change with circumstances. For example - argues Bernoulli - though a poor man generally obtains more utility than does a rich man from an equal gain, it is nevertheless conceivable that a rich prisoner who possesses $2,000 but needs another $2,000 to repurchase his freedom will place a higher value on a gain of $2,000 than does another man who has less

money than he. Our Swiss scholar rightly asserts that although exceptional cases are abundant, it would be better to consider what usually happens. Therefore, to correctly perceive the problem it shall be assumed that there is an imperceptibly small growth in the individual's wealth which proceeds continuously by infinitesimal increments.

> Now it is highly probable that any increase in wealth no matter how insignificant, will always result in an increase of utility which is inversely proportionate to the quantity of goods already possessed...quantity of goods connotes food, clothing, all things which add to the conveniences of life, and even to luxury - anything that can contribute to the adequate satisfaction of any sort of want...For the great majority the most valuable portion of their possessions so defined will consist in their productive capacity, this term being taken to include even the beggar's talent...(In a more succinct manner the above may be put as follows) in the absence of the unusual, the utility resulting from any small increase in wealth will be inversely proportionate to the quantity of goods previously possessed. (Bernoulli, 1783:25).

Before proceeding with our exposition of the theory of risky choices, it is worthwhile to stop and determine the place of the Bernoulli hypothesis in sociology and anthropology. In the past, sociologists and anthropologists have used the notion of utility in riskless choices. For example, Belshaw (1965) contends that wealth is useful and exchangeable. An actor perceives that certain goods and services are valuable to him, which leads us to the concept of utility in its purely subjective sense. However, it seems clear to us that Belshaw is referring to riskless utility. Likewise, in the literature of Economic Anthropology whenever the notion of utility has been used, it has been the notion of riskless choice. For example Ortiz (1967:194) writes:

> It is in this wider sense, where social and so-called economic returns are interlinked with each other, that I am using the concept of utility. Preference may be to increase productive assets or to increase social assets.

The Bernoulli hypothesis, that assumes expected utility in the analysis of risky choices, has not been given proper attention by sociologists and anthropologists. In the analysis of our empirical data we shall proceed in terms of the Bernoulli hypothesis.

We must point out that economists, i.e. Friedman (1962: 68-73) have made a full use of the utility analysis of uncertainty, particularly as it relates to price theory. The mathematicians Herstein and Milnor (1953) have discussed the mathematical assumptions of the Bernoulli principle of utility, whereby we know that Bernoulli's principle is mathematically consistent.

3.3.2. According to Edwards (1954c:392) the modern period in the study of risk begins with the publication of von Neumann and Morgenstern's (1944) Theory of Games and Economic Behavior.

> Von Neumann and Morgenstern pointed out that the usual assumption that economic man can always say whether he prefers one state to another or is indifferent between them needs only to be slightly modified in order to imply cardinal utility. The modification consists of adding that economic man can also completely order probability combinations of states.

A variety of implications is embodied in this apparently simple notion. In the attempt to examine and exhibit clearly what these implications are, a number of axiom systems differing from von Neumann and Morgenstern but leading to the same result have been developed, i.e. Friedman and Savage (1948, 1952); Herstein and Milnor (1953); Marschak (1950, 1951); etc.

A discussion of these complex alternative axiom systems is beyond the scope of our exposition. One recent discussion of these by Georgescu-Roegen (1953) has concluded on reasonable grounds, that the original von Neumann and Morgenstern set of axioms is still the best.

According to Edwards (1954c:392), if these notions are correct, the following implications can be drawn from the empirical standpoint:

> First, it means that risky propositions can be ordered in desirability, just as riskless ones can. Second, it means that the concept of expected utility is behaviorally meaningful. Finally, it means that choices among risky alternatives are made in such a way that they maximize expected utility.

Clearly Edwards' conclusions support our earlier intention of analysing the utility (expected utility) of risk taking (see 1.2.) However, it is significant to point out that Edwards (1953a; 1953b; 1954) in a series of experiments has shown that subjects when they bet prefer some probabilities to others and show preferences or dislikes for risk taking. These preferences cannot be accounted for by utility considerations. However, Edwards' experiments did not measure probability preferences but only showed that these preferences exist. But even the existence of this probability preference means that the simple von Neumann-Morgenstern method of utility measurement cannot succeed. In considering this problem, Edwards suggests that it may be possible to design experiments that measure utility and probability preferences. His approach is difficult due to the problem of measuring subjective probabilities and variance preferences, the discussion of which is beyond our scope.

Finally, we would like to give only an outline of game theory, for this is a mathematical subject of a highly technical sort. The theory of games presents an elaborate mathematical analysis of the problem of choosing from among alternative strategies in games of strategy. It does not offer a mathematical model for predicting the outcomes of such games, except in a few special cases. All it offers is useful concepts and language for talking about games, and a method to predict whether certain alternatives will not occur. Edwards (1954c:407-408) offers the following as being the main concepts of a game theory.

> Strategy is a set of personal rules for playing the game. For each possible first move on your part, your opponent will base a possible set of responses (and so on). A strategy is a list which specifies what your move will be for every conceivable previous set of moves of the particular game you are playing...
>
> Imputations, an imputation is a set of payments made as a result of a game, one to each player. In general, different imputations will be associated with different set of strategies, but for any given set of strategies there may be more than one imputation...Imputation X is said to dominate imputation Y if one or more of the players has separately greater gains (or smaller losses) in X than in Y, and can, by acting together...enforce the occurrence of X, or of some other imputation at least as good.
>
> A solution is a set of imputations, none of which dominates another, such that every imputation outside the solution is dominated by at least one imputation within the solution.

The task of game theory is to find solutions - as asserted by von Neumann and Morgenstern. For any game there may be one or more solutions.

> One bad feature of the theory of games is that it frequently gives a large, or even infinite, number of solutions for a game. (Edwards, 1954c:407).

> The minimax loss principle. The notions of domination and solution imply a new fundamental rule for decision making...This rule is...minimizing the maximum loss... (It) considers for each possible strategy that you could adopt, what the worst possible outcome is, and then to select that strategy which would have the best ill-effects if the worst possible outcome happened. Another way of putting the same idea is to call it the principle of maximizing the minimum gain, or maximum gain.

If this rule is expressed geometrically, it asserts that the point you should seek is a saddle-point, similar to the highest point in a mountain pass that minimizes the maximum height. Games may be among any number of players, but the simplest game is a two-person game. Two kinds of payoff arrangements are possible.

> (Zero-sum game), where one player wins what the other player loses.
>
> In non-zero sum games, analytical complexities arise. These can be diminished by assuming the existence of a fictitious extra player, who wins or loses enough to bring the sum of payments back to zero.

Games involving more than two persons introduce the possibility that two or more players will cooperate to beat the rest, which is termed coalition and frequently involves side-payments among the members of the coalition. Edwards (1954c:408) sums up game theory thus:

> The theory of games is not a model how people actually play games..., nor is it likely to be of any practical use in telling you how to play a complicated game; the crux of the theory of games is the principle of choosing the strategy which minimizes the maximum expected financial loss; and the theory defines a solution of a game on a set of imputations which satisfies this principle for all players.

3.4. Buchler and Nutini (1969) have suggested the following possible applications of game theory to social theory. The reader will note that their interpretation of game theory varies from that of Edwards, i.e. note the differences in the concept of "strategy". Buchler and Nutini (1969:6) state that:

> Game theory makes a distinction between the rules that structure the game and the individual options of the actors playing the game, or, as game theorists formally put it: ground rules and strategy rules...anthropologists and sociologists are aware of the distinction when they speak of cultural norms or jural rules, on the one hand, and statistical deviations from these norms or rules, on the other...To put it differently, ground rules may be termed mechanical (deterministic) models or ideal paradigms of what people <u>should</u> do, while strategy rules are statistical (stochastic) models of what people <u>actually</u> do. At the heuristic level, we would like to point out in this connection that much of the work done by anthropologists and sociologists suffers seriously because of the overwhelming concern of the former with ideological behavior and the latter with actual behavior. Until social scientists become fully aware of the complementarity of deterministic and stochastic models, they shall continue to present lopsided descriptions and explanations of social phenomena.

However, the question arises as to whether game theory may be helpful in combining sociological and psychological aspects of human affairs. To this question Buchler and Nutini (1969:7) reply:

> First, it seems to us obvious that the ground-rules level - or ideological level - is primarily sociological, that is, it has to do with consensual action; while the strategy-rule level - or stochastic level - is to a considerable extent psychological, that is, it has to do with private and group options and is the level at which decision-making takes place. Secondly, since it is assumed that these two levels cannot be separated, the thresholds where sociology and psychology became causally efficient must be regarded as strategic areas of conceptualization. These thresholds, we strongly believe, can only be adequately formulated in terms of mathematics, by which the proper components are brought to the fore.

In addition, Buchler and Nutini (1969:23-253) offer an elementary exposition of the new approaches in contemporary mathematics (i.e. linear programming, graph theory, information theory, flows in networks, etc.) that may be applied in the analysis of social phenomena. In the last analysis, the Buchler and Nutini (1969) reader has as a goal the launching of the development of a new field that may be called "mathematical anthropology".

Lastly, in reference to the theory of games, Barth (1966: 33)[11] has remarked the following:

> (this) type of model seems to me to give the greatest scope for empirical investigation of the nature and degree of order, through attention to relative frequencies of behavior, the determinants of this order and the social processes whereby they act... (It) already seems clear that they enable us to analyse natural or ecological constraints in a common framework with social constraints and thus encompass a large variety of determinants in a single, analytically coherent model, and also provide a possibility for understanding not only the degree of disorder, but also change by means of simple cumulative feedback mechanism in such models...

In conclusion, it is evident that game theory may contribute significantly to the theoretical development of sociology and anthropology.

CHAPTER 4

THE DECISION MAKING THEORY II

In this section we want to discuss some aspects of the theory of risky choice that, in our view, economists and statisticians have not properly considered. We will be considering the aspect of unmeasurable uncertainty. As pointed out before, Knight (see 3.3.) has defined unmeasurable uncertainty as those events where the distributions of outcomes cannot be known either by a priori calculation or by statistical inference. Knight cites the formation of opinions concerning some future state of affairs as an instance of unmeasurable uncertainty. We postulate that, according to this definition, unmeasurable uncertainty has behavioral content; due to the unconscious formation of opinions by some sociological processes. For example, it is quite conceivable that certain risk attitudes can be acquired through social interaction.

4.1. Psychologists have developed models of unmeasurable uncertainty that we consider worth examination for our purposes. They labelled unmeasurable uncertainty as "risk-taking" behavior - a term which we will hence forth adopt. Kogan and Wallach (1967:116) have stated that if a general model has been developed that predicts human decision-making with a high degree of precision, and yet ignores individual differences in alleged risk-taking dispositions and differences in the context or circumstances under which decisions are made, then risk-taking concepts must be ignored.

Kogan and Wallach (1967:116-118) have examined various de-

cision making models proposed by economists in regard to both their predictive adequacy and comprehensiveness. We have already presented these models in dealing with the theory of risky choices, i.e. expected value and expected utility, but we consider it worthwhile to reproduce the psychological interpretation of these models.

(i) Expected value (EV) is the oldest and simplest model. In this model, the probabilities and the monetary amounts are taken at their objective face value. However, if all decisions could be cast into an expected-value model, and if subjects uniformly maximized expected value in their choice behavior, then the analysis of decision making could end right at this point.

> Regretably, neither of the foregoing conditions holds, and this has complicated the work of those who seek a general model for gambling behavior... Empirical evidence accumulated by Edwards (1953; 1954a; 1954b; 1954c) and others...has been quite damaging to the expected value position. Subjects do not choose the bet with the higher expected value. This will hardly come as a surprise to gambling casinos and insurance companies, both of which have long operated on the principle that their clientele do not maximize expected value... (pp. 116-117)

(ii) Subjectively expected money (SEM). In this model, the objective probabilities of the EV model are replaced with subjective probabilities.[12] It can incorporate the distinct probability preferences that subjects display in a gambling context.

> Application of the present model to gambling preferences in the laboratory (see Edwards, 1955; Suppes and Walsh, 1959) yields a somewhat better fit to data than does the simple EV model, but as Pruitt (1962) has pointed out, the SEM model is grossly inaccurate in predicting choices in a variety of gambling situations. (p. 117)

(iii) Expected utility (EU). In relation to the EV model, the EU position replaces monetary values with utilities. Accordingly, superior prediction of betting decisions would be possible if dollar values were replaced with subjective values. However, the measurement of EU is complicated due to the possibility that a subject's decision may reflect subjective distortions of objective probabilities or discrepancies between money value and utility.

> Though there is some evidence (Mosteller and Nogee, 1951) that an EU model is somewhat better than the simple EV model in the predictions of gambling decisions, it is Pruitt's (1962) view that the measurement of ambiguities inherent in the EU model are presently so strong that one cannot draw any meaningful conclusions from it. (p. 117)

(iv) Subjectively expected utility (SEU). Here both probabilities and values assume the subjective form. As in the case of the EU model, the SEU model poses complicated problems of measurement. For example, Edwards (1962a), an original proposer of this model, deals with the fundamental problem of measurement almost by fiat.

Finally, in regard to the precision and comprehensiveness of the above models, Kogan and Wallach (1967:118) comment:

> All the models discussed have yielded a moderate level of success in predicting choices between bets - approximately 55 to 70 per cent (against a 50 per cent chance baseline). The models, in short, do somewhat better than a random generator, but the degree of precision attained hardly begins to fulfill the requirement of a "completely" deterministic account" of human gambling decisions. Perhaps, after all, there is room for a risk-taking construct in the decision-making domain.

The above contentions support our postulate that there exists a behaviorally oriented decisions theory based upon risk-taking dispositions. It is now in order to review the available

literature on risk taking, and it seems appropriate to distinguish the "kind" of risk taking theory relevant to our purposes.

4.2. It stands to reason to assume that there are variations in risk-taking behavior among individuals. Kogan and Wallach (1967:120) report to us that Pruitt has developed a sophisticated model taking into account the pattern and level of risk (PLR). This model proposes that in gambling situations one can distinguish patterns and levels of risk, and that these are salient components from the point of view of the gambler. Pattern of risk refers to the probabilities of the outcomes and the payoff ratios (the amount that can be won relative to the amount invested). The level of risk is a function of the size of the gambler's stake, weighted by the probability of its loss. Pattern and level are presumed independent of each other. In addition, included in the model are concepts such as "ideal level of risk" (the most preferred level by an individual in a given pattern), and "maximum acceptable level of risk" (the highest level voluntarily accepted for any given pattern). Several propositions are offered by Pruitt, and his empirical data fits the model exceedingly well. Although Pruitt's model showed significant improvement in predicting gambling behavior as compared to the SEU model, particularly by incorporating risk-taking parameters, Pruitt's model has been considered inadequate. Kogan and Wallach (1967:121) criticize the Pruitt model in these words:

> The data that Pruitt employed to test his model came from a study by Coombs and Pruitt (1960) in which subjects were run in a large group and were informed that all choices were imaginary (in the

> sense that no opportunity would be provided to play the bets for the amounts of money listed)...As Slovic, Lichtenstein, and Edwards (1965) noted, the experimental setting characteristic of the Coombs-Pruitt work very likely induced feelings of boredom and monotony in subjects. Under such conditions, individuals might well utilize more simple and consistent strategies than would be the case if greater realism prevailed.

Hence, to avoid possible pitfalls, throughout this essay we will emphasize decision data elicited from a natural setting when possible rather than experimentally elicited. Furthermore, according to the Bernoulli principle, the utility attached to any risk-taking behavior in a laboratory setting is insignificant, if at all present. Thus we will now turn to review risk-taking studies with emphasis on natural settings.

4.3. From the available risk-taking constructs, we are interested in a construct to which we can relate our financial investment function and our sociological variables.[13] However, such a risk-taking construct does not exist; and understandably so, since this particular field has been mainly expanded by mathematicians, economists, and, of late, psychologists. Hence, the existent data and/or theoretical constructs are pertinent to these disciplines.

Along these lines, Fredrikson (et al 1965:3) has pointed out the existence of a frontier field in the analysis of financial investment and management. This is the frontier of risk evaluation. Likewise, the same frontier exists in economic anthropology. Barth (et al 1963) and Ortiz (1967) have collected data on decision-making processes among Norwegian entrepeneurs and Colombian Paez peasants respectively. But risk evaluation in the field of Economic Anthropology appears non-existent.

Therefore, as far as we know, there is no available risk-taking construct related to financial investment. To proceed onwards with our essay, we shall make a "postulated abridgement" (see 2.4.4.) and a "compression" (see 2.4.5.) of what we consider to be the pertinent aspects of risk taking. This procedure will be based on the following defining criterion:

4.3.1. The mathematical approach to decision making will be dispensed with, for we are interested in behaviorally induced decision making rather than in mathematical decision making.

4.3.2. Behaviorally oriented decision theory, or "risk taking" as it is called by psychologists, will be emphasized throughout. However, as expected, the domain of risk taking is rather diffuse. To impose some order, Kogan and Wallach (1967:123) have divided the risk-taking domain into three categories:

4.3.2.1. Situational influences on risk-taking. This category is concerned with the following issues: chance and skill, information-seeking, effects of gains and costs in hypothetical decision situations, real versus imaginary choices, effects of prior gains and losses, and risk-taking in natural settings.

4.3.2.2. The role of personal characteristics in risk-taking. This category is concerned with the following issues: demographic correlates, personality and motivational correlates, risk-taking and intellective functioning on objective tests, cognitive-judgmental aspects, and generality and specificity of risk-taking.

4.3.2.3. Group decisions involving risk. At first sight it appeared that this category would be rather important for our purposes. But a close inspection of the data presented showed

us that what is called a "group decision" means, generally, that five or six subjects (usually college students) previously unacquainted were asked to fill out a dilemmas-of-choice tasks, individually first, and later to reach consensus on the same task, as a group. Clearly this is an experimental setting and does not fulfill our criterion set forth below in (4.3.3.). Nevertheless, some considerations of this category are relevant, and these will be presented.

An inspection of the above aspects corresponding to the three categories of risk-taking leads us to propose the following aspects of risk-taking as being germane to our purposes: from 4.3.2.1., risk-taking in natural settings; from 4.3.2.2., demographic correlates of risk-taking; and lastly some typical perspectives of group risk-taking will be presented from type 4.3.2.3. Whether or not these aspects of risk-taking are pertinent to our problem can only be verified empirically.

4.3.3. We have set forth that Bernoulli's principle of utility will be used in our analysis of risk, thus it follows that only those risk constructs amenable to utility analysis will be emphasized. Risk-taking in a natural setting will be stressed, and data derived from experimental laboratories will not be taken into account here, regardless of the fact that psychological research has taken into account subjective probability in the analysis of risk-taking among subjects in laboratory setting. We think that an estimate of an outcome can hardly be compared to the Bernoulli principle in the analysis of risk, considering the realism of the concept as has been noted elsewhere (Kogan and Wallach, 1967:121).

4.4. A Review of Risk-Taking from the Psychological Literature.

Before going into the review of the risk-taking literature "per se" and its pertinent aspects, we would like to report some data indirectly related to our analysis of risk and the investment function.

Slovic (1968) has described the expert uses of information in decision-making processes among stockbrokers with the use of the ANOVA technique. This technique consists of a quantitative analysis of variance in a similar manner to diagnosis by radiologists of malignancy in gastric ulcers on the basis of roentgenological signs. Although the ANOVA technique proved capable of describing the use of information by individual radiologists or stockbrokers due to its sensitivity to configurational processing, risk-taking aspects pertinent to our purposes cannot be found.

Also in the risk-taking literature "per se", Davie and others (1968) have submitted the existence of two different lines of research in connection with risk-taking. On one hand, research has been done using highly quantitative and precise definitions of the variables involved in risk-taking, i.e. the works of Edwards (1954a; 1953b; 1954b); Coombs and Pruitt (1960; 1962). This approach has been mainly concerned with the estimation of parameters that guide decisions, and it has been normative in the sense of discovering. For example, optimal decisions given particular circumstances. The concepts of this approach are not at all related to social and/or individual behavior.

On the other hand, a second research trend in risk-taking

has aimed at the examination of individual differences such as personality and susceptibility to social contexts, i.e. the works of Marquis (1962); Wallach, Kogan & Bem (1962; 1964); Kogan and Wallach (1964); Rettig (1966a; 1966b); Rabow, Fowler, Bradford, Hofeller and Shibuya (1966); Clearly, this trend is related quite closely to the Kogan and Wallach approach (see 4.3.2.2.) and is germane to our purposes.

We could safely assume that the Kogan and Wallach (1967) article is the most exhaustive analysis of risk-taking behavior as a function of the situation, the person, and the group. Elsewhere (see 4.3.2.1...4.3.2.4.) we have exposed the Kogan and Wallach (1967) differentiation of the risk-taking domain, and have submitted the risk-taking aspects that may be germane to our purposes. It is these risk-taking aspects that we shall next expound.

4.4.1. Risk-Taking in a Natural Setting.

We are interested in risk-taking in a natural setting firstly because our data will come from a natural setting, i.e. the stock market. Secondly, it is obvious that experimentally derived data is limited to laboratory settings. Thirdly, the utility of risk-taking behavior can be derived more readily in a natural setting.

Unfortunately, data on risk-taking behavior in varying tasks and contexts directly related to central life activities of the subjects is particularly meager. In fact, American investigators have focused their studies on artificial and/or hypothetical tasks of gambling behavior (Kogan and Wallach, 1967:160-163).

One of the few investigators of risk-taking behavior as manifested in real life context is the British researcher, Cohen. He notes the wide variety of common life situations with inherent risk-taking elements:

> (The pedestrian) is inclined to exaggerate his chance of not getting hit by a car; he bears the motto "Accidents can't happen to me". The probability of being involved in an accident of the roads during any week is (in Britain, for example) about 1 in 8,000. This seems negligible to the pedestrian by comparison, say, with his chance of winning the first prize in a lottery, where the order of magnitude of the odds belong to the realm of radio astronomy. (Cohen, 1964:73).

Elsewhere Cohen (1964:78) continues:

> If safety on the road is to become a reality instead of remaining a dream, we have to recognize its kinship with situations which, at first sight, seem to have nothing to do with traffic. To confine our study to the traffic situation as such would not take us far. Man not only drives automobiles. Nor is he only a pedestrian. He engages in a multitude of tasks which share something fundamental in common with his driving behavior, in business, in sport, in social enterprises of one kind or another. These are alike to the extent that they are undertaken in some uncertainty; they are forms of risk-taking.

However, for experimental psychologists like Kogan and Wallach (1967:162), Cohen's strategic research site for the study of risk is open to criticism for his lack of interest in the psychological basis for individual differences, the absence of discussion about generality or specificity of risk-taking dispositions in varying tasks and situational contexts, and in general for sketchy theoretical treatment.

In our view, Cohen's approach to the study of risk-taking offers more realistic analysis of real life situations. Further, theoretical risk models derived from experimentally controlled

gambling data may only be able to explain the behavior of the subjects while under experimentation. In addition, it appears that risk-taking models in a natural setting can be best transposed to a market situation; and the utility of risk may be more readily derived. Compare, for example, the possible utility implications to: (a) sophomore students engaged in an experimental gambling situation where they may lose money that does not belong to them or win as much as $5.00; or (b) investors in the stock exchange who make, daily, hundreds or thousands of risky decisions that may involve merely today's bacon, or a successful transaction with handsome rewards. These kinds of differences in number and size of risks with respect to different yields of utility are more readily apparent in a natural setting than in experimental laboratories.

4.4.2. Demographic Correlates of Risk-Taking.

Early work of Kogan and Wallach (1959; 1961) in risk-taking was concerned with sex and age differences in adult subjects. Using the twelve-item hypothetical choice-dilemmas task described by them, they looked at risk levels achieved by college age and elderly men and women. No overall sex difference was found, though men and women did yield differential risk-taking, particularly in areas where masculine or feminine roles could be distinguished. When the decision-making task was changed by introducing monetary payoffs, there was little evidence of feminine conservatism.[15] The overall findings did not offer a neat separation between male risk-takers and female conservatives.

Kass (1964) has collected data on risk-taking among children, and observed a sex difference. Slovic's (1966) study of a sample of children in the age range six to sixteen yielded no sex differences in risk-taking for the younger children (ages six to ten), and significant or near-significant sex differences in favor of boys for the older children (ages eleven to sixteen). Clearly, the Kass and Slovic data are not congruent with the results previously reported for adults. The discrepancy may have manifold sources, i.e. instruments and/or contexts employed by the researchers, or a developmental pattern between the sexes in respect to risk-taking behavior. In sum, as far as sex difference is concerned in risk-taking, Kogan and Wallach (1967:167) state: "So little research has been specifically directed to the problem of sex differences in risk-taking behavior that we are distinctly handicapped in arriving at generalizations for both children and adults."

What about age differences in risk-taking? Kogan and Wallach (1961) in their earlier study analysed a sample of elderly subjects (mean age of approximately seventy) that were the intellectual equivalent of an available sample of college students. The two groups were compared in their risk preferences on the hypothetical choice-dilemmas instrument. The older subjects, both males and females, were significantly more conservative than the college students. There are some aspects of this study that may have some implications for us. The authors, for example, present the specific items differentiating both elderly men and women from their younger counterparts. All were concerned with a choice between modest financial gains as

a "sure thing" and substantial financial gains with the risk of high loss. Kogan and Wallach suggested that this may reflect the financial anxieties that assail the aged of our society. However, the results obtained were surprising in view of the widely accepted statement to the effect that present day American youth are security-minded in contrast to the individualistic-entrepreneurial bent of foregone generations.[16] Given the projective nature of the task administered by Kogan and Wallach, one might have expected such generational value differences to be reflected in the choices made. Thus, the present set of findings about American youth poses important questions regarding the relative dominance of situational and ideological determinants in decision making.

It is worthwhile to point out the dearth of information about risk-taking behavior of adults beyond college age. With the scanty data elicited by the choice-dilemmas instrument, there can be observed a steady decrease with age in risk-taking for women in their later years. No such relation has been obtained for the men; that is, men seemed to reach a plateau (possibly associated with retirement) beyond which any further age increase has no effect in risk-taking. In addition, there was found a greater consistency within an individual regarding risk-taking in elderly samples than in college students, suggesting the possibility that risk-taking considerations may possess greater salience for the former than the latter. These observations pertain to hypothetical choice-dilemma tasks only. The effects described may vary in other kinds of decision-making situations. Clearly, information regarding age differences in

risk-taking is still quite meager.

In regard to childhood and risk-taking, research needs to be carried out before we can suggest any differences in risk-taking between children of varying ages. However, there exists a relative wealth of material regarding children's thinking and behavior which may have implications for risk-taking; for example, children's concept of probability and the learning of probability. However, we do not consider it worthwhile for our purposes to detain ourselves on this line of research.

In sum:

> ...evidence can be found for both sex and age differences in risk-taking behavior. Regrettably, the evidence is not of a form that makes it possible to draw broad general conclusions concerning changes in risk taking for males and females across the total life span. Our knowledge about changes in the adult years, though quite skimpy, somewhat exceeds what we know about changes between early childhood and late adolescence. We seem to be on somewhat firmer ground when generalizing about sex differences than about age differences. For adult groups, there does not seem to be any indication that men perform in a consistently more risky fashion than women, or visa versa... The problem area of age and sex differences in risk taking might well profit from the use of greater diversity of instruments in an investigation spanning the ages between early childhood and senescence. (Kogan and Wallach, 1967:1710172).

We shall now expose what Kogan and Wallach (1967:172-3) have called "social class variables" in risk taking. One of the firmer generalizations that the authors have been able to draw is the pronounced conservatism of college students in a wide variety of decision-making situations. The large bulk of the data on this issue has been elicited from college students; therefore we could conclude that the alleged conservatism of college students is really a characteristic of the population;

but fortunately we do have comparative data from other populations, though scanty.

There are two published studies that specifically compare the decision-making behavior of college students with National Guardsmen (Mosteller and Nogee, 1951), and with Air Force enlisted men (Scodel, Ratoosk, and Mivas, 1959). Both of these studies involved decision making in a gambling situation. However, the tasks differ considerably, one entailing bidding against an experimenter, the other involving bet preferences. Yet in both cases the college students manifested more conservative decision-making behavior than their National Guard or Air Force counterparts. Relative to optimal expected values, the students deviated in the conservative direction, the National Guardsmen and Air Force personnel in the "extravagant" direction. Scodel and his collaborators (1959:27) remarked that low payoff betters (college students) as compared to high payoff betters (Air Force enlisted men or National Guardsmen) are more other directed, more socially assimilated, and more middle-class oriented.

We next consider some public opinion survey data concerning demographic differences in experience with games of chance (Back and Gergen, 1963). Such data indicated that about 60% of the American population participated in some form of chance game, i.e. horse betting, bingo, poker, etc., in the preceding year. When gamblers and non-gamblers were divided by educational and occupational status, there was a clear relation between higher status and participation in gambling activities.

Hence, "it seems that social and occupational status are conducive to participation in gambling activities, but may lend a conservative stamp to such activities. Correspondingly, lower status reduces the likelihood of participation in gambling, but may well enhance the risky character of the gambles taken by those who do in fact engage in such a behavior". (Kogan and Wallach, 1967:173). Or putting it differently, lower-status individuals are less likely to gamble precisely because they feel impelled to take greater risks when they do.

The preceding generalization is, of course, conjectural. The authors' conclusions were based on a relatively incongruent survey analysis and laboratory data. Nevertheless, we feel that it is an important lead.

4.4.3. Group Decisions and Risk-Taking.[17]

So far we have dealt with risk-taking at the individual level. It is clearly obvious that an individual, whatever his individual peculiarities, more often than not will make his decision in a social context. However, before turning to our exposition of this topic, we should examine the "typical perspective" of the tradition of experimental social psychology.

As we shift our focus of analysis from an individual's risk-taking behavior to his risk-taking behavior as a member of a group, we put aside the issue of personality differences that may distinguish individuals. This is a matter of analytic frames of reference rather than reality - argue Kogan and Wallach - since the individual does not shed his personality when he functions as a part of a group or vice versa. Like-

wise, Katona (1963:36-37) has argued similarly:

> Psychological processes occur only in the individual being, not in the group; only the individual acts, not the group. But the individual does not think and act in the same way irrespective of whether he is or is not a member of a group. Action in groups - social behavior - may differ greatly from individual action, but must and can be explained in terms of the same psychological principles... Just as a stimulus or a motive is part of its whole or field, so is the individual part of his field, usually of his group.

Nevertheless, the authors feel that important generalizations can be made concerning an individual's behavior in a group when making risky decisions without taking into account his personality differences. They (Kogan and Wallach, 1967: 227-28) continue saying:

> When responsibility for the making of a risky decision is invested in a group rather than in an individual, or when an individual with this responsibility seeks the counsel of others as an aid in deciding what to do, either positive or negative value judgments can be applied to the result. Some will say that by involving more than one person, a better decision will be made than if the individual were left solely to his own devices.

However, as pointed out earlier (see 4.3.2.3.), "group decision" as used within this context is not pertinent to us. For it does not, firstly, fulfill our criterion spelled out elsewhere (see 4.3.1.;...4.3.3.). And secondly, it is not clear whether "group decisions" in experimental settings are nothing other than the fact that high risk-takers may display a higher degree of persuasiveness and/or leadership, inducing a shift toward enhanced risk-taking (Kogan and Wallach, 1967:243). Brown (1965:656-709) has also suggested the fact that leadership in experimental small groups may favor high risks, and that risk itself may be an expected value among certain social

groups, i.e. students of Industrial Management.

It is unfortunate that group decision studies in a natural setting are non-existent, with the possible exception of Le Bon's work on crowd behavior. It appears then that the only aspect of interest to us in this type is the "typical perspective" of group decision making.

CHAPTER 5

THE INVESTMENT FUNCTION

5.1. Sociological Remarks on the Investment Function.

Belshaw (1965:137) has remarked that inasmuch as the amount of physical labor available is strictly limited by physiological and cultural considerations. It follows that a major element in the capacity of an economy to grow is its ability to invest, that is, by creating new tools in the shape of new and pre-existent modes of production or by improving the organization of the economic system. This principle has been well applied in our contemporary modes of production. Belshaw (1965:138) further adds:

> Sociologically, investment thus covers an enormous range of creative human behavior. It begins with a state of knowledge, and as a technical matter, is essentially the process of cumulative cultural change or innovation. It must be recognized, of course, that not all cultural change is cumulative, in the sense of adding resources, since there are instances of the decline of civilizations.

Belshaw (1965:138-41) also proposes other sociological conditions for the occurrence of investment, for example, the degree of mobility and flexibility in the society itself, financial mechanisms, division of labor between industrial and commercial units for the stimulation of productive capital accumulation, availability of quantity of money in relation to the quantity of transactions to be served by it, and so forth.

Nonetheless, as Firth (1964) has argued elsewhere, the anthropologist's contributions to the analysis of the diverse range of economic activity have not been very impressive. A

case in point is the analysis of financial investment. But some research has been carried out in this direction, particularly in contexts different from the industrial modes of production and exchange. Anthropologists have been able to study in some detail the economic activity of some simple societies as a part of an overall system of social relations. In other words, economic activity has been understood in a context of social, political, ritual, moral, and even aesthetic activities and values, and in turn the effects of these. For example, Baric (1964) has studied some aspects of credit, saving, and investment in a non-monetary economy; Barth (1964) has studied capital, investment, and the social structure of a pastoral nomad group in South Persia; and Bohannan (1957) has studied some principles of exchange and investment among the Tiv. Clearly, this pioneering work has been carried out outside of a monetary-industrial economy.

Our purpose is to study financial investment in a monetary-industrial economy. This topic, of course, is the topic "par excellence" of contemporary macroeconomic analysis. Hence, we shall make an abridgement (2.4.4.) and compression (2.4.5.) of the economic literature for analytic purpose.

5.2. Economic Analysis of the Investment Function.

Samuelson (1961:241-385) points out the significant role played by investment in the determination of national income and its fluctuations. Keynes[18] (1935:61-65) defines income in the current period as equal to current investment plus current consumption expenditures. Moreover, saving in the current

period is defined as equal to current income minus current consumption.

Where: Y = income; C = consumption; I = investment; and S = saving.

Then: $Y_t = I_t + C_t$

$S_t = Y_t - C_t$ (that is, $Y_t = S_t + C_t$)

Therefore: $I_t = S_t$

All the variables relate to current period as indicated by the subscript t. This can be considered to be the current analysis of the investment function as it relates to the determination of national income.

Insofar as the level of investment is concerned, there has been a great deal of discussion about the relationship between the rate of interest and the volume of investment spending per unit of time. Traditionally economists tended to consider that investment was highly sensitive to interest rate changes. But skepticism towards this view developed in the 30's due to some inconclusive statistical corroboration to the effect that the interest rate is an unimportant determinant of the level of investment.

Derenburg and McDougall (1968:127-131) posit that the effect of the interest rate on the level of investment will vary with the stage of the business cycle and the rate of technical change. Thus, the interest rate will be irrelevant as an economic calculator during depressions since such periods will be marked by the existence of excess capacity. It is clear, then, that expectations play a significant role in the position

of the investment demand schedule. A firm with an optimistic view of future sales prospects will be more willing to invest than one with pessimistic views of the future, because a firm's expectation about the future is based upon its past experience. Lastly, a technical progress will affect the current level of investment, for a firm's whole view of the future can be shifted if an invention occurs that renders part of its stock obsolete. All these factors taken together determine the position of the investment demand schedule. The importance of expectations in investment decisions is a large part of the explanation of the cyclical variations in the volume of investment.

In addition, there have been several alternative models for the analysis of the investment level. Ackley (1961:500-501) has summarized the earlier investment models thus:

a) The simplest theory on investment suggests that investment, like consumption, depends upon the level of income. This model, however, cannot explain the turning points in business cycles, i.e. high income can only produce high investment, and low income low investment.

b) The simple accelerator theory points out that: The acceleration principle makes investment depend on the change in income (or consumption). Combined with a lagging consumption function, the simple accelerator produces a model which can generate cyclical fluctuations of income. However, in a technological relationship, it involves the entirely impossible requirement that investment must occur (instantaneously) before added output can be forthcoming in response to an increase in

demand. But if we break the technological link by introducing a lag, then we convert the acceleration principal into a simple and far from plausible theory of business expectations - namely, the assumption by businessmen that future demand levels will always just equal the present level (no matter how high or low the present level nor how much it may just have changed from preceding levels). The other major and clearly fatal flaw in the simple accelerator theory is its ignoring of limits on the rate of investment - limits either on disinvestment or upon positive investment. In effect the supply curve for capital goods is taken as infinitely elastic, regardless of the level of demand (and this is in the short run).

c) The Goodwin hypothesis recognizes limits both on investment and disinvestment - the capacity of the capital goods industry on the one hand, and physical depreciation on the other; however, it still retains the assumption that the optimum stock of capital depends on the current level of demand. Again this implies the businessmen's assumption that present output levels - whatever they may be - will persist in the future. During depressions, businessmen assume that they will continue forever; during booms, the same.

Perhaps it may be safe to suggest that Keynes' work (1935: 147-165), The General Theory of Employment Interest and Money, is the most elegant and the standard treatment of investment. Keynes' theory substitutes the idea of an increasing cost supply schedule for capital goods instead of the capacity concept. However, argues Ackley (1961:502):

> It is to be doubted that a strong systematic relationship exists between output of capital goods and the prices at which these are sold...the serious shortcoming of the Keynesian investment theory is its ignoring of the "feedback" from current income to the optimum stock capital...this "feedback" cannot be taken as simple and mechanical, because the link runs via businessmen's expectations, and it is absurd to suppose that businessmen always expect current demand levels to continue.

Nevertheless, continues Ackley (1961:502):

> Keynes stressed the importance of businessmen's expectations in the determination of investment... (and) argued specifically that businessmen could not be taken as assuming current levels of demands to persist in the future. But despite some sparkling observations, he provided no theory of how business expectations are formed and revised. He stressed only their sensitivity and volatility, and their tendency to sharp and simultaneous revision by many businessmen. In this connection he emphasized (perhaps overemphasized) the importance of the level of share prices as an influence on the investment decision of entrepreneurs, and showed, quite brilliantly, how this level of prices in an organized stock market is influenced by speculative considerations having little or nothing to do with the "real" business outlook...About the only systematic element appearing in Keynes' discussion of expectations is an idea with a long history in English business cycle literature. This is the notion that good times breed over-optimism, bad times over-pessimism; however, this idea, by itself, cannot explain turning points.

In the final analysis, it appears that in investment theory there exists a conflict between theories that stress capital "deepening" - that is, investment which increases the capital-intensity of production ;and those that stress capital "widening" - investment which accompanies a growth of total output. Ackley (1961:503) posits that Keynes and his classical predecessors essentially emphasized the former. Modern theory, in its concern with growing economies, has stressed the latter. Keynes and most pre-Keynesians saw investment as a means of

using more capital to produce the same output - the substitution of capital for other factors of production. Post-Keynesian theories stress the adjustment of the capital stock to the growth of total output with no change in capital intensity.

It must also be emphasized that so far this brief exposition on investment has been mainly concerned with investment in plant and equipment. Significant elements of investment theory have been omitted, i.e. investment in residential housing, inventory investment, and technological change. We have been mainly referring to real investment.

5.3 Financial Investment

While economists tend to concentrate on investment as it relates to the creation or maintenance of capital goods for use in production, financial investment (our topical consideration) has not been the object of much study by economists. This is so because of the following reasons: most financial investment involves a transfer of stock between individual traders, and this does not represent a real investment (or the creation of actual production goods). Second, real investment decisions are made by firms whose stocks are traded in the exchange and not by individual traders. The individual trader merely supplies financial capital.

The intermediary between the firm which is investing and the individuals who are extending their financial capital is the underwriter. The function of the underwriter is to determine the feasibility of a proposed investment.

5.3.1. Liquidity Preference Theory

Nevertheless, liquidity preference theory can probably be

considered, at least, the prolegomenon of financial investment theory in economic analysis. Keynes (1935:ch.13) in his General Theory suggested that the demand for money can be divided in three separate demands. People hold money (1) because they need cash balances; this is the transaction motive; (2) because it is important to have money balances on hand to meet unforeseen contingencies; this is the precautionary motive; and (3) they may prefer to hold money balances as an asset in preference to, or in combination with, other forms of wealth; this is the speculative motive or liquidity preference demands.

The traditional theory of transactions demand for money assumes that:

> this demand is proportional to the level of income. However because a rise in the rate of interest raises the optimum number of times that wealth holders find it profitable to enter the bond market and because this has the effect of reducing their average level of money holding, it follows that the transactions demand for money is a decreasing function of the rate of interest. The higher the rate of interest, the more costly it is to hold money relative to other assets, and a rise in the rate of interest therefore produces an incentive to economize money balances and to substitute earning assets in their place. (Derenberg and McDougall, 1968:144).

The precautionary demand for money is probably quite closely related to the level of money income.

> However, as in the case of the transactions demand, the precautionary demand may be responsive to changes in the rate of interest. An increase in interest rates may make the purchase of earning assets so tempting that the salesmen may be willing to assume a slightly greater risk in the form of a lower precautionary balance in return for the added interest earnings. (Derenberg and McDougall, 1968:145).

But why should anyone desire to hold money in the form of inactive balances or "hoards"? Keynes[19] reply to this question

is: Fear and uncertainty regarding the future. The desire to hold part of our resources in the form of money is a "barometer of the degree of our distrust of our own calculations and conventions concerning the future". The possession of actual cash "lulls our disquietude", and the rate of interest which we demand before we are prepared to exchange cash for earning assets is a "measure of the degree of our disquietude". Hence, the propensity to hoard is basically due to the uncertainty of our expectations, to "all sorts of vague doubts and fluctuating states of confidence and courage". Liquidity preference analysis is based on the presumption that we cannot assume a definite and calculable future.

Putting it differently:

> The speculative motive, however, relates to the desire to hold one's resources in liquid form in order to take advantage of market movements. It is the speculative motive which primarily involves the propensity to hoard. The object in view is to secure profit from knowing better than "the market" what the future may bring forth. Different individuals may estimate the prospect differently. Anyone whose opinion differs from the "predominant opinion as expressed in market quotations may have a good reason for keeping liquid resources in order to profit, if he is right." (Hansen, 1953:128).

Liquidity preference theory first presented by Keynes, has been criticized on the ground that it implies an all-or-none kind of behavior.

> If the interest earnings of a bond are in excess of the expected capital loss, it will pay to invest all one's funds in bonds. If the expected capital loss is greater than the interest earnings, no bonds will be held. Consequently, the minute the critical point is reached where the scales tip in favor of the bonds, we would expect a mass exodus from cash into the bonds. (Derenberg and McDougall, 1968:146).

However, Keynes' explanation for the non-occurrence of this phenomenon was based on the assumption that different people have different expectations with regard to the future.

But, Derenberg and McDougall (1968:146) argue that modern theory of liquidity preference (particularly as expounded by Tobin's (1958) article) has liberated the theory of speculative demand for money from the reliance upon the expectation that interest rates will rise in the future. Albeit no future changes in yields or asset prices is expected, wealth holders cannot be certain of what the future will bring. The extent of such uncertainty varies with the nature of the asset and tends to run in the same direction as the expected yield of the asset. Any wealth holder who suffers no disutility from uncertainty would put all his assets into risky securities. Such persons are "plungers". However, most investors are "risk averters" who arrange their portfolios in such a way as to balance, at the margin, the utility of additional return against the disutility of additional uncertainty. Such wealth holders will diversify their portfolios. In general the investor's preference for liquidity can therefore be seen to increase with a fall in the rate of interest, and his asset demand for money may also be a decreasing function of the rate of interest. This appears to be the present state of liquidity preference theory.

Lastly, the fact that little attention has been given to financial investment by economists, Parsons and Smelser (1956: 185-241) have attempted to isolate areas of "admitted indeterminacy" in economics; for example, they suggest that substantive sociological theory must be brought to bear upon economic areas

such as the case of the trade cycle, consumption, and investment. (They do not specify the kind of investment, and we assume they mean financial investment.)

5.4. Early Studies on Financial Investment

Elsewhere (4.3.) we pointed out that there was no available study on risk-taking and financial investment in the psychological literature. In the economic literature we do find a couple of early statements that specifically deal with financial investment. Possibly the earliest accounts on financial investment belong to Karl Marx,and to Max Weber, who at the outset of his career studied financial investment. We should like to make a brief exposition of both of these scholars' contributions and then draw some possible inferences from their work.

Karl Marx in the third volume of Capital treats financial investment and more particularly the stock exchange within the context of the capitalist mode of production as a whole. Marx (p. 435) suggests that the stock exchange is a necessary development of the credit system:

> I. Development to effect the equalisation of the rate of profit, or the movements of this equalisation, upon which the entire capitalist production rests.
>
> II. Reduction of the costs of circulation.
>
> III. Formation of stock companies.
>
> (1) An enormous expansion of the scale of production and of enterprises that was impossible for individual capitals. At the same time, enterprises that were formerly government enterprises become public.
>
> (2) The capital, which in itself rests on a social mode of production and presupposes a social concentration of means of production and

> labour-power, is here directly endowed with the form of social capital (capital of directly associated individuals) as distinct from private capital, and its undertakings assume the form of social undertakings as distinct from private undertakings. It is the abolition of capital as private property within the framework of capitalist production itself.
>
> (3) Transformation of the...functioning capitalist into a mere manager (or) administrator of other people's capital, and of the owner of capital into a mere owner (or) a mere money-capitalist.

Moreover, Engels wrote a supplementary note on the stock exchange to be added in the "Supplement" to the volume three of Capital (p. 909):

> Since the crisis of 1866 accumulation has proceeded with ever-increasing rapidity, so that in no industrial country, least of all in England, could the expansion of production keep up with that of accumulation, or the accumulation of the individual capitalist be completely utilised in the enlargement of his own business; English cotton industry as early as 1845; railway swindles. But with this accumulation the number of rentiers, people who were fed up with the regular tension in business and therefore wanted merely to amuse themselves or to follow a mild pursuit as directors or governors of companies, also rose. And third in order to facilitate the investment of this mass floating around as money-capital, new legal forms of limited liability companies were established wherever that had not yet been done, and the liability of the shareholder, formerly unlimited, was also reduced ± (more or less) (joint-stock companies in Germany, 1890. Subscription 40 percent!).

These constitute the brief references set out on financial investment by Marx and Engels.

In 1894, Max Weber published an essay entitled "Die Borse", in Gesammelte Aufsatze zue Soziologie und Sozialpolitik. And later in 1895 appeared his "Die Ergebnisse der Deutschen Borsenenquete" in Zeitschrift fur das Gesamte Handelsrecht, in

two sections published in volume XLIII (1895), and the other in volume XLV (1896). Unfortunately, none of these articles appeared to have been translated into another language. However, Bendix (1962:23-30) offers a summary to which we turn next.

During Weber's times, the stock exchange had become the symbol of the iniquity of capitalism. Weber wrote, opposing this widespread view, several articles dealing with economic and legal aspects of the stock exchange, as well as a tract for laymen designed to provide basic factual information on the operations of this institution. Bendix (1962:24) suggests that two aspects of Weber's treatment can be emphasized:

> First, stock exchanges and commodity exchanges are simply market centers for the sale and purchase of capital and commodities...The number of sellers and buyers at both ends of such a deal, and hence the number of transactions involving the same quantity of goods (or stocks and bonds), can, and frequently do, pyramid rapidly. By this mechanism it is possible to handle a tremendously enlarged volume of trade (and credit). Second, stock and commodity exchanges represent the means by which the individual businessman can attain the legitimate ends of his enterprise with foresight and planning...exchanges (are not) places where sudden spectacular profits or losses result from lucky or unlucky guesses about price fluctuations in the future.

Weber, however, did recognize that gambling and wild speculation play a role on the exchanges, but such devices as time bargains and trading in futures (termingeschaft) served entirely indispensable purposes of the modern economy in the sense that they enlarged the volume of trade and facilitated the orderly conduct of large-scale enterprises.

Another debate of Weber's times was concerned with legal controls towards the regulation of admissions of members to the exchanges. At an earlier time, markets were open to all, and

during the 1890's exchanges had developed into centers of trade monopolized by exclusive, guild-like associations of brokers. A professional knowledge of the market and the credit rating of the brokers that was necessary for a successful operation constituted a kind of a natural privilege in the exchanges of the 1890's. Weber noted that in England and America admissions to the stock exchange were handled in a different manner from the German and Austrian practice. The English exchanges were exclusive private associations governed autonomously in accordance with their own statutes. The guild-like character of this association was pronounced. In Glasgow, for instance, the sons of members were entitled to admission on payment of half the regular fee, and members were forbidden to engage in commercial activities other than transactions on the exchange. In the London Stock Exchange, transactions were regulated by the rules of the association rather than by the civil jurisdiction of the national government. Thus all persons admitted to the exchange were subject to an autonomous, private jurisdiction in all matters affecting transactions on the exchange.

In Germany the stock and commodity exchange presented a less uniform picture. Bendix (1962:26) singles out one major feature:

> The government of German exchanges was for the most part in the nads of chambers of commerce whose officials were elected by merchants, by members of the community, or by both, in accordance with legal regulations that favored those well provided with capital. Otherwise, conditions varied widely among the exchanges. In the old Hanseatic towns admissions to and transactions on the exchange were almost entirely free. In Hamburg regulations were confined to the maintenance of order on the exchange...However, certain developments along the lines of the English

> exchanges were in the making in the form of associations, particularly among brokers in the different commodity markets.

In Prussia, the exchanges were organized according to various mutually inconsistent criteria. Bendix (1962:26) quotes Weber in this respect:

> The exchanges are neither public corporations, nor exclusive (closed) associations, nor formally free markets...they are regulated assemblies of groups of persons whose composition is mixed and fluctuating in every respect...there are no spontaneous developments of associations among brokers as in Hamburg. Admission is not free; instead the exchanges are only to be accessible to persons who are professionally engaged in dealing on the exchange.

Weber made special note that a free access to the exchange was believed to be a special asset. Few seemed to advance the idea of a self-regulating association that would exclude from the exchange persons of questionable financial standing and morality, and yet these were the persons whose operations were mainly responsible for a disquieting effect on the market.

While free admission prevailed at the stock exchange in Berlin as well as in Hamburg, nevertheless Weber found striking differences among the two.

> On the Hamburg exchange trading occurred in a very orderly manner despite the large number of participants, a consequence that could be attributed at least partially to the effective traditions of the Hamburg merchant class. On the other hand, the absence of such traditions in a city like Berlin had presumably contributed to the relative instability of the market, and the official inquiry concerned itself with various remedial measures. (Bendix, p. 27).

People admitted to exchanges in Prussia represented all groups of the population and consequently were divided among themselves by differences of wealth. The respectability and trustworthi-

ness of businessmen certainly did not increase simply in proportion to their property. Weber considered it utopian to expect that these qualities had the same meaning for the small speculator, who made his living on the basis of the tiny daily differences in the quotations, as for the independent broker, whose transactions were based upon planned enterprise and supply of capital. The question, then, was whether the persons speculating on the exchanges were fair-dealing.

This question touched upon a paradox inherent in the organization of the exchanges. Weber remarks:

> The pyramiding of sales and purchases for the same amounts of goods or capital was necessary to handle the huge quantities supplied and demanded in the modern world economy. The many and complex transactions involved would achieve this extension of the market most effectively if sellers and buyers formed an exclusive association in which membership was a synonym of commercial reliability. And the guarantee of that reliability would in turn facilitate planning and foresight in the conduct of an enterprise. Yet the techniques used in these transactions virtually invited the participation of persons with little capital and little expert knowledge of the market. These more or less unqualified persons tended to undermine the ethical standards governing exchange transactions, even as their participation in them was an inevitable by-product of the market mechanism. (Bendix, 1962:28).

Consequently, the very extension of the market unintentionally worked against the maintenance of its ethical standards. This tendency was counteracted if there already existed a merchant tradition capable of enforcing such standards effectively.

To be sure, the exchanges did create opportunities for merely speculative gains that accentuated existing price fluctuations. Weber noted, however, that the German Supreme Court in the end had resorted to making a distinction between the

professional broker (equipped with capital supply and expertise in the market) and the "fly-by-night" speculator (who lacked capital and knowledge) in their legal assessment of economic transactions. Thus, for Weber economis transactions appeared to possess an important subjective element: the intention, and the ethics of businessmen were essential attributes of their economic conduct.

The stress of Weber's analysis - according to Bendix (1962:29) - is on the stock and commodities exchanges as an efficient means for the expansion of trade and for the predictability of economic transactions, notwithstanding the fact that the stock exchange by aiding the expansion of trade and calculability of business, had also provided opportunities for speculative abuses. The underlying theme is that economic conduct was inseparable from the ideas with which men pursued their economic interest and these ideas had to be understood in their own terms.

Now, we may raise the question: what are the implications of these two studies for this essay?

5.4.1. Perhaps the single most important element in these two seminal studies is that financial investment might be made for purposes other than the rate of interest. Both Marx and Weber point out social considerations intervening in financial investment. Thus, these two studies may constitute our only justification for our attempt to study the social context of financial investment.

5.4.2. From the methodological standpoint, we can clearly see that these two studies belong to a similar tradition of legal

and economic history; in fact, according to Roth (1968:LXIII), Marx and Weber belonged to the same German school of legal and economic history of which "Marxism was an extreme offshoot". That Marx and Weber used the historical method (2.1.4.3.) has been discussed and established elsewhere, i.e. Sweezy (1968: 11-20) and Mandel (1968:16-19) have done so for Marx, likewise Roth (1968:XXIX-XXXIV) and Bendix (1962:41-49) for Weber. Since both Marx and Weber derived their studies from historical records, then the end result of their work was "the first strictly empirical comparison of social structure and normative order in world-historical depth, (it transcends) the plenitude of "systems" that remained speculative even as they claimed to establish the science of society." (Roth and Wetlich, ed. 1968:XXVII). We conclude that the studies of Marx and Weber belong to the set of variables classified as macrostructure by Blau (2.1.3.). On the other hand, since we have no historical data nor do we propose to investigate in macrostructural depth, then our study will necessarily fall in the microstructural category. Parenthetically, it has been said (Lowith, 1967:92) that Marx, concerning Hegelian philosophy, stated the following:

> The nocturnal moth, when the universal sun (Hegel) has set, seeks out the lamp light of the individual (Marx).

Analogously, we only seek the light of a lamp.

But this calls for a restatement of our purposes, which is the subject of the next chapter.

CHAPTER 6

RESTATEMENT OF THE PROBLEM

Elsewhere (1.1.;...1.4.) we have raised the issues that we proposed to analyse in this essay. It is now necessary that we direct ourselves to the modus operandi of our analysis. Quite obviously, financial investment, risk-taking, and social structure constitute by themselves large flows of events in space and time. In this chapter we want to "circumscribe" (2.4.1.) this field of research in terms of (1) where we can apply our techniques of analysis, and (2) how we can apply our techniques of analysis. In other words, we want to cut off a manageable field of reality.

With regards to the first point above (where we can apply our techniques of analysis), we have made some general remarks about macrostructures and its segments (microstructures). We now propose to take up this issue.

6.1. Macrostructures and Substructures (Microstructures).

Elsewhere (2.1.3.) we have presented Blau's (1967) dynamic conceptualization of social structure. Nevertheless, it is important to restate Blau's essential contentions. Blau states that complex social structures have as component elements other social structures; in this sense, a society consists of the interrelated social groupings and segments, communities and organizations, within it. Blau, then, differentiates these interdependent collectivities of various kinds into substructures of the large social structure; these substructures serve as the foundations and internally substructured subunits of the

large social structure. However, we must define the above terminology.

A social structure is defined by Blau as being comprised of patterned social relations among individuals and groups, including the recurrent conduct in which these relations find expressions. From this concept the term "microstructure" is derived and which is used to refer to the interrelations between individuals in a group; a second concept is derived: the "macrostructure", which is used to refer to the interrelations of these groups in a larger collectivity or of these larger collectivities in a still larger one. Thus, the elements of macrostructures may be either microstructures or themselves macrostructures.

Given Blau's definition of social structure and its derivatives - microstructure and macrostructure - we will define the concept of social relationship following the Weberian expositions of it, as found in his Economy and Society (1968:26-27).

> The term "social relationship" will be used to denote the behavior of a plurality of actors insofar as, in its meaningful content, the action of each takes account of that of the others and is oriented in these terms. The social relationship thus consists entirely and exclusively in the existence of a probability that there will be a meaningful course of social action - irrespective, for the time being, of the basis of this probability.

Moreover, Weber more explicitly submits that:

> it is essential that there should be at least a minimum of mutual orientation of the action of each to that of the others. Its content may be of the most varied nature: conflict, hostility, sexual attraction, friendship, loyalty, or economic exchange. It may involve the fulfillment, the evasion, or the violation of some other form of "competition";...Hence, the definition does not specify whether the relation of the others is cooperative or the opposite.

6.1.1. Nonetheless, in spite of Blau's differentiation of social structure and Weber's definition of social relation, it is still not clear where in the social reality we can find and/or circumscribe some set of social events as belonging to a microstructure or macrostructure. Presumably this may be due, according to Blau, to a lack of systematic theory of social structure in order to analyse the interrelations between attributes of a macrostructure and those of its substructures on different levels. At this point it is only possible to adumbrate the general direction that such a theory would be expected to follow. In effect, Blau (1967:309) submits the principle that the structural implications of given value standards depend on the compass of organized social relations which they include:

> (particularistic) standards integrate substructures and create segregating boundaries between them in the macrostructure. What is a particularistic criterion from the perspective of the macrostructure may constitute diverse universalistic criteria within the narrower compass of its substructures. Universalistic values differentiating social strata in the macrostructure often become the basis of particularistic values that further social integration and solidarity within each stratum. Deviant opposition ideals constitute legitimate values from the narrower perspective of the opposition movement itself and, if it is successful, also from the long-range perspective of the future.

However, despite Blau's innovative attempt to show the interrelations between three facets of the social structure - integration, differentiation, and organization - it is difficult to determine what really is the defining criterion whereby we can differentiate substructures from a macrostructure.

Fortunately, some leads can be found in the literature. Thus, Klausner (1967:173) in reference to the generic problems in the study of total societies postulates two alternative

approaches: (1) If a nation state is considered as a closed system for purposes of study and if uncovered relationships from one society are generalized to another, then we would use total societal measures or macrovariables; and (2) if only segments of a society are taken as units of analysis, then we would use measures of social segments or microvariables.

Furthermore, some research has been carried out within the context of the above alternatives as postulated by Klausner. For example, Tiryakian (1967) has submitted a model of societal change and its lead indicators as an ingress to what he termed as macrodynamic sociology. Tiryakian's model, in addition to discussing the nature of the major dimensions of societal change and the extent that a societal change can be predicted, suggests three initial indicators of incipient societal macrodynamics: (1) rates of urbanization, (2) sexual attitudes, and (3) the rate of outbreak of non-institutional religious phenomena.

The economist Boulding (1967) has formulated a model on the learning process in the dynamics of total societies. He contends that a social system follows a dialectical image of decay and restoration. Society in some respects moves through repeated cyclical patterns. Economic consumption and production is an instance of this process.

> Social symbolic systems spread through symbolic epidemics and rise and fall in popularity. The restorative phase is marked by a change in the symbols held in society (a process Boulding calls macrolearning). The biological analogy stresses functional relations within the system. The macrolearning model attends more to the history of the system. The past bequeaths deposits of information to the present. These accumulate and, guided by a constant drive to parsimony based on relevancy, are sorted out. The accumulating information may pass a threshold beyond

> which the society is transfigured, that is, undergoes a qualitative change. (Klausner, 1967:198).

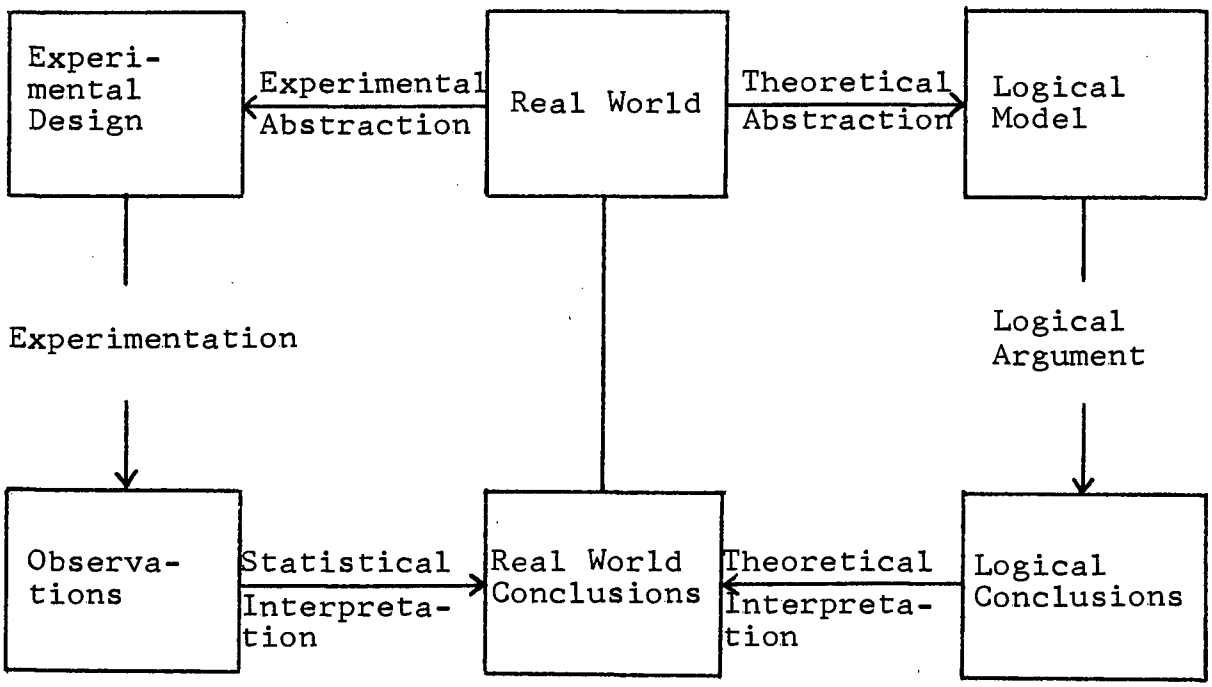
The study of decay and restorations of information over time serves as an approach to the analysis of system dynamics. The researcher would study the people who mediate this communication, their lines of communication, and the changing population densities which affect the structure of communication. Boulding's information system is conceptualized in cybernetic terms. Structural changes reflect the balance of input-output relations. His indicators for his model would be reports on where people are, what they are doing, population census material, maps showing the spatial distributions of the population, time budgets of individual activities, and analysis of printed, aural, and pictorial mass media content during particular segments of time.

6.1.1.1. From Klausner's postulates and the Tiryakian and Boulding models, we postulate that the key to the differentiation of a social structure into its substructures is the choice of social variables. Thus, macrovariables may be used if the nation state is considered as unit of analysis; and microvariables may be used if only segments of a society are considered as units of analysis. But to the question of what defines whether a variable belongs to the micro or macro systems, we have no answer. However, we feel that this choice may resolve itself in relation to the problem at hand.

6.1.2. We may now ask ourselves: Can we infer anything from a substructure to a social structure? Before we begin dealing with these questions we cannot overemphasize the fact that

theory in sociology and anthropology in this respect is incipient, and our suggestions are merely postulates subject to further testing.

To deal with the above questions we need to set up our model analysis. An investigator observing social events in the real world is confronted with a large mass of events. If he wants to analyse society, he must split up reality by isolating a particular aspect which presents certain regularities as is relatively autonomous and independent of the other aspects. By abstracting from the real world, it is possible to achieve a level of simplicity at which social events may be analysed. But, in the process of abstraction, the social analyst must be careful to preserve the essential features of the real world problem with which he is concerned. For this reason the following model analysis has been adapted by Ferguson (1969:3-5):



The real world of social events serves, at least tentatively, as the starting point. A specific problem, or the mere desire to understand, motivates one to move from the complicated world of reality into the domain of logical simplicity. By theoretical abstraction one cuts off a manageable field of reality. The result is a logical model, presumably suited to explain the events observed. By logical argument (i.e. deduction) one may arrive at model conclusions. But these must be transformed by theoretical interpretation into conclusions about the real world.

The same result may presumably be achieved by the statistical method. Again, we start from the real world, and by experimental abstraction we arrive at an experimental design. That is, by process of simplification we may design a statistical model that is useful in analysing the real world. But, in this instance, we obtain observations by experimentation, rather than theorems by logical deduction. These observations, given proper statistical interpretation, yield conclusions concerning the real world.

To be sure, there is disagreement over the relative merit of the two methods. The tenor of our thinking is that they are complementary, that deductive and statistical methods are mutually reinforcing instruments of analysis.

Now, let us return to the question that we posed ourselves: Can we infer anything from the substructure (or microstructure) to the macrostructure? First, we submit that a microstructure is not necessarily a sample of the macrostructure. To clarify this point, let us look briefly into large sample theory. A fundamental idea in sample theory is the concept of population.

> A population (or universe) is the totality of the measurements or counts obtainable from all objects possessing some common specified characteristic. (Alder and Roessler, 1964:96).

For example, in a study of the size of a particular variety of fruit at some specified stage of development, we may be interested only in the fruits of a certain limb of a tree; the sizes of these fruits constitute then the population. Since we can rarely investigate a whole population (whether finite or infinite) then we are obliged to formulate conclusions regarding a population from samples selected from it.

> A sample is a set of measurements which constitute part or all of a population. (Alder and Roessler, 1964:97).

The main object of a sample is to draw some conclusion about the population from which it is obtained. The relation of a sample to population is one of the elementary problems in statistical theory, since good estimates concerning a population necessitate good samples. For our problem we do not need to go any further.

Let us take a social structure and its substructures as defined by Blau, and let us assume that we have a social structure A and we differentiate a microstructure a_1 in respect to, let us say, economic exchange. Clearly, A and a_1 constitute populations in their own right, since A possesses some specific characteristics, and likewise a_1 by Blau's definition. It is also clear that we can apply our model analysis to a_1 irrespective of A and vice versa; since they are populations with their specific characteristics. Hence, since A and a_1 are populations by themselves, we need not consider a_1 as a sample of A; in fact, A and a_1 as populations can yield their own samples. Nevertheless, it is entirely possible that any substructures x_n can happen to be

a sample of a social structure X. So this matter may resolve itself empirically.

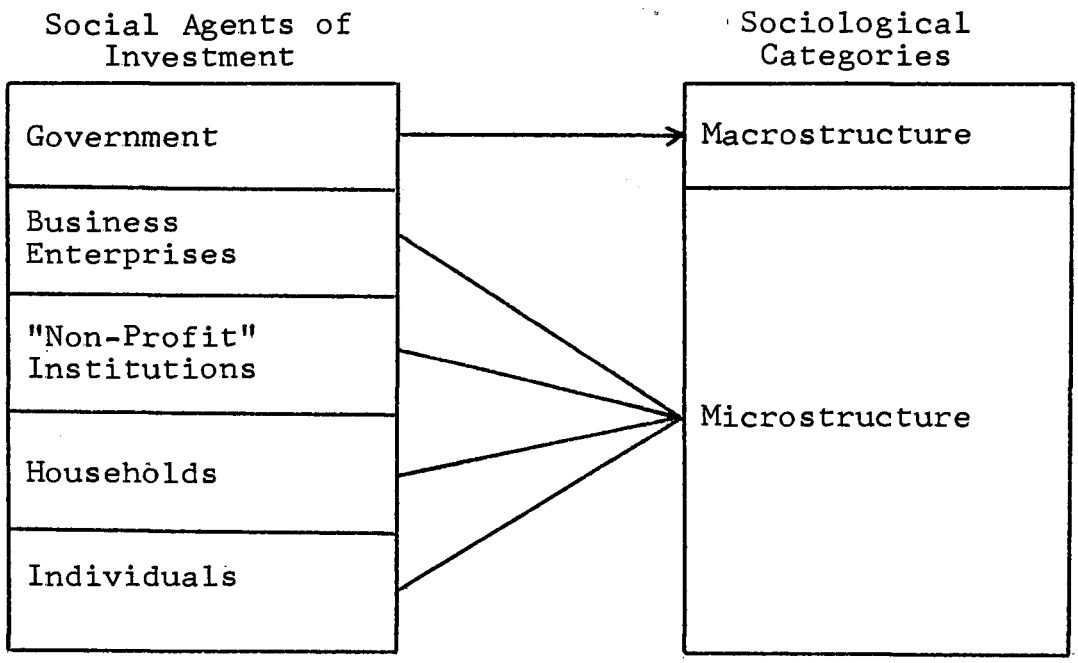
6.1.2.1. In general, we postulate that a microstructure derived from a social structure need not necessarily be a sample of such a social structure, unless otherwise specified, and hence as a unit of analysis it has its own characteristics. It is plausible that in some instances one may want to integrate the substructures to its social structure.

6.1.3. We should now like to bring the aforementioned contentions to bear upon the investment function, particularly as it relates to society. It is clearly obvious that the investment activity is carried out within the boundaries of a nation state; in fact, contemporary economic theory takes as given the form and structure of a nation state for the analysis of its economic activity. As pointed out by Samuelson (1962:242), the most important single fact about the investment activity of our society is that it is done by different people and for different purposes. Under the capitalist mode of production of our society, investment or net capital formation is carried on by business enterprises,(i.e. corporations), households, and individuals. Furthermore, to this list we may add: the government of a nation state, and some institutions such as religious congregations or organizations.

At this point we might introduce the distinction made in economic analysis between endogenous and exogenous variables.[20] Endogenous variables are the economic variables whose values are to be determined by the workings of the system. Exogenous variables are assumed to be given from outside the system. With

these definitions in mind, it is evident that Samuelson in the above paragraph is referring to the exogenous (social) agents of the investment activity.

6.1.3.1. From these considerations we submit that inasmuch as the investment function (an endogenous variable) is carried on in society (an exogenous variable) by specific social groupings, segments, and individuals, the following sociological categorization of the exogenous (or societal) agents of investment may be made:



Our sociological categorization of the social agents of investment has been made following our postulate (6.1.1.1.) on the defining criterion for the differentiation of a social structure.

6.1.4. It is now possible to pinpoint our unit of analysis. Since we have not found any studies available related to the

issues we raised for our analysis, i.e. (1.1.;...1.4.), it seemed sensible that our unit of analysis be of moderate scope, and we have chosen as our unit a microstructure composed of individuals. This microstructure, henceforth Mi, in virtue of our postulate (6.1.2.1.), is not to be considered as a sample of any social structure, and it presumably possesses characteristics of its own. Moreover, Mi also contains social relations of "mutual orientation of the action of each to that of the others", and the content of these social relations is economic exchange.

6.2. Having established our unit of analysis, our next aim is to discern how we will apply our techniques. We have made brief reference to this point when we raised the issues (1.1.; 1.2.; 1.3.) in which we contended that the financial investment function has not been sufficiently examined as it related to some social structure variables, i.e. ideology, income and wealth, occupation, and some demographic correlates, and correspondingly social structure as related to investment risk-taking behavior. We also contended that the utility notion must be used in sociological analysis, and as a case in point, we would analyse investment risk-taking behavior in terms of utility; and finally, that this kind of problem would require an integral approach operating simultaneously from the sociological, economic, and socio-psychological standpoints.

Elsewhere (2.3.) we have pointed out Klausner's conditions for a "good" bi-disciplinary statement; following this principle we submit that in our topic our two principal variables correspond to two different systems: the financial investment function belongs to the economy, and the microstructure (Mi) belongs

to the social structure. These two systems are mediated by risk-taking behavior in a natural setting, which is a socio-psychological variable. From the research methods available to us (see 2.1.4.), we have chosen the survey method (2.1.4.6.) as the seemingly appropriate tool of analysis to elicit data for our topic.

As we have already indicated in (2.1.4.6.), the survey method consists essentially of interviewing a sample of a population to collect the desired data. Our population is Mi, or the microstructure composed by individuals. A sample must be derived from population Mi and to this sample we will administer a schedule. Our schedule must elicit the pertinent data for our analysis. Therefore, it is quite important to have an appropriate set of questions to serve the appropriate data. Appropriate schedules usually grow out of appropriate hypothesis, discussions, and experience with the subject matter.

Our questions will come from the hypothesis already expounded, which is the following:

6.2.1. From the social system will come the microstructure Mi, from which a sample will be derived. This sample will yield structural variables, and demographic characteristics. Mi is our focus of analysis from which data will be elicited.

6.2.2. From the economy, our most important considerations will be: the notions of liquidity preference, portfolio selection, and investment objectives and policies.

6.2.3. Risk-taking considerations mediate the above two systems. The most pertinent aspects of risk-taking considerations are the demographic correlates of risk, and the "social class" considera-

tions. And our analysis of risk taking follows the considerations of the "natural setting" approach.

6.3. Having established first our unit of analysis, second how we will apply our techniques of analysis to this unit, and third the kinds of variables to be considered: primary (economic and societal) and intermediate (socio-psychological), we now submit that our ultimate aim will be the formulation of a social model which interrelates risk taking within society and economy. By "social model", we mean "a representation of an interrelated set of assumed factors that determine or "explain" the phenomenon we observe". (Barth, 1966:20). That being the conception of model that we will take, we will also agree with Barth's (1966: 21) suggestion that:

> Human behavior is 'explained' if we show (a) the utility of its consequences in terms of values held by the actor, and (b) the awareness on the part of the actor of the connections between an act and its specific results.

Therefore our attention will also be focused on the utility of risk. We have already set out elsewhere (2.4.) our notion of utility.

In the next chapter we will deal with the presentation of the empirical data, and some of the procedures used in its collection. In addition, we shall set forth our social model.

CHAPTER 7

THE EMPIRICAL DATA

Admittedly, the data collected are crude. We thought it would be feasible to obtain a list of individual investors from a brokerage house from which to draw a sample. Unfortunately this was not possible. No list of individual investors was made available to us, and in fact our access to the trading room of a brokerage house for research purposes was rather difficult. Also, individual investor members of the professional and managerial occupations were found to be reluctant to donate their time for an interview, which meant that we could only interview a limited number of volunteers. In this circumstance, where a random sample could not be secured, we faced the alternatives of proceeding with our research only with a set collected in a haphazard manner, or not doing it at all on the premises that we had set out. We chose the former alternative with the rationale of acquiring some experience in learning how to apply our research tools.

In general we sensed suspicion on the part of the established investors as to our purposes. It is quite possible that investment communities are actually suspicious of any outsider. We recall that Weber contended that the extension of the market works unintendedly against the ethical maintenance of the market; thus established investors presumably develop defenses against the intrusion of outsiders. And a casual observer of the Paris stock exchange reports impressions similar to ours. Alexandre (1969:42) writes:

> Depuis le règne de Louis XVIII, la Bourse est une mystérieuse maison sans fenêtres, un temple dont les colones sont des chiffres. Son rituel est inaccessible aux non-initiés. L'enfer et le paradis. Un univers hermétiquement clos, dans lequal s'agite, grouille, crie, s'effondre et s'enthousiasme, le choeur des professionnels de l'argent, avec ses parasites.

Moreover, we often could not discern whether this suspiciousness was a defensive or maintenance mechanism or plain alienation. Mills (1956:XVI) remarked on this issue that:

> In the case of the white-collar man, the alienation of the wage-worker from the products of his work is carried one step nearer to its Kafka-like completion... (For) when white-collar people get jobs, they sell not only their time and energy but their personalities as well. They sell by the week or month their smiles and kindly gestures, and they must practice the prompt repression of resentment and aggression. For these intimate traits are of commercial relevance and required for the more efficient and profitable distribution of goods and services.

In our data collection, access to investors was the determining factor in the selection of our sample, which can only claim to be broadly selected. As a result, a disproportionally large number of schedules were secured from individuals that belong to the managerial class.

7.1. The Schedule

Our schedule went through a series of revisions after its early conception. In addition to the considerations expounded in (6.2.1.;xxx6.2.3.), taken into account in making up the questions, it was evident that a hypothetical task by which to perceive risk dimensions would be useful. Kogan and Wallach (1967:234-239) have suggested an experimental paradigm for the study of risk. It consists of a hypothetical situation in which Mr. E, president of a light metals corporation in the U.S., is

considering the possibilities of business expansion by either building an additional plant in the U.S. where there would be a moderate return on the initial investment, or building a plant in a foreign country where lower labor costs and easy access to raw materials would mean a higher return on the initial investment. However, the foreign country has a long history of political instability and revolution and in fact the leader of an activist movement is committed to nationalize all foreign investment. The respondent is asked to choose - from a list of probabilities ranging from 1 in 10 to 9 in 10 that the country will remain politically stable - the lowest probability that he would consider advisable for Mr. E's investment venture in that foreign country. Another alternative was the decision of not investing under any conditions.

This experimental paradigm had obvious implications for our purposes. Thus we decided to test it by administering it to some executives. The results were very disappointing. The experimental paradigm did not make any sense to them. For them it was like a charade. It reinforced our preference for risk in a natural setting rather than a laboratory setting. Though it could be argued that the experimental paradigm was designed to measure risk-taking behavior in real investment rather than financial investment, this difference of degree did not come out in any way from the executives. Hence we had to devise another way by which we could perceive the dimensions of risk. We devised two questions (see 7.9.) that eventually elicited adequate data.

In order to avoid the raising of suspicion among investors

by the phrasing of the questions, the entire questionnaire was rephrased and many other questions were added. This was accomplished with the assistance of an executive who had wide experience in dealing with stockbrokers and customers. During the interviewing his aid proved to be necessary to avoid suspicion. In addition, by using the investment jargon, ambiguity in their understanding of the questions was significantly diminished.

Our questions were produced from the considerations expounded in (6.2.1.;...6.2.3.). Questions about portfolio composition were asked broadly in percentages. Efforts were made to keep the interview down to less than 30 minutes. Throughout the questionnaire the fixed-question, open-answer technique was used. The interviewing began on June 16 and ended on July 4. A copy of the questionnaire can be found in the appendix. The questionnaire was pre-tested in a rather limited manner with six respondent volunteers.

7.2. The Microstructure

The place we chose to look for our microstructure of individual investors was a brokerage house (C. M. Oliver & Co.) that has a trading room. We chose this house for it appeared that it would contain individual investors of varied social background. As pointed out before, it was not possible for us to secure a random sample of this microstructure, and all we could gather was a haphazard sample of investors, which we cannot possibly claim to be a representative sample of the microstructure of individual investors. Nevertheless, we shall proceed as if this haphazard sample is representative of individual investors.

The sample was composed of 30 members, all male. Though we attempted to include female volunteers, no female volunteers could be found.

We shall proceed to uncover, by data tabulation, the demographic characteristics of our sample. In addition, we shall also present some social structure variables and risk data. Whenever possible we will present comparative data extracted mainly from Porter's (1967) work on Canadian social structure. We will consider occupation as the relevant datum for cross-classification, as this seems to be the variable considered by earlier studies such as Marx, Weber, and also Kogan and Wallach (see 4.4.2.).

Table 1

Sample's Breakdown by Occupation

(in percentages)

Occupation	N	%
Professionals	6	20
Managers	9	30
Salesmen	7	23
"Plungers"	8	27
Total	30	100

In the above table the category of professionals include lawyers, engineers, and in general those who have attended professional or graduate schools. Managers include business executives, chartered accountants, or commerce graduates. Salesmen are

registered representatives or stockbrokers. Finally, the category of "plungers" corresponds to those individuals who daily frequent C. M. Oliver's trading room and whose livelihood (at least partly) seems to depend upon their daily trade in the so-called "penny stocks". Weber referred to them as "fly-by-night" speculators. Most of them are retired laborers, and very few are skilled or professional people.

It is clear that white-collar occupations are disproportionately represented (73%) in our sample, as compared to the relatively few members of manual occupations (who are usually retired) and are "plungers". This is not surprising, since according to the statistics of the Department of Labor on the occupational trends in Canada 1931-1961, (as quoted in Porter 1967:93), the distribution in the most recent year (1961) is relatively higher for white-collar occupations (38.6%) than for manual occupations (34.9%), followed by service occupations (10.8%), and occupations in primary industries (13.1%). This high representation of white-collar members in the stock market is as it should be, for as we recall, Marx and Weber already made scattered references to the tendency of market members to be of white-collar occupation.

We shall now turn to the educational background of the sample as measured by the respondent's highest achieved level of formal education.

Table 2

Education by Occupation

(in percentages)

Occupation	Highest Standard Achieved							
	Grade School	Trade School	High School	Some Univ.	B.A./ B.Sc.	Prof./ Grad.	Total	N
Professionals	0	0	0	0	0	20	20	6
Managers	0	0	0	10	20	0	30	9
Salesmen	0	4	4	6	10	0	24	7
"Plungers"	6	6	6	0	4	4	26	8
Total	6	10	10	16	34	24	100	30

This table indicates to us that in our sample high educational achievers (with academic training beyond high school level) are somewhat disproportionately represented; at least 58% have gone beyond high school level. On the other hand, comparing this trend with the distribution of the male labor force by occupational group and highest level of schooling in the year 1961 (as reported by Porter, 1967:100 from Census of Canada 1961) we find that only 4.9% have university degrees, which suggests that our sample is significantly higher in educational achievement.

We now turn to the third demographic characteristic of our sample - religious background. We must point out that before our interviewing began we were advised not to ask for the specific affiliation of the respondent, thus our classification of Protestant, Jewish, Catholic, or no religious affiliation at all.

Table 3

Religious Affiliation by Occupation

(in percentages)

Occupation	Religious Affiliation					
	Protestant	Catholic	Jewish	No Affiliation	Total	N
Professionals	12	0	4	4	20	6
Managers	23	0	0	7	30	9
Salesmen	10	0	0	14	24	7
"Plungers"	6	3	3	14	26	8
Total	51	3	7	39	100	30

The above table suggests that in our sample Protestant affiliated members are disproportionately represented. The next highest distributors correspond to those with no religious affiliation at all, followed by Jewish affiliated members, and lastly by those of Catholic affiliation. According to the 1961 Canadian Census data (as quoted in Porter, 1967:83) the distribution of religious affiliation is as follows: Catholic 45.7%, Protestant 44.7%; Jewish 1.4%; and others 6.9%. In our sample, as compared to the national census data, the Protestant affiliated members are significantly represented; the Catholic members are the least represented; the Jewish members are somewhat more represented than the Catholic members; and finally, it is significant to note the relatively high number of non-church affiliated members in our sample. Hence our sample, as compared to the national census data, suggest that a high proportion (51%) of

the investors are of Protestant affiliation, followed by a relatively high proportion (39%) of non-church affiliated investors, followed by a somewhat high representation (7%) of Jewish members (since the national proportion is only 1.4%), and lastly the Catholic affiliated members (3%).

However, it is interesting that our sample contains such a relatively high proportion of non-church affiliated investors. This came as a surprise to us, since the literature states the reverse - that church affiliation, particularly Protestant, is correlated with high status expectations and financial activity. For example, Barlow and others (1966:16) in their study on the economic behavior of the affluent (income of $10,000 and higher) reports a high correlation of Protestant church affiliation with financial activities. Likewise, Porter (1965:88) in his analysis of the Canadian social classes and power, also posits that there is a high correlation between high status expectations of financiers with Protestant church affiliation. However, looking closely at the distribution of the non-church affiliated members we can notice that a relatively high proportion of this category came from sales and "plunger" occupations, which in relation to Table 2 corresponds to relatively lower educational achievers. We conjecture that this may be an indication that these two occupational categories may belong to the periphery of the financial world as such, which could account for their lack of status concern. Only by testing this conjecture would we be able to uncover the meaning of this distribution, that appears to constitute the converse of the Weberian thesis.

We should like now to examine the marital status of our sample.

Table 4

Marital Status by Occupation

(in percentages)

Occupation	Marital Status			
	Single	Married	Total	N
Professionals	7	13	20	6
Managers	0	30	30	9
Salesmen	7	17	24	7
"Plungers"	13	13	26	8
Total	27	73	100	30

In the above table the category of single includes divorced and widowers. It is quite clear that in our sample married members are disproportionately represented. According to the national census data of 1961 (as quoted by Porter, 1967:90) the marital status of the labor force of 15 years and over is as follows: 25% of the male labor force is single, and 75% is married.[21] It is evident that our sample yields a comparable distribution of single and married status.

The geographical mobility of our sample will be examined next.

Table 5

Geographical Mobility by Occupation

(in percentages)

Occupation	Geographical Mobility					
	Born in Vancouver	Moved from elsewhere in Canada	Moved from U.S.	Moved from Europe	Total	N
Professionals	0	20	0	0	20	6
Managers	3	21	3	3	30	9
Salesmen	10	10	0	4	24	7
"Plungers"	6	10	0	10	26	8
Total	19	61	3	17	100	30

In the above table the categories of "elsewhere in Canada" signifies anywhere except the province of British Columbia, and "moved from Europe" includes Ireland, England, the Low Countries, U.S.S.R., and Portugal. The table above suggests that in our sample investors have a high geographical mobility regardless of occupation. The Canada Census in 1961 (as quoted in Porter, 1967:71) yields the following breakdown: 84.4% were born in Canada; 13.3% were born in Europe; and 1.6% were born in the United States; and the rest (0.7%) in Asian and other Commonwealth Countries. Moreover, the internal migration of native Canadians shows a net gain of population (in hundreds of persons) of (+509) for British Columbia in the period 1951-1961 (as quoted in Porter, 1967:74). Our sample's high geographic mobility seems to be in accordance with the significant immigration to Canada and migration within Canada that has occurred

within the past few years. British Columbia is second to Ontario in the rate of new population gain.

Lastly, we shall examine average age by occupation in our sample.

Table 6

Average Age by Occupation

(in percentages)

Occupation		Average Age
Professionals		37
Managers		42
Salesmen		43
"Plungers"		45
	Mean Age	41.7
	Range	8
	Mean Deviation	2.4

The mean age of our sample is 41.7, which falls in the age group of 30-44 in the Age Composition of 1961 (as quoted by Porter, 1967:50). This group is 20.1% of the Canadian population.

7.3. We can now summarize the demographic characteristics of our sample. If our sample had been drawn by probability methods, then we could have suggested that the following be considered as the characteristics of a microstructure of individuals. In any case, we have assumed that we should proceed as if we had a random sample whose characteristics are the characteristics of

the microstructure. Data tabulation indicates to us the following pattern of social characteristics:

7.3.1. No significant social differences seem to exist between the professional and managerial occupations. Both groups have relatively high educational achievement (Table 2); they tend to be of Protestant affiliation (Table 3); they are almost all married (Table 4); their geographical mobility is relatively higher (Table 5); and the mean age in both occupations is 39.5.

7.3.2. The sales occupational group is characterized by an intermediate position between the professional and managerial occupations (7.3.1.) and the occupation of the "plungers" (7.3.3.). Their educational achievement is average, ranking from at least a high school education to a B.A. (Table 2); they tend to be more non-church affiliated than Protestant (Table 3); they are relatively geographically mobile, though a significant number came from Vancouver (Table 5); they tend to be married (Table 4); and their mean age is 43 (Table 6).

7.3.3. The occupations of the "plungers" or self-employed speculators, display a wide diversity of characteristics because of the great diversity of individual components of this occupational group, i.e. retired people, gamblers, non-practicing professionals, and the like. Their educational achievement is thinly distributed from grade school to professional and graduate schools. (Table 2). A somewhat high percentage are non-church affiliated and the rest are thinly distributed among the Protestant, Jewish, and Catholic religions (Table 3). One half are single and the other married (Table 4). Their geographical mobility is relatively high (Table 5), and their mean age is

45 (Table 6).

These are the three specific patterns that the tabulation of social characteristics has yielded, maintaining "occupation" as a cross-classification variable. Next we propose to examine some other structural variables such as: political ideology, and income and wealth. In addition, we shall also examine some economic considerations such as: investment objectives and policies, liquidity preference, and some psychological ones bearing on risk taking.

7.4 Political Ideology

Any attempt to elicit political ideology during an interview can be a fruitless job, for ideology is a vast subject, and in our case we could have aroused suspicion. This was an election year, and - in addition - students nowadays are considered to have gone astray ideologically. Our questions could have ignited senseless arguments. Hence we decided to elicit responses on party choice, and whether the leader of the party-program played a significant role in this decision. We asked the following questions:

1. Do you think that Premier Bennett has done a good job for the Province?
2. Which party in British Columbia best represents your thinking?

The managers were in agreement with Premier Bennett, mostly due to their perception of the latter's financial accomplishments, and they demonstrated no concern at all for political programs, save those programs that might harm business. The professional group generally agreed with Premier Bennett's performance; a few defined themselves as Liberals.

The salesmen, though in agreement with Premier Bennett's financial performance, showed some concern on ideological issues. For example:

> I vote for Social Credit to vote anti-NDP, because I think Socialism can be dangerous and chaotic.

Another said:

> I think Socialism is inevitable, if not Communism. Our problems have become so large that they can only be solved under Socialism.

The self-employed speculator group ("plungers") showed significant disagreement with Premier Bennett:

> Premier Bennett ain't no politician; he's a businessman. No party in B.C. does what taxppayers pay them to do.

In general this group indicated that if they were not against Premier Bennett, they were indifferent.

It was indicated by the above responses that political concern is almost negligible among white-collar occupations, but it appears, to some degree, among "plungers" who do not usually hold white-collar occupations. Despite the sparseness of our data on this matter, we feel that our results bear some similarities to C. W. Mill's (1956) analysis of white-collar political ideology. Mills (1956:351-352) contends that the lack of political awareness and of organization among white-collar occupations stems from the fact that:

> No common symbols of loyalty, demand, or hope are available to the middle class as a whole, or to either its wings. Various segments join already existent blocs to compete by pressure within party and state. The major investments are not differentiated in such a way as to allow, much less to encourage them, to take upon themselves any specific political struggle. Nothing in their direct occupational experiences propels the white collar people toward autonomous political organization...(As individuals)

> they do not know where to go...They hesitate, confused and vacillating in their opinions, unfocused and discontinuous in their actions...They may be politically irritable, but they have no political passion. They are a chorus, too afraid to grumble, too hysterical in their applause. They are rear-guarders.

Our data certainly corroborates most of Mills' basic conjectures.

7.5. Income and Wealth

It is fairly obvious that the most important factors to be considered in any kind of investment decisions are income and wealth. We will now present some data on the varying priorities of income sources. The three major elements that we will consider as income sources are: "guaranteed income" - meaning a secure income from profession or occupation, "capital gain" - revenue obtained from tax-free investment, and "cash reserve" - liquid assets. These priorities will be given in ordinal preference.

Table 7

Elements of Income and Wealth by Occupation

(in ordinal preference)

Occupation	Elements of Income and Wealth			
	Guaranteed Income	Capital Gain	Cash Reserve	N
Professionals	2nd	3rd	1st	6
Managers	1st*	1st*	1st*	9
Salesmen	2nd	3rd**	1st	7
"Plungers"	2nd	1st	1st	8

*Managers display equal preference for all three sources.

** Verbal response indicates that capital gain is not an important source of income to any of the salesmen, but information on portfolio composition (Table 13) indicates that this is very unlikely. This difference between ideal and operational behavior may be attributed to a suspicion toward the interviewer.

The above data indicate that despite occupational differences, most of the members of our sample give high preference to the holding of liquid assets; and it appears that guaranteed income is usually of secondary consideration for everybody except managers, who display equal preference for all three sources. This uniformly high preference for liquid assets is interesting in terms of the Liquidity Preference Theory (5.3.1.). But before making any further comments on this theory, we should examine more data on this issue.

7.5.1. Table 7 has shown that despite occupational differences, most of the members of our sample give high preference to the holding of liquid assets. In the next table we will present data specifying the reasons for holding liquid assets.

Table 8

Money Demand by Occupation

(in ordinal preferences)

Occupation	Money Demand			
	Transactions Demand	Precautionary Demand	Speculative Demand	Other
Professionals	3rd	2nd	1st	4th
Managers	4th	2nd	1st	3rd
Salesmen	2nd	2nd	1st	
"Plungers"	2nd	3rd	1st	3rd

The table on the preceding page indicates that despite the occupational differences of our sample, the speculative demand for money occupies the highest priority, followed by the precautionary demand, and lastly by the transactions demand. This high preference for holding resources in the form of money presumably relates to the desire to take advantage of the market movements. We shall come back to this later.

7.6. Attitudes Toward Credit

Credit attitudes are important because much investment is carried out with borrowed money. But, due to the cyclical variation of the economy, which may be a result of exogenous factors, i.e. wars, social unrest, or rising level of unemployment and prices, investors now face the fear of inflation. Obviously this fear can influence the demand for money and the predisposition toward borrowing. This following table represents data obtained on credit attitudes.

Table 9

Credit Attitudes by Occupation

(in percentages)

Occupation	Credit Attitudes				
	Owns Car	Owns House	Pays Cash For All Purchases	Paid Cash For Car	N
Professionals	100	50	100	100	6
Managers	100	64	55	77	9
Salesmen	85	71	85	85	7
"Plungers"	62	25	62	50	8

Table 9 suggests that professionals are consistent with their desire to make their purchases of current goods at cash price, i.e. a car; though for long-term assets, i.e. a house, credit is used. Likewise, this seems to be the tendency among managers and salesmen. However, this trend is significantly less marked among "plungers", fewer of whom own their cars and houses, and fewer of whom paid cash for their car.

From the responses, significant differences are found in attitudes towards borrowing money by occupations. A high proportion of professionals and managers (around 75% of each) considered it necessary to borrow money for long-term financing alone; this view was also shared (though in a relatively smaller proportion, i.e. 60%) by salesmen. However, a high percentage (around 80%) of "plungers" considered money borrowing as undesirable under any circumstances. This seems to be caused by the relatively high interest rates, as far as "plungers" are concerned, though this would not necessarily apply to long-term financing.

7.7 Investment Purposes

In this subsection we comment on our attempt to elicit responses on the basic considerations for which investment is undertaken. From the responses, professionals pointed out the tax-free status of capital gains as a significant consideration in their market participation. The building of capital to stay ahead of inflation was also another significant consideration. Retirement, educational financing of children, and professional fulfillment played minor roles in their investment purposes. The overall financial purpose of this occupational group is to

hedge inflation and risk. High risk is systematically avoided in various manners, i.e. choice of securities. Stress is placed upon calculability of transactions and high returns. They are entrepreneurs for they assume risk for the sake of profit. Obviously, they all have been trained academically in finance and their interest in finance generally began during their university life. However, a small percentage of them see the necessity of risk money.

The participation of managers in the market seems to be equally aimed at tax-free capital gain, as well as "to amuse themselves" - as Engels put it - in outsmarting the market. Moreover, replacement of salary by investment income, hedge against inflation, and early retirement by building a diversified portfolio of around a million dollars were significant considerations. In general, managers participate in the market because some of their friends or relatives may happen to do so, and consider it as a mechanism to hedge inflation as well as a lead to early retirement. A significant stress is placed on the challenge of gambling. In the words of one informant:

> "There is something of death-wish, in the Freudian sense, in my participation in the stock exchange. The thrill of action of losing or winning is very important. It's nothing but a gamble, I don't do it for income, the real thing is gambling. If capital gain comes, it's O.K., but gambling and thrill are the most important things."

The participation of salesmen in the market is mainly based on considerations of tax-free capital gains, and the opportunity to make one's own decision (we will call it work satisfaction) was also suggested. In addition, the desires to have a balanced portfolio and upward occupational mobility are also strong con-

siderations among salesmen. Their participation in the market began at the suggestion of a friend or a relative. They are also interested in the desire to gamble, though to a lesser degree than in tax-free capital gains considerations.

For the "plungers" tax-free capital gain is not only their major consideration, but in addition to it constitutes in almost all cases (90%) their sole source of income and thus their major purpose for participation in the market. As substantial necessities of life are covered, a small group (25%) attempt to diversify their portfolio, i.e. invest in real estate, "high-class stocks" (mutual funds). They complain that the rate of commissions are too high. Their participation in the market began through the influence of friends and relatives. Some praise themselves as having a gambling instinct. Almost all (95%) do their own research on investment opportunities. In general, their sole objective is to make ends meet by their speculative participation in the market.

The opinions just presented on the purposes of market participation are derived from the questionnaire, with its limitations of numbers and depth of interviews. Our interests in eliciting the opinions arises because economists have argued (see 5.3.1.) that an investor's preference for liquidity will increase with a fall in the rate of interests; and that his asset demand for money may also be a decreasing function of the rate of interest. However, our contention is that this may not be necessarily so; and we can show this by comparing Table 8 on money demand by occupation with the opinions presented above on investment purposes.

Table 10

Investment Purposes by Occupation and Money Demand

Occupation	Specific Investment Purposes	Money Demand (1st Choice)
Professionals	Hedge inflation and risk	speculative
Managers	Capital gain and gamble	speculative
Salesmen	Capital gain and work satisfaction	speculative
"Plungers"	Capital gain	speculative

Clearly from the above table, despite occupational differences, our investors display a uniform preference for the speculative demand for money, that is they keep liquid assets presumably to take advantage of market movements; but this preference does not follow any consideration (decreasing or increasing) of the rate of interest. For our investors participate in the money market for various reasons, such as capital gains, gambling, and work satisfaction, rather than as a response to interest rate. However, it is possible that professionals do take into account the rate of interest as indicated by their response in Table 10. This resembles the prescription of economic theory, which has attempted to describe and predict the behavior of the entrepreneur (see 2.1.1.).

7.8. Investment Policy

In this subsection we are interested in finding out the principles that guide the individual in his investment activity. The following data were obtained:

Table 11

Investment Policy by Occupation

(in percentages)

Occupation	Investment Policies		
	Budgets Part of Salary to Invest	Budgets Portfolio Income to Reinvest	N
Professionals	33	50	6
Managers	11	33	9
Salesmen	14	14	7
"Plungers"	13	50	8

In the above table we are only taking into account perhaps the two most important tools of investment policy: budgeting part of salary for investment, and budgeting portfolio income for reinvestment. We chose not to take into account other mechanisms, for they are rather sophisticated mathematically and they really belong to a mathematical analysis of the subject. The above table indicates that budgeting part of one's salary for investment does not seem to be particularly common principle (except among the professionals). Budgeting portfolio income for reinvestment is more common, particularly among professionals and "plungers". The distinction of investment policy among the occupational groups can be tentatively explained by the varying investment purposes (Table 10) of our sample. We conjecture that managers and salesmen may be less concerned with investment policies such as budgeting part of one's salary for investment or budgeting portfolio income for reinvestment because their

primary concern for their market participation may not necessarily be profit maximization in the form of capital gains, but other considerations such as work satisfaction and gambling. Conversely, we conjecture that professionals and "plungers" participation may be primarily concerned with profit maximization since they seem to be significantly concerned with policies such as budgeting portfolio income for reinvestment in particular.

7.9. Risk-taking

As already indicated (7.1.) during our discussion of the questionnaire-building, we needed an hypothetical task by which to perceive the dimensions of risk. On the other hand, we also saw that the Kogan and Wallach experimental paradigm for the study of risk was not suited for our purposes. Hence, with the aid of an investment executive, we proceeded to construct a continuum of securities ranging from the ones that implied no risk to the ones that implied high risk. Thus the following continuum was devised:

No risk	Government savings bonds
Very low risk	Corporate bonds Convertible debentures
Low risk	Preferred shares Convertible preferred shares
Moderate risk	Mutual funds Common shares paying dividends
High risk	Speculative common shares

We checked the reliability of this continuum with four stockbrokers, two executives of banking investment, and a general manager of an investment company, all of whom agreed with our ranking of securities by their risk implications.

Having devised the risk continuum of securities, we proposed to use it by asking our respondents to choose the securities that they would generally buy in order of preference, their answers giving us an indication of their investment risk-taking behavior. These indications on risk choice were checked with their portfolio composition to assess whether the respondents perceived their choices as being risky choices. With the preceding data and considerations (i.e. 7.3.;...7.8.) and our assessment of risk, we shall attempt to infer the utility of risk. Lastly, we shall attempt to show the interrelatedness between investment risk-taking behavior, utility and the microstructure's characteristics.

We shall next present data obtained on choice of securities (Table 12) and portfolio composition (Table 13). In both tables, we have tabulated by ordinal preference the choice of securities and portfolio selection respectively.

Table 12

Securities Choice by Occupation and Investment Risk Choice
(in ordinal preference, 1 = highest preferred choice; 8 = lowest)

Occupation	Investment Risk Choice							
	No risk	Very low		Low		Moderate		High
	Govt. Bonds	Corp. Bonds	Conv. Deb.	Pref.	Conv. Pref.	Mutual Funds	Com. Div.	Spec. Com.
Professionals	7	8	2	6	3	4	1	5
Managers	6	7	2	5	4	2	1	3
Salesmen	8	7	4	5	2	6	3	1
"Plungers"	5	8	7	6	4	3	2	1

This table suggests that professionals and managers choose moderate risks, and they are likely to choose as a second alternative very low risk choices. Salesmen and "plungers" tend to choose high risks, though their second alternative varies, i.e. salesmen a low risk choice and speculators a moderate risk choice. Thus, the high risk takers, according to the above data, are "plungers", followed by salesmen, and lastly come managers and professionals whose moderate risk choice is balance by very low risk choices. This preliminary set of risk-taking attitudes must be tested with their portfolio composition to see whether their risk choice is consistent with their actual risk-taking.

The data given in Table 13 suggests that common shares constitute the highest frequency in the portfolio composition of professionals, which is in accordance with their choice in Table 12. The composition of managers' portfolios shows that speculative shares are their highest preference, which is not consistent with their choice as shown in Table 12 (common shares). We seem to face here a division among managers from preference for a moderate risk choice (common shares) to preference for a high risk choice (speculative shares). Looking closely at the portfolio composition of managers and professionals, we realize that common shares and speculative shares constitute their first two choices. One can hypothesize that this constitutes a strategy to balance speculative and common shares in order to diminish risk. On these grounds, we can still consider both managers and professionals as moderate risk takers.

As already suggested in Table 12, salesmen and "plungers" were high risk choosers, and their portfolio composition shows

Table 13

Portfolio Composition by Occupation

(Individual preference - specific percentages given in brackets)

Occupation	Portfolio Composition in Percentages and Ordinal Preference								
	Rev. Producing Real Es.	Non-rev. producing Real Estate	Bonds	Pref. Shares	Com. Shares	Non-speculative Shares	Speculative Shares	Mutual Funds	Other
Professionals	4 (12.5)	6 (1.6)	3 (16.0)	7 (.8)	1 (34.2)	5 (8.3)	2 (25.0)	6 (1.6)	0
Managers	5 (7.5)	3 (10.6)	7 (2.1)	8 (.4)	2 (24.4)	5 (7.5)	1 (33.7)	4 (8.8)	6 (5.0)
Salesmen	5 (3.3)	7 (1.7)	6 (2.2)	8 (.8)	2 (31.2)	0	1 (40.0)	4 (8.3)	3 (12.5)
"Plungers"	0	4 (3.1)	5 (1.2)	4 (3.1)	2 (23.2)	0	1 (58.8)	6 (.6)	3 (10.0)

the same tendency. However, the following differences should be taken into consideration for a more refined assessment of risk: portfolio diversification, a risk diminishing mechanism, must be taken into account, and secondly, percentage differences among types of securities must also be considered. Taking into consideration not only the respondent's data on risk-taking, but also considering portfolio diversification and specific differences in percentages of high risk securities, we can differentiate the following risk-taking patterns:

7.9.1. "Plungers" - high risk takers (58.8% of speculative shares in their portfolio (Table 13). Poorly diversified portfolio.

7.9.2. Salesmen - high risk takers, though to a lesser degree than "plungers". (40% of speculative shares in their portfolio - Table 13). Somewhat diversified portfolio.

7.9.3. Professionals and managers - moderate risk takers (25% and 33.7% of speculative shares in their portfolio respectively - Table 13). Well-diversified portfolio.

Now the question comes: why this difference in risk-taking? In an attempt to answer this, the question perhaps should be rephrased to: what utility is yielded by risk-taking as set forth in (7.9.1.;...7.9.3.)? At this point one should remember Bernoulli's (1783:25) principle which says:

> In the absence of the unusual, the utility resulting from any small increase in wealth will be inversely proportionate to the quantity of goods already possessed.

From Table 13 we recall that professionals and managers maintain well-diversified portfolios as compared with salesmen and "plungers". Clearly the greater the portfolio diversification,

the greater the wealth and vice versa. Now, applying the Bernoulli principle we propose that for "plungers" whose portfolio is not well-diversified and correspondingly hold limited wealth, any small increase of wealth will yield higher utility than for professionals and managers, who possess diversified portfolios and correspondingly greater wealth. Thus, in general, the smaller the wealth the greater the utility of high risk-taking.

7.10. Summary of Preliminary Generalizations

In summation, we propose the following tentative and/or preliminary generalizations:

7.10.1. The pattern of social characteristics that would presumably belong to our microstructure, had we possessed a random sample (7.3.1.;...7.3.3.), seems to correlate with the patterns of investment risk-taking behavior (7.9.1.;...7.9.3.). Thus:

Social characteristics in set (7.3.3.) ⟶ high risk-taking behavior (7.9.1.).

Social characteristics in set (7.3.2.) ⟶ somewhat high risk-taking behavior (7.9.2.).

Social characteristics in set (7.3.1.) ⟶ moderate risk-taking behavior (7.9.3.).

7.10.2. Political concern is almost negligible among all occupations (white-collar), though somewhat apparent among "plungers" who do not usually hold white collar occupations.

7.10.3. There is a uniform high preference for holding liquid assets, despite occupational differences. Likewise, guaranteed income is of secondary consideration, except for managers who display equal preference for all sources of income.

7.10.4. The speculative demand for money occupies the highest priority, despite occupational differences. This relates to the desire for taking advantage of market situations.

7.10.5. Professionals are consistent with their desire to make their purchases of current goods at cash prices, though for long-term assets credit is used. Likewise, the same tendency is found among managers and salesmen. This trend decreases significantly among "plungers". As far as borrowing money is concerned, professionals and managers consider it desirable to borrow money for financing purposes alone. This tendency decreases among salesmen and even more among "plungers".

7.10.6. The overall financial purposes of our occupational groups are the following: for professionals - to hedge inflation and risk aversion are the major considerations; for managers - to obtain tax-free capital gain and the desire to amuse themselves; for salesmen - tax-free capital gain and work satisfaction; and for "plungers" - tax-free capital gain is not only their major financial purpose, but in addition it constitutes their only source of income.

7.10.7. Considering the investment purposes and money demand by occupation of our microstructure, we propose that in spite of the uniform high speculative demand for money, the rate of interest is not taken into account to any considerable extent in the process of investment, with the possible exception of the professional category that have been classified as "entrepreneurs" (7.7.). This disparity with contentions set out by

economists (5.3.1.) may be explained in reference to the kind of behavior that economics as a science has attempted to predict and describe, which is that of the "entrepreneur" (2.1.1.). It is quite possible that entrepreneurs who are mainly concerned with profit-maximization may actually follow the prescriptions of the homo oeconomicus. In our case, the professional category seems to do that, but this is not necessarily the case with other occupations. Alternatively, we may also argue that the rate of interest may be taken into account primarily for real investment decisions, rather than financial ones. The above are conjectures that can be tested.

7.10.8. Considering investment policy, budgeting portfolio income for reinvestment appears to be a somewhat common practice, particularly for professionals and "plungers" rather than for managers and salesmen. We have conjectured that this difference may be related to investment purposes. More specifically, policy tools (i.e. budgeting one's salary or portfolio income for reinvestment) may be directly related with profit-maximization concerns, as is the case of professionals and "plungers" (Table 10).

7.10.9. Diversification of portfolio composition varies greatly with occupation. Professionals and managers display a well-diversified portfolio, but portfolio diversifications diminished to some extent among salesmen and significantly among "plungers".

7.10.10. The smaller the wealth the higher the risk-taking behavior pattern due to its greater utility, and vice versa.

7.10.11. The differences found in risk-taking behavior vis-a-vis age considerations are quite negligible (Table 6). Similarly, we did not find any evidence that ideology is determinant in risk-taking behavior. These considerations stressed by Kogan and Wallach (4.4.2.) did not become apparent at all at any stage of the research, although we must admit that we did not give primary attention to them mainly because our concern was not risk-taking alone but financial investment as well.

7.10.12. It was suggested (4.4.2.) that there was a clear relation between higher status and participation in conservative gambling activities. Lower status population segments are less likely to engage in gambling behavior, but if they do engage in such behavior they may take higher risks. If by "higher status" Back and Gergen (1963) meant occupations such as professional and managerial, clearly our data corroborate the above contentions.

7.11. Lastly, from the preliminary generalizations that we proposed (7.10.;...7.10.12.), we set forth the following social model on risk-taking behavior in financial investment:

7.11.1. Occupation and wealth greatly affect the actor's risk-taking behavior.

7.11.2. The higher the income and access to wealth as indicated by portfolio composition (i.e. professional and managerial occupations) the greater the risk aversion. The investment utility is a source of amusement and a hedge against inflation.

7.11.3. The smaller the income and access to wealth, as indicated by portfolio composition, (i.e. salesmen and "plungers") the

higher the risk-taking pattern due to its greater utility. And the investment utility is to make ends meet and the gain of work satisfaction.

CHAPTER 8

CONCLUSION

In this chapter we want to examine critically our research procedures, and in addition to formulate some possible lines of future research.

8.1. To what extent has this essay met the issues raised in (1.1.;...1.3.)?

In general, previous research on the three issues (1.1.;... 1.3.) is scanty. Sociological theory related to the analysis of some economic functions and the differentiation of social structures is in a beginning stage, as has been pointed out by various scholars cited throughout this essay. This lack of previous research and the incipient stage of sociological theory on the issues to which we have referred havecconstituted the major handicaps in this essay. One result has been an obvious lack of aesthetic unity and another has been that since pre-existent data was scanty and our data rather crude most of our generalizations are only conjectures. However, our conjectures are testable. The fact that our conjectures may be proved or disproved may guarantee us, at least partially, an ingress to the domain of science; for the process of science - as maintained by Joan Robinson (1968:26) - consists essentially in trying to disprove propositions about events in reality. These propositions may be of a different nature, for example, conjectural. But the sine qua non aspect of a scientific process is that a proposition (i.e. conjectural) must be amenable to be disproved, otherwise

the proposition belongs to metaphysics (i.e. a proposition not capable of being tested). In all probability our conjectural propositions are testable. It follows then that cumulative research on this topic will greatly add to the refinement and precision of our model.

Nevertheless, it is possible to criticize some of the pitfalls in our research procedures, i.e. the schedule and sampling procedure.

8.1.1. In general, our schedule elicited some important date, particularly data in reference to risk-taking, portfolio composition, and investment policy and purposes. However, a lot of questions could be dispensed with, i.e. questions in reference to preference of living area, European stocks, and the like. They elicited meaningless data because the questions were meaningless in relation to the purposes of the study.

8.1.2. By far, our sampling procedure left much to be desired. To our knowledge random sampling of a population of individual investors has not been done in the past. Access to a list of individual investors proved to be impossible to gain. Perhaps if one is associated long enough with a brokerage house one may have better chances of gaining access to such a list. The acquiring of a random sample of households may prove to be a promising procedure, though of considerable cost.

8.2. We raise the following issues as future lines of research:

8.2.1. The financial-real investment nexus: It is now obvious that in the broad societal context, real investment is the variable which has the greatest impact on national income, growth,

distribution of the product, and development. Financial investment is of interest in this broad societal context only as it relates to real investment. Hence, the nexus may be particularly relevant in the context of development in the Third World, especially insofar as the actors (real and financial investors) may represent different socio-cultural backgrounds and interest.[22] The following scheme may represent an important dimension of the investment nexus in the developmental nexus.

Actor's Background and/or Interest	Kinds of Investment	
	Real	Financial
Domestic	Preferred	Indifferent
Foreign	Undesirable	Indifferent

8.2.2. It has become obvious that risk-taking behavior ought to be investigated in the context of multivariate analysis. Our work so far has indicated that wealth, income, and occupation are three variables which have direct relevance to risk-taking behavior. Other social structure variables may also be pertinent such as mobility, religion, and ideology. The proper choice of statistical tools (e.g. factor analysis and multiple regression analysis) must await the researcher's close acquaintance with them.

8.2.3. The measurement of the variables must be refined by proper statistical tools, i.e. multivariate analysis.

8.2.4. This work has attempted to explain risk-taking behavior

as measured by mean risk. One might also be interested in explaining dispersion around the mean in risk-taking behavior.

8.2.5. In this essay we have not taken into account cyclical variations in business activity. Hence we may also want to determine the change of investment risk-taking behavior in respect to the different phases of the cycle (i.e. depression, recovery, boom, recession). Some unsystematic research has been done in this area. Katona and Klein (1951-1953:11-13) have shown different psychological changes in expectations in respect to the business cycles.

8.2.6. Another consideration that may be taken into account is whether "plungers" play "penny stocks" because they may have more available time, as opposed to professionals that invest in common stocks, who presumably have lesser available time.

As final conclusion, we want to emphasize that our analysis was primarily concerned with demonstrating the existence of a behavioral content in financial investment rather than measuring it.

FOOTNOTES

1. The impact of the Christian social and/or theological teachings upon our civilization has been discussed at length elsewhere, i.e. Troeltsch (1956).

2. Henceforth "behavioral sciences" will imply psychology, sociology, and anthropology. "Social sciences" will imply the behavioral sciences plus economics, history, and geography. This taxonomy is devised for the purposes of our analysis.

3. It may be stated à propos that elsewhere Belshaw (1955) has made an analysis of the entrepreneur and his cultural milieu.

4. Sociologists, i.e. Smelser (1968); anthropologists, i.e. Firth (1946); and psychologists, i.e. Katona (1963); have done research on economic activity within the context of their respective disciplines. This type of research has been named "social economics", "economic anthropology", and "economic psychology". Insofar as anthropology is preoccupied with the study of the whole man in a cross-cultural scope, we will call "economic anthropology" the analysis of economic activity within a behavioral context.

5. We will henceforth use both terms interchangeably.

6. Henceforth we reproduce Firth (1951:122-54) as reprinted in Le Clair and Schneider (1968).

7. Here we follow Belshaw's (1965:1-10) position and development.

8. Belshaw's (1967) work on the conditions of social performance constitutes a rather timely attempt to analyse a nation-state vis-a-vis development.

9. See for example "Individual and Collective Representations", in his Sociology and Philosophy (1953). In addition, in his Suicide (1951) he takes pains to demonstrate that the "suicide rate" is a societal attribute and cannot be predicted from psychological states.

10. We are following here the development set out by Devons and Gluckman in Gluckman's (1964).

11. We should mention that Barth (1959) has been able to use game theory in his analysis of anthropological data.

12. By objective probability is meant the theoretical relative frequency distribution outcomes, and by subjective probability is meant the transformation on the scale of mathematical probabilities somehow related to behavior.

13. This will be spelled out in the proper chapter.

14. What follows is an exposition extracted from Kogan and Wallach (1967:166-73).

15. By "conservatism" is meant actions or dispositions characteristic of low risk taking.

16. See for example Whyte, W. H. Jr. (1956) The Organization

Man.

17. We are extracting material from Kogan and Wallach (1967: 227-66).

18. We are following Hansen's (1953:58) guide to Keynes.

19. We are extracting from Hansen (1953:126-28).

20. We have taken these definitions from Kogiku (1968:14-15).

21. This was derived from Porter's (1967:90) Table E2 in the following manner:

$$\text{Single} = \frac{\text{single, divorced, and widowed}}{\text{total labor force}} \quad 100\%$$

$$\text{Married} = \frac{\text{married}}{\text{total labor force}} \quad 100\%$$

22. There is a growing literature on financial/real investment vis-a-vis development, particularly in the area of Latin America. For example, the Mexican economist Urquidi (1969: 91-115) has discussed the possible implications of real investment in Latin America. The Brazilian economist Teotonio dos Santos (1968a:94-98, 1968b:431-53) has analysed in depth the impact of real investment on the Latin American structure. Lastly, Frank (1969:281-98) has made a valuable historical study of capitalist development and underdevelopment in Latin America through foreign investment.

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APPENDIX

THE QUESTIONNAIRE

No.

Code

1. Sex
2. Marital Status
3. Occupation (Education)
4. Religion
5. Age
6. If retired, give your former occupation
7. Number of children, or none
8. How long have you lived in Vancouver?
9. Do you own a car? If no, why?
10. Do you own your own house?
11. Do you prefer to pay cash for your purchases?
12. Did you pay cash for your house and/or car?
13. Do you consider it desirable to borrow money?
14. Do you think that Premier Bennett has done a good job for theeProvince?
15. Which party in B. C. best represents your thinking?
16. What are the sources of your income?
17. Do you consider capital gain as part of your income?
18. Which is more important to you, capital gain or income?
19. Which of the following securities would you generally buy in order of preference:
    - Government savings bonds
    - Corporate bonds
    - Convertible Debentures
    - Preferred shares
    - Convertible preferred shares
    - Mutual funds
    - Common shares paying dividends
    - Speculative common shares
20. How often do you check the value of your investments?
21. Do you deal with more than one broker?
22. Do you budget part of your salary for investment?
23. What <u>percentage</u>, roughly, of types of securities do you have in your portfolio:
    - Revenue producing real estate
    - Non-revenue producing real estate
    - Bonds
    - Preferred shares
    - Common shares
    - Non-speculative shares
    - Speculative shares
    - Mutual funds
    - Other
24. Do you budget your portfolio income for reinvestments?
25. To whom do you seek investment advice?
26. What satisfies you most about investing?
27. What is your long-term goal as an investor?
28. Is there anything about investment that you don't like?

29. Define a safe investment.
30. Do you prefer to invest in a company which operates in an area in which you are familiar? i.e. B. C. Tel vs N. J. Tel.
31. Do you invest in companies which operate in an industry that is foreign to you? i.e. electronics, computers, etc.
32. Would you invest in a European stock? Why?
33. How do you feel about Europeans investing in Canadian growth stocks?
34. If you were to live in a foreign country, which country would you live in?
35. Do you believe in having a cash reserve in your portfolio?
36. Why do you keep money in the bank?
37. How did you become interested in investing in your highest preferred security?