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In Defense of Economic Man: Towards an Integration of Economics and Psychology

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In the course of the development of a science, periods of optimism and arrogance, of rapid, sometimes imperialistic expansion into new problem areas are usually followed by periods of pessimism and humility, when everybody feels that little has been achieved and looks to neighboring disciplines for guidance and salvation. It is less usual, though, and even confusing to the outsider, for a discipline to go through both these phases at the same time. This is, however, what seems to be happening in economics today.

At one extreme, respected economists like Duesenberry, Leibenstein, and Scitovsky feel that economics *cannot* do without psychology. Scitovsky (1976) expressed this view perhaps most explicitly, when he stated in the introduction to his *Joyless Economy* that "those examples (given in the book) show how much more realistic and convincing psychological theory is than the economists' sweeping assumptions of rational behavior" (p. viii). At the other extreme, some of their no less respected colleagues (e.g. Becker, or McKenzie and Tullock) not only reject this view, but argue that many aspects of human behavior that have traditionally been considered the province of psychology could be better accounted for by the economic approach. They thus engage in economic analyses of such non-market behavior as marriage, sex, cheating, and altruism.

Whether there is any validity to either of these claims is ultimately an empirical question. A priori, some merit may be inherent in both positions. After all, both psychology and economics attempt to account for human behavior and both do

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so quite successfully according to their own standards. It would be surprising, therefore, if a certain degree of cooperation would not benefit both disciplines. This does not imply that every area of psychology should be relevant for economics or that every area of economics should benefit from psychology. Nevertheless, there are areas of psychology of great relevance to economics. For example, *social* psychology, which studies attitudes, motivation, bargaining, decision-making and risk-taking should contribute to, and gain from, research and theorizing in microeconomics.

The cold reception given to psychological economics may be due to the obvious shortcomings of this line of research. However, it is our impression that an equally important reason is the one-sided and distorted view most economists seem to have of psychology. The thought of introducing psychological factors into the economic model appears to arouse something akin to castration anxiety among large sections of the economic community. They seem to associate this idea with behavior explained by "ignorance and irrationality, values and their frequent unexplained shifts, custom and tradition, the compliance somehow induced by social norms, or the ego and the id" (Becker, 1976, p. 13), instead of the rational maximization of utilities assumed by the economic model.

It is the aim of this paper to demonstrate that this fear is without foundation. "Psychological man" is a close relative of "economic man", the family links dating back to their joint ancestor, Jeremy Bentham. Like economic man, psychological man is assumed to respond systematically to positive and negative incentives. The major difference, however, is that his behavior is not assumed to be directly determined by his physical and social environment but by his *perception of the environment*. On the basis of more direct measurements of this perception and of perceptual changes due to systematic and experimentally-induced changes in the environment, psychologists have developed theories to make precise and quantitative predictions of this relationship.

This paper proceeds as follows: Part I gives a short review and evaluation of some of the main efforts to introduce psychological elements into economics². The contributions of Duesenberry, Simon, Katona, Leibenstein, and Scitovsky are discussed. It is concluded that they have not been able to bridge the gap existing between economics and psychology, for various reasons. Part II explores problem areas where a fruitful cooperation between economics and psychology could develop. The first section deals with the perception of benefits and costs, and the second with models of behavior. It is shown in particular that the two models are basically similar, but that they stress somewhat different aspects.

² Another area in which psychology and economics interact is the theory of choice, where empirical research comes up with some results which cannot be accounted for by the economists' rational choice theory, and in some instances even contradict it (see e.g. *Grether & Plott, 1979; Lichtenstein & Slovic, 1971; Tversky, 1969*).

Part III applies the psychological and economic approaches to a particular area, namely marriage. It is demonstrated again that the views are quite similar, and that economists could benefit considerably from taking into account the empirical research done on marriage in the psychological literature. Part IV offers some concluding remarks.

I. The Present Case for Psychological Economics

Psychological economics attempts to improve economics by introducing psychological principles and methodology into microeconomics. The main exponents of this view are Duesenberry, Simon, Katona, Leibenstein, and Scitovsky. They present their ideas mainly in the following books: Duesenberry in *Income, Saving, and the Theory of Consumer Behavior*, 1949; Simon in *Models of Man*, 1957; Katona in *Psychological Economics*, 1975; Leibenstein in *Beyond Economic Man: A New Foundation for Microeconomics*, 1976; and Scitovsky in his widely-discussed *Joyless Economy*, 1976. This section will be devoted to a brief review of these books, focusing on whether a good case has been made for the incorporation of psychological principles into economics.

Duesenberry (1949, Chap. III) argues that it is necessary to introduce psychological postulates into consumer demand theory, and therefore makes definite commitments of a psychological and sociological nature. People get used to the consumption standard reached (habit formation). If there is a generally recognized social goal it will be incorporated into the ego-ideal so that its achievement is essential to the maintenance of self-esteem. Above some minimum income, an individual's behavior depends entirely on the ratio of his expenditures to the expenditures of those people with whom he associates ("demonstration effect"). Duesenberry bases his ideas explicitly on psychological theory and experimental research (esp. pp. 28-31). Duesenberry's "relative income hypothesis" is well-known among economists, but in recent years its general impact has declined. Ferber's 39-page survey on "Household Behavior" (1966) commissioned by the American Economic Association, for example, mentions the demonstration effect in just one sentence; and Brown and Deaton's more recent survey on "Models of Consumer Behavior" (1972) does not even quote Duesenberry in their 244-work bibliography. This neglect is particularly surprising as the related concepts of "reference group" and "relative deprivation" have since become increasingly central to sociological and psychological thinking (e.g., Adams, 1964; Adams & Freedman, 1976; Festinger, 1954; Merton and Rossi, 1968; Runciman, 1966; Stouffer et al., 1949). As we will argue later (p. II), there can be no doubt that happiness or satisfaction are relative and depend not only on the level of outcomes achieved in the past but also on the outcomes achieved by the members of one's reference group.

Simon is, without doubt, the most prominent social scientist who tries to bridge the gap between economics and psychology (besides *Models of Man*, see 1966, 1978, 1979). He is equally well-versed in the two sciences, being a professor of psychology with a Nobel prize in economics. Simon suggests that the view of man as rational is not confined to economics but can be found throughout the social sciences, including psychology (and even Freudian psychoanalytic theory, see 1978, p. 3). However, the rules governing behavior differ according to the degree of uncertainty. Under conditions of complete information, decision-makers have no trouble finding their utility or profit maximum. This classical economic equilibrium theory is inadequate under uncertainty, i.e. when the surroundings are complex and rapidly changing. In that circumstance, the maximum is undefined and individuals use a different approach. They have limited ability to make comparisons, to see into the future, and, more generally, to process information, and to direct their attention to the most important aspects of a problem. Their rationality is bounded. Simon suggests that individuals use a *satisficing* strategy: They seek to attain an aspiration level. When the performance falls short of this level, search behavior is induced and simultaneously the level of aspiration begins to adjust itself downward until goals reach levels that are attainable. If the learning and adaptation processes do not function quickly enough to adjust aspirations to performance, emotional behavior (such as aggression or apathy) sets in.

The satisficing model thus considers not only the equilibrium outcome of human choice, but also the *processes* leading to a decision. According to Simon, choice does not only depend on the objective characteristics of a situation but also on the particular process that is used to reach the decisions. In complex decision situations, the objective environment in which an economic actor “really” lives and the subjective environment he perceives and to which he responds must be distinguished. An individual’s behavior – even if rational – can no longer be predicted from the characteristics of the objective environment; a knowledge of perceptual and cognitive processes is needed.

In his Nobel prize lecture (1979), Simon stressed that the empirical evidence speaks for his view of human behavior: “. . . it is now entirely clear that the classical and neoclassical theories have been replaced by a superior alternative that provides us with a much closer approximation to what is actually going on” (p. 510). As Simon admits, this view is not widely shared by economists: the concept of bounded rationality and the model of satisficing behavior have generally either been misunderstood, rejected, or ignored by economists. The opposition by economists has mostly been based on methodological grounds, under the strong influence of Friedman’s *Essays in Positive Economics* (1953). According to this view, a fundamental inquiry into human behavior is unnecessary for economics if the simple maximizing theory is “realistic enough” to allow satis-

factory prediction. Once that assumption of perfect competition and rational agents is accepted, almost no contact with empirical data is required, because in competition only maximizing agents can survive. Simon rejects this methodological position, noting that it completely contradicts the empirical tradition of psychology and sociology (1966, p. 2). Many economists also argue that a satisficing model is just a special case of a maximizing model in which information is costly and people therefore stop the search when the marginal cost of continuing search exceeds the marginal revenue to be gained from it. This critique misses Simon's central point. Computing the marginal cost and benefits from search would only put further strain on the decision-maker's bounded intellectual capacities. Simon endeavours to describe man's behavior in the way that psychological studies suggest real people think and act, i.e. based on empirically valid assumptions about *actual* decision-making.

Katona's main argument is that to understand economic phenomena we must first understand the expectations and attitudes of consumers, for these expectations and attitudes directly determine their behavior. While traditional economists rely on surrogates for assessing expectations and attitudes, Katona's approach is to measure them directly. With his "Index of Consumer Sentiment", which elicits consumer's assessments of their financial situation, the economic situation in general, and whether it is a good or bad time to buy durable goods, Katona was quite successful in predicting consumer behavior over a 15 year period. He also presents a theoretical analysis of the determinants of changes in consumer expectations. Nevertheless, his work has largely been ignored by traditional economists.

Leibenstein draws his psychological principles from common sense rather than academic psychology. His book contains few references to the psychological literature and the same is true for his articles (e.g. 1978, 1979a, 1979b). In the book's chapter on "selective rationality", which is the only one mentioned in the preface as involving "psychological issues" (p. ix), Leibenstein introduces a number of concepts such as "calculatedness", "constraint concern", "purposiveness", "motivation", etc., which he does not define operationally, but for which he draws hypothetical functional relationships. Leibenstein argues that "selectively rational" individuals select the extent to which they deviate from maximizing behavior. The degree of maximization deviation depends (1) on the taste for responsiveness to opportunities and constraints within certain standards of behavior (reflected by attitudes towards trust, honesty, lying, altruism, group solidarity, etc.), and (2) on the simultaneous taste for "irresponsible" or unconstrained behavior. The compromise between (1) and (2) an individual makes leads to a most "comfortable" degree of *internal pressure*. Together with the *external pressure* imposed on the individual by the economic context, this determines the actual degree of maximization deviation (1979a, p. 485). The partic-

ular inefficiency resulting from this behavior is called “*X-inefficiency*”. It covers all kinds of inefficiencies that are nonallocative, i.e. that are not the result of wrongly set market prices but which rather arise inside enterprises. X-inefficiency means in particular that the amount of output which is produced with a given set of resource inputs depends on individual motivation. Leibenstein thus acknowledges that individuals have some discretion with respect to the nature and amount of effort put forward in the production process, and that – within limits – there are “inert areas” where people stay, even if another position is associated with a higher utility.

Leibenstein’s theory of behavior has been strongly attacked by economists (most notably by Stigler, 1976). It is argued that this type of inefficiency can easily be assimilated within traditional economic theory, and that no recourse to psychology is needed. For example, decreasing one’s work efforts in order to have a more comfortable work day just means trading one goal (output, income) against another goal (easy life), a trade-off which is perfectly compatible with utility maximizing behavior, and certainly does not involve any (economically relevant) inefficiency. To Leibenstein this position is dangerously near to being a tautology because it is always possible to explain a certain behavior in the framework of utility maximization if only we take into account (1) the right considerations and/or (2) enough considerations.

It should perhaps be added that the “conventional micro-theory” with which Leibenstein contrasts his own approach is rather outdated. This can be seen from a table included in his article in the *American Economic Review* (1978, p. 204) in which he confronts conventional micro-theory and general X-inefficiency theory (Table 1). In order to clarify the difference between his “conventional micro-theory” the *modern* economic theory of human behavior, we added a fourth column in which the postulates and basic variables of that approach are shown. One may also note that there are only two differences between Leibenstein’s theory and the economic theory of human behavior. The latter does not contain Leibenstein’s “selective rationality” or his “inert areas” as postulates of its own. If they occur, the economic theory of human behavior attributes them to transaction costs. Somewhat surprisingly Leibenstein claims that microeconomics uses firms and households and not individuals as acting units, despite the fact that exactly the opposite approach is taken in the theory of property rights.

Scitovsky devotes several chapters of his book to the discussion of psychological research findings, and whatever faults this book may have, it is surely not the lack of psychological references. Scitovsky’s main argument appears to be that economists, by inferring from revealed behavior, may seriously misrepresent consumer motivation. In his Part I on “*The Psychology and Economics of Motivation*”, he presents a psychological theory of motivation known as “arousal theory”. According to this theory – at least in the version apparently

avored by Scitovsky – the stimulation an organism is receiving at a given time produces a momentary level of adaptation. For example, if one enters a house from the cold, one may at first feel overheated. After a short while, however, one will become unaware of the temperature. One's organism has adapted to it, and stimuli with excitatory potentials at the adaptation level are regarded with indifference. Stimuli with greater excitatory potential will induce a discrepancy from the momentary adaptation level. Small discrepancies are associated with

Table 1.
A Comparison of Various Approaches
to Explaining Human Behavior

Postulates and Basic Variables	Conventional Microtheory	General X-Efficiency Theory	Modern Economic Theory of Human Behavior
1. Psychology	1. Maximization or minimization	1. Selective rationality	1. Man responds to incentives in a systematic way, which is described by a maximized framework
2. Firm activity contracts	2. Given	2. Incomplete	2. To be explained
3. Units	3. Households and firms	3. Individuals	3. Individuals
4. Effort	4. Assured given	4. Discretionary variable	4. To be explained
5. Interpersonal interactions	5. None	5. Some	5. Exist (strongly)
6. Inert areas	6. None	6. Important variable	6. Do <i>not</i> exist
7. Agent principle	7. Identity of interests	7. Differential interests	7. Differential interests
8. Market structure	8. Given	8. Depends on effort	8. To be explained
9. Motivation	9. Implicitly constant	9. Variable	9. Variable

positive affect and large discrepancies with negative affect. Thus, the relationship between the discrepancy of a stimulus can be described as a "butterfly curve" with its juncture at the adaptation level. In other words, we dislike the completely unfamiliar (great discrepancy), we like novelty (moderate discrepancy), and we get quickly bored with the usual and too familiar (near or at the adaptation level). This positive effect of moderate arousal is, however, de facto limited to changes in stimulation which are not, or only slightly, associated with value changes. Although a decrease in one's salary is likely to create as much arousal as an in-

crease, the pleasantness of the change will be swamped out by the unpleasantness of the experience of being less well-off in the case of a decrease.

Scitovsky argues that economics has so far overlooked man's "yearning for new things" because of its methodology. In measuring preferences rather indirectly, through revealed behavior, economists may get a distorted picture. Due to the existence of economies of scale, where things have to be mass-produced in order to be cheap, only millionaire eccentrics can really indulge their taste for the novel or unusual. "Modern technology creates great possibilities, but it also pushes us toward standardization and uniformity, both of which inhibit our ability to exploit the possibilities it creates. This is one of the problems of our times, and is part of the subject matter of this book" (p. 11).

Scitovsky's *Joyless Economy* points to potential areas of fruitful cooperation between economics and psychology, and we will later use the theoretical concepts discussed by Scitovsky in a somewhat different context. The main shortcoming of his argument is that he is not sufficiently explicit about how to incorporate the psychological principles he outlines into economic theory. We fully agree with him when he writes that the "yearning for new things is the source of all progress, all civilization; to ignore it would surely be wrong" (p. 11). But we see no reason why novelty could not be incorporated as one of the sources of satisfaction into a wider economic theory of human behavior. It seems that Scitovsky's over-restrictive view of economics prevents him from considering this possibility. According to Scitovsky, "economics . . . deals only with services rendered and products sold by one person to another . . . whatever passes through the market belongs to the realm of economics" (p. 81). This statement is rather surprising in view of the considerable amount of work undertaken in non-market economics.

Conclusions: The work of the authors who are commonly considered to be the major psychological economists is a mixed bag indeed. If one understands psychological economics as an attempt to improve economics by explicitly incorporating psychological principles and methods into microeconomics, one has to discount Leibenstein's work, because it does not use the results of theoretical and empirical research in psychology. Scitovsky discusses a number of important psychological principles, but in adopting a very narrow view of economics he fails to consider the possibility of incorporating non-market sources of satisfaction into the economic model. Katona and Duesenberry have demonstrated empirically that psychological factors may improve economic estimations and predictions. However, they have failed to convince economists of the value of their approach. The same is true of Leibenstein's somewhat speculative selective rationality and even of Simon's satisficing behavior, which is well-based on psychological research.

It is our impression that the failure of psychological economics to have an impact on the field is mainly due to the widespread prejudice among economists that the economic and psychological approaches are basically incompatible. Psychological economists have not been able to overcome these fears. Instead of emphasizing the similarities in the basic assumptions underlying both approaches, they have either presented very little psychology (Duesenberry, Katona, Leibenstein) or have even strengthened this view by focusing too much on the differences (Simon, Scitovsky).

II. Areas of Cooperation: Two Examples

Incorporating psychological principles into economics does not imply a change in the basic orientation. There is a great deal of agreement between economists and large sections of the psychological community that man tries to behave rationally, i.e. chooses the action alternatives which are likely to be associated with the highest overall utility.

However, in order to explain specific behavior, both areas go on to make a great number of additional assumptions about human nature, and it is here that a fruitful cooperation between psychologists and economists might develop. While economists frequently make psychological assumptions, which they feel are so obvious that they need no further proof, or rely exclusively on testing mass behavior, psychologists test their predictions much more directly, typically in laboratory experiments. Some of this evidence is clearly inconsistent with psychological assumptions made by economists (e.g. tastes do change).

Economists will probably argue that they have done quite well in predicting social behavior on the basis of these allegedly false assumptions and this is probably true for two reasons: firstly, with the level of aggregation at which economists test their theories, a lot of false psychological assumptions can be covered up, leaving nothing but a minor trace in the variance. Secondly, a theory can only be proved inferior if pitted against a better one, and neither economists nor psychologists typically know enough of the other's area to develop such a theory.

The aim of this part of the paper is to explore by way of example two problems where a fruitful cooperation between economists and psychologists might develop. Obviously such a selection will have to remain somewhat arbitrary and incomplete within the scope of a paper. We shall concentrate on (1) the perception of benefits and costs, and (2) models of behavior.

In the discussion of the perception (i.e. the context dependence) of benefits and costs, we will try to show that the satisfaction derived from an outcome varies systematically with the context in which the outcome is experienced. A psychological theory of this relationship will be discussed. In the second section, we will contrast the psychological model of behavior with the economic model.

The distinctive features of the psychological model are that preferences and constraints are not separated (both are assumed to change), and that subjective perceptions of probabilities of outcome and of utilities are stressed, i.e. it is not simply *assumed* that – at least over time – subjective perceptions of constraints adapt to objective conditions. We will discuss psychological research of the cases under which objective and subjective probabilities are likely to be discrepant, and also some theoretical and empirical work done on the change of tastes.

1. The Perception of Benefits and Costs

Since psychologists believe that any impact an individual's social or physical environment may have on his actions will be mediated by his perception of this environment, they have studied the perception of physical and social events for a long time. Economists, on the other hand, have typically disregarded any distinction between objective "facts" and subjective experience. They have taken for granted that only those individuals can survive who correctly perceive the objective conditions. This assumption holds, however, only under reasonably competitive conditions and over extended periods of time. "In actual fact, the perceived world is fantastically different from the 'real' world", as Simon (1968, p. 19) notes. If objective conditions and the subjectively perceived environment differ markedly, it is no longer possible to predict human behavior from the characteristics of the objective environment. It is also necessary to know something about perceptual and cognitive processes.

a) The Easterlin Paradox

Easterlin (1974) studied the association of income and happiness on the basis of statements of individuals on their subjective happiness, collected in numerous surveys from 1946 through 1970, and covering more than a dozen countries, including several in Asia, Africa, and Latin America. In these surveys random samples of the population were asked to indicate whether they were "very happy", "fairly happy", or "not happy" (different categories were used in some surveys). Easterlin, expecting a positive correlation between income and happiness, made the following comparisons: (1) Within countries, are the rich happier than the poor? (2) Between countries, are citizens of rich countries on the average happier than citizens of poor countries? (3) Over time, are the citizens of the United States in 1970, with a real income that has increased substantially since 1946, on the average happier than people were in 1946?

The puzzling aspect of his results was that happiness and income seemed to be associated in some instances, but not in others. While happiness was found to increase with income within any of the countries studied, thus supporting the

assumed positive relationship, citizens of richer countries were on the average no happier than citizens of the poorer countries. Furthermore, the tremendous increase in the standard of living in the United States since 1946 was not reflected in an increase in the reported happiness of U.S. citizens. On the average they appeared to be no happier in 1970 than in 1946.

b) The Psychology of Judgement

To a psychologist, there is nothing paradoxical about the Easterlin Paradox. His findings are clearly in line with what one would expect on the basis of psychological theories of social judgement. According to these theories, there is in principle no difference between the judgements of, for example, a weight in terms of the categories "heavy", "medium", and "light", and of one's satisfaction with life in terms of the categories "happy", "moderately happy", and "not happy". Both judgements are made against a reference scale which the individual has built up for a given class of stimuli (e.g. weights, automobiles, living conditions) on the basis of relevant past experience. Since it is easier to manipulate an individual's past experience with weights than his standard of living, judgemental theories have typically been developed and tested in psychophysical experiments and have only later been extended to the more complex social stimuli.

The experimental paradigm: The standard procedure of psychophysical judgement studies requires the subjects to judge a series of stimuli which vary along some physical dimension, e.g. a series of weights, in terms of a category scale, e.g. "light", "medium", "heavy". Since the subjects will have had no previous experience with this particular class of stimuli (e.g. grey metal cubes of different weights), the experimenter has complete control over the "relevant past experience" and can study the development of a reference scale and its dependence on past stimulation. For example, if subjects judge a series of weights ranging from 50 g to 200 g, they will, after a number of trials, judge a 50 g weight as "light", a weight of 120 g as "medium", and a weight of 200 g as "heavy". If we now replace the series, without informing the subjects, by one ranging from 200 g to 500 g, they will first judge all the weights as "heavy". After further trials, however, they will begin to judge the 200 g weight as "light" and the 500 g weight as "heavy". Thus the 200 g weight which was judged "heavy" in a series of lighter weights will be judged "light" in a series of heavier weights. This effect of the judgemental context is called "contrast effect".

There has been some discussion (see Eiser and Stroebe, 1972) as to whether such context effects reflect "perceptual changes" or are merely due to differences in the usage of words. After all, subjects had to express their judgements in terms of a limited number of categories, which they may have merely redefined, depending on the judgemental context. However, while part of the context effects on category scale judgements is undoubtedly due to such "semantic shifts", the

same effects – though less marked – have also been observed in studies using an unrestricted response language (e.g. weight judged in ounces, length of lines judged in inches). Although not completely conclusive, such evidence tends to support the assumption that stimuli are not merely judged but also perceived differently, depending on the judgemental context.

Adaptation level theory: Of the psychological theories developed to account for the contrast effect and to derive quantitative predictions about the dependence of judgements of a given stimulus on past experience with that particular stimulus domain, Helson's (1964) adaptation level theory has been most influential. We have already touched upon some of the motivational implications of the concept of adaptation in discussing the arousal theory of motivation, but will now focus on adaptation level theory as a judgemental theory. According to adaptation level theory, every stimulus is judged in relation to some psychological "zero" or "point of perceived neutrality", which represents the level of adaptation (AL) of the organism to the stimuli presented. Helson assumes that this AL is the pooled effect of all past and present stimulation along the stimulus dimension in question for a given class of stimuli and that it reflects some kind of "average" of all the stimulus intensities to which the perceiver has been exposed. The distinctiveness or apparent intensity of each stimulus is assumed to be proportional to its distance from this "average" value. However, with every new exposure of a stimulus which is at all discrepant from this average, the average will change: the AL will be "pulled" in the direction of each new stimulus as it occurs. This will have the effect of the new stimulus appearing more neutral or less intense. Stimuli at the prevailing AL create the least arousal and are rated as "medium" or "neutral" on the judgemental scale.

While in weight lifting we only have to deal with the stimuli actually judged, the situation gets more complicated in judgements involving visual perception because they are affected not only by the intensity of the stimuli judged, but also by that of the stimulus context. For example, if the brightness of light sources is judged, we have to take account of the brightness of the room in which judgements are performed.

Helson sees adaptation as a pervasive phenomenon that extends far beyond purely sensory adaptation, and claims that adaptation level theory applies to social as well as to physical stimuli. Thus adaptation level theory has not only been widely tested with psychophysical judgements, but also with judgements of social stimuli (e.g. attitude statements), although with social stimuli a strict test of the quantitative predictions is no longer possible.

c) A Psychological Explanation of the Easterlin Paradox

To apply AL theory to happiness ratings, we have to assume an AL for satisfaction with outcomes. We shall see later that similar assumptions have been made

by Thibaut and Kelley (1959) in their exchange theory. This AL will be the pooled effect of all outcomes known to a person either directly through experience or vicariously. His income will be one of the outcomes known by direct experience. Others will be the satisfaction derived from children, friends, one's work, etc. The income of other people in comparable positions (one's "reference group") is an example of an outcome that is not directly but vicariously experienced and which enters into the determination of AL. As has been demonstrated in the analysis of phenomena of "relative deprivation" (e.g. Merton & Rossi, 1968; Runciman, 1966; Stouffer et al., 1949), such vicariously experienced outcomes are important determinants of satisfaction. Quantitatively the effects of such inputs could be handled similarly to that of the background stimulation in visual perception.

The location of a person's AL in relation to his outcomes will determine his satisfaction with those outcomes. Outcomes that fall above AL will be relatively satisfying; outcomes that fall below AL will be relatively unsatisfying. Considering income alone, the only periods of happiness a person would experience would be after a salary rise and before his AL has moved towards the new level, were it not for the effect of other people's incomes on his AL. It is the effect of other people's incomes on AL that makes the low income person feel more miserable than his fellow citizens in the higher income brackets. Due to the pull of these "vicariously experienced" incomes, the AL of a low income person is likely to be above his income, because most of the other incomes experienced vicariously will be above his own³. The AL of a person whose income is considerably above average, on the other hand, should fall below his own income due to the pull of the lower incomes he experiences vicariously.

A rise in the average standard of living over an extended period of time should not increase average happiness for long because it will lead to a corresponding increase in AL. Thus, after a short and happier period of adaptation a person's income will again have the pre-rise distance from his now elevated AL. The wealth or poverty of citizens of other countries should also have no effect on our average happiness because it is unlikely to enter into the average citizen's AL. The knowledge that somebody somewhere is better or worse off than oneself is too abstract, too remote and irrelevant, to have an impact on one's AL for the evaluation of outcomes. As with psychophysical judgements, the AL for a given

³ This dependence of a person's satisfaction on the relation between his outcomes and those of other people is central to the notion of "relative deprivation". A person feels relatively deprived if his outcomes are below those of the people he compares himself to, his "reference group". Since, according to social comparison theory (*Festinger, 1954*), individuals choose for comparison others who are in situations similar to their own (e.g. the reference group for university professors are other professors and not civil servants or industrial managers), individuals may feel relatively deprived and therefore dissatisfied, even though they are quite well off according to "objective" standards.

class of social stimuli is unlikely to be affected by stimuli that do not possess the criteria defining that class, and nationality is certainly one minimal criterion.

People who perceive themselves as dissatisfied will also behave like dissatisfied people, sometimes in complete disregard of economists who tell them that they are well off. For example, the race riots of the late sixties took place at a time when apparently American Blacks were enjoying their highest standard of living (Pettigrew, 1967), a fact that did not only puzzle economists. To explain this apparent paradox, judgemental theorists would look for context factors which might have increased the discrepancy between the outcomes of the average Black United States citizen and his AL. There are a number of potential contextual factors, but we shall concentrate on the outcomes of other Blacks, since these are likely to have had the greatest impact on AL (skin color is likely to be an important criterial attribute for class inclusion). Part of the improvement of the situation of the Blacks consisted of the opening of many well paid positions in industry and professions, which had been formerly practically out of reach. Since these positions, however, were only obtained by a well-publicized few, their major impact could have been to raise the AL of every Black and thus make everybody "worse off" than before, despite the moderate improvement in their own standard of living.

Although the judgemental model has been well-tested experimentally, we have now reached a level of speculation that would be considered unhealthy by psychologists, not because the model should not be applied, but because the sort of data to test it in such social situations have not been collected⁴. However, we hope that we have demonstrated that happiness and satisfaction are relative phenomena. They have to be, or mankind would be delirious by now considering the improvement in the standard living it has experienced since the Stone Age.

2. Models of Behavior

In this section we will present the social-psychological model of behavior and contrast it with the economic model. While both assume that individuals tend to enact the behavioral alternative associated with the highest overall utility, the similarity ends here. Unlike the economic model, the psychological model does not separate preferences from constraints, and relies on subjectively perceived rather than objective probabilities and on subjectively perceived rather than objective utilities. We will argue that psychology can learn from economics' clear separation of preferences and constraints, but we will also present some psychological research to disprove two assumptions implied in the economic model

⁴ See, however, the very interesting empirical work based on interview data by some Dutch economists, see e.g. *Herwaarden, Kapteyn, and Praag (1977)*.

(i.e. that subjectively perceived probabilities are typically similar to objective probabilities and that tastes do not change).

a) The Attitude Concept

The central concept of the psychological model is the attitude. An attitude is defined as a predisposition to respond to a stimulus (e. g. person, object, concept) with a positive or negative evaluation. Attitudes are assumed to be learned through experience and to exert a major influence on behavior. An attitude towards some object 0 can be considered the sum of the expected subjective utilities associated with the attitude object (Fishbein, 1963; Rosenberg, 1956):

$$A_0 = \sum_{i=1}^n b_i e_i$$

where A_0 is the attitude towards some object 0; b_i is the belief i about 0, i.e. the subjective probability that 0 is related to attribute i ; e_i is the evaluation of attribute i , i.e. its subjective utility; and n is the number of beliefs.

Consider, for example, a young man's attitude towards racing his car on the highway. Assume that he holds the following beliefs: (1) fast driving is fun; (2) fast driving could cause an accident; (3) fast driving could get me a ticket. According to this model, his attitude towards fast driving is a function of the strength with which he holds these beliefs (i.e., his subjective probabilities that fast driving is related to the different attributes) and of his evaluation of each attribute. Table 2 presents the subjective probabilities and evaluations that might have been obtained (e.g. in a study in which each subject had been asked to evaluate fast driving, accident, and ticket, and then to assess the probability that fast driving could lead to each of these outcomes).

Table 2.
Hypothetical Attitude Towards Fast Driving

Belief	b	e	be
fun	0.90	+2 ^a	+1.8
accident	0.20	-3	-0.6
ticket	0.40	-2	-0.8

^a Evaluations assumed to vary from -3 to +3.

$$A_0 = \sum b_i e_i = +0.4.$$

Perhaps the most striking discrepancy between the psychological and the economic approach to the prediction of behavior is the psychologists' failure to

distinguish between preferences and constraints. While the evaluation of the satisfaction derived from fast driving is a measure of preference, the risk of accidents and punishment are clearly external constraints. Economists will also be puzzled by the fact that although the attitude towards fast driving is assumed to be determined by the utilities of consequences associated with fast driving, it is the *perceived* utilities and the *perceived* associations which are deemed important. In the following sections we will briefly discuss the reason for each of these discrepancies.

b) Preferences and Constraints in the Psychological Model

The failure to distinguish between preferences and constraints in the attitude concept is a direct consequence of the fact that preferences and constraints have the same conceptual and operational status in psychology: both are assumed to vary and both are assumed to affect behavior via subjectively perceived utilities. It cannot be denied, however, that neglecting this distinction has seriously affected the usefulness of the attitude concept and led to a crisis in attitude theory.

After the development of methods for the scaling of attitudes (e.g. Likert, 1932; Thurstone, 1928) psychologists constructed numerous attitude scales measuring attitudes towards Blacks, the church, public transport, etc., hoping that an individual's attitude score would, for example, predict his willingness to send his children to integrated schools, to go to church, or to use public transport. Most of these studies relating such attitude scores to observed or reported behavior found, however, little relationship (for a review see Ajzen and Fishbein, 1977; Wicker, 1969). Wicker, for example, summarized his conclusions with the following statement: "Taken as a whole, these studies suggest that it is considerably more likely that attitudes will be unrelated or slightly related to overt behavior than that attitudes will be closely related to actions" (p. 65).

To an economist this failure would have been predictable. Even if I have a favorable attitude towards public transport, I am less likely to use it if I live further away from the next bus or train station, i.e. if my cost of using it is higher. Similarly, even if I am opposed to cheating, I may cheat on a test if the consequences of being detected are small, i.e. if the potential cost of cheating is low. Thus studies that attempt to measure the attitude-behavior relationship across a wide variety of situations are unlikely to find much of a relationship, especially if they use a relatively limited range on the attitude measure. This does not imply, however, that attitudes do not affect behavior at all. For example, having a favorable attitude towards public transport, I will probably use it more frequently than a next door neighbor who is opposed to it. Similarly, I would probably in all situations be less likely to cheat than a classmate who is generally in favor of cheating on tests.

To improve predictions, Ajzen and Fishbein (1973) suggested a modification of the psychological behavior model: instead of predicting behavior from measures of general attitudes (e.g. attitudes towards war, Blacks, alcohol), one should always measure a person's attitude towards performing a certain action in a certain situation. If, for example, I want to know whether a White United States citizen is likely to invite his Black neighbor to dinner, I should not ask his attitude towards Blacks, but his attitude towards inviting a Black neighbor to dinner. However, since behavior is also strongly affected by norms, Ajzen and Fishbein (1973) further suggested the introduction of a normative component into the model. Their new model is as follows:

$$B \sim BI = |A_{act}| w_0 + \sum_{i=1}^n [NB_i (MC_i)] w_i$$

where B=overt behavior; BI=behavioral intention; $B \sim BI$ means that B is closely related to BI; A_{act} =attitude towards a specific action; NB=normative belief; MC=motivation to comply with the normative belief; and w_0 and w_i are empirically determined weights.

A_{act} is the sum of the products of the subjective utilities of the consequences of that act and the corresponding subjective probabilities. The normative component of the theory, NB (Mc) deals with the influence of the social environment on behavior. NB is the actor's belief that some reference group expects him to perform that behavior. This normative component is multiplied by the individual's motivation to comply with those expectations. Thus if there are no norms, or if the individual is not motivated to comply with existing norms, his behavior will completely depend on A_{act} . On the other hand, if there are strong norms and if he is very motivated to comply, then the normative component may fully determine his behavior. In a review of ten studies using this model to predict behavior (as varied as cooperation in a prisoner's dilemma game and having sexual intercourse) Ajzen and Fishbein (1973) reported generally high and significant correlations.

To an economist, the separation of preferences and constraints achieved in the Ajzen-Fishbein model is still quite unsatisfactory. While some constraints (i.e. the ones associated with social norms) have been separated from the attitude concept, others still remain part of the attitude. The reason why the Ajzen-Fishbein model nevertheless leads to good predictions of behavior is that by asking for all the subjective utilities associated with a specific action in a specific situation, they not only measure the subjective utility of enacting the behavior but also that of all the constraints associated with that behavior. A recent extension of the Ajzen-Fishbein model (Bentler and Speckart, 1979) directs its attention solely towards the preference aspect, adding some new inter-relationships be-

tween attitudes and behavior. The lack of attention given to constraints, and the dissatisfactory distinction between preferences and constraints, has thus not been remedied.

c) Reasons for the Use of Subjectively Perceived Probabilities

Economists typically justify their reliance on objective probabilities by arguing that individuals could not survive for long if they kept on mis-estimating the objective probabilities of the occurrence of events. They have, however, very little to say theoretically on how this process functions, in particular *how long* it takes until, say, 90% of the adjustment of subjective to objective conditions has taken place. The survival concept is convincing in a strongly competitive environment and/or over extended time periods, but otherwise it has little content.

Psychological research on attitude structures (e.g. Insko et al., 1970) has demonstrated that people differ widely in their assessment of the probability of the occurrence of events. Changing people's perception of the probability with which certain consequences are to follow from their actions is one of the major strategies of changing attitudes and ultimately behavior. If one studies the processes by which people (and animals) learn the frequency with which certain actions are associated with certain consequences, it is no longer surprising that estimated probabilities of outcomes are frequently discrepant from actual probabilities. Psychologists have identified a number of situations in which such discrepancies typically occur and may exist over a long period of time. In the following section, some examples will be discussed.

Avoidance learning: If one puts a dog into a cage that is divided into halves by a little fence, and then always electrifies the dog's half of the floor shortly after giving a light signal, the dog will soon learn to jump the fence when the light goes on, thus completely avoiding the shock. After the dog has learned the avoidance response, the experimenter can save the electricity for the floor and simply give the light signal to make the dog jump. Since the dog has learned to avoid the penalty, it has no further opportunity to learn that the objective probability of shock occurrence has changed.

Similarly, the law abiding citizen has little opportunity to learn the probabilities with which crime and punishment are associated. If he is an avid and patient reader of newspapers, he may get some idea about the rates with which widely publicized crimes such as murder lead to punishment, but even there the information is incomplete, as most murders are too uninteresting to be reported. If he always slows down at speed limits, he will have less chance of finding out whether speeding is punished. Thus whenever we change our behavior for fear of punishment, we lessen the opportunity to monitor whether the behavior continues to be associated with punishment.

Learned helplessness: While a normal dog learns quickly to escape a shock in the "shuttle box" described above, a dog that has been given a number of inescapable shocks through electrodes attached to its body shortly *before* being put into the shuttle box apparently fails to learn the escape response. It just lies down on the electrified floor and never even tries. This is called "learned helplessness" (Seligman, 1975). The dog has apparently learned in the previous situation that it cannot do anything to avoid the shock, and therefore it doesn't even try.

Seligman (1975) has successfully applied this paradigm to human behavior and has demonstrated that humans, like dogs, give up trying once they have learned in a given area that their outcomes are unrelated to their actions. While Seligman used this as the basis for his theory of "reactive depression", one could as well draw parallels to certain aspects of consumer behavior. For example, after having experienced once or twice that their complaints about goods or services had no effect, consumers tend to overgeneralize this experience and never even try to complain.

Perceived control: The jealous husband who monitors his wife's every move is likely to attribute her faithfulness to his control, and loses the opportunity to find out whether she would have been faithful had he not monitored her. Thus he cannot develop any trust and has to keep on checking. This principle was first demonstrated in a classic experiment by Strickland (1958) who had a subject supervise the work of two other subjects. The supervisor was situated in such a way that he could really only see one of the two workers. The workers were in fact confederates of the experimenter and both produced exactly the same output during the time allotted. The supervisor attributed this output to his control in the case of the subject he had observed all the time, and to high motivation in the case of the other subject. When he was given a chance to move freely during a second trial, he spent most of his time controlling the subject he had monitored during the first trial, and thus lost the chance to find out whether this subject was really unmotivated.

d) Tastes Do Change and the Change May Be Tested

Stigler and Becker (1974) have recently argued that "tastes neither change capriciously nor differ importantly between people" (p. 76). For a psychologist this statement is somewhat surprising, considering the accumulation of psychological research demonstrating that most tastes are acquired by *classical conditioning* and can change by the same process. In classical conditioning, a neutral event known as the conditioned stimulus is paired with a stimulus that always elicits a response (the unconditioned stimulus). Pavlov was able to show that when a neutral stimulus (e.g. the sound of a bell) was paired with food over several trials, the neutral stimulus would elicit in a dog the response (salivation)

formerly elicited by the food. This conditioned response would only disappear (extinguish) if the sound of the bell was not followed by food for a great number of trials. The same paradigm was used by Watson and Raynor (1920) to condition an infant to fear an animal that he formerly liked. The unfortunate infant, little Albert, showed in a pretest at nine months that he liked white furry animals, but was fearful of loud noises. Then fear was conditioned to a formerly-liked white rat by presenting the rat for several trials and banging a hammer on an iron bar each time. After the conditioning trials little Albert showed signs of fear whenever he was presented with a white rat or a similar white animal, even though the presentation was no longer paired with the loud noise.

Basically the same procedure is used in "aversion therapy" to cure people from such undesirable behavior as alcoholism or sexual aberrations. The treatment with alcoholism consists essentially of associating the sight, smell, taste, and thought of alcohol with drug-induced nausea in four to five brief sessions distributed over about ten days (e.g. Voegtlin, 1940). Just prior to the onset of the drug-induced nausea the client is given an ounce of straight whiskey and asked to smell it, to sip it, and to taste it thoroughly. The procedure is repeated several times with other alcoholic beverages. According to Bandura (1969), a leading theorist in this area, "aversive counter-conditioning is... a relatively effective method for producing aversion to alcohol for at least a limited period, and for continued total abstinence in approximately 50% of the clients" (p. 543). Aversive counterconditioning has been used successfully to change other socially undesirable behavior patterns (for a review see Bandura, 1969). The effect of the aversion therapy is due to a change in the satisfaction derived from the consumption of a stimulus (e.g. alcohol) after that stimulus has been paired with an aversive stimulus for a limited number of trials.

Aversion therapy is only the most extreme case of evaluative change due to classical conditioning. According to conditioning theory such changes should take place whenever a stimulus is paired with another stimulus that already elicits a strong evaluative response. Normally the changes are so minute as to go unnoticed. Only when somebody sells his house because it "reminds" him of his deceased wife, or when he returns to the inn where he spent his honeymoon, do such conditioning effects become apparent in everyday life.

e) Similarity Between Psychological and Economic Model

Initially there seems to be little resemblance between the psychological and the economic model of human behavior. However, if one rephrases the Ajzen and Fishbein (1973) model, the similarity becomes apparent. Ajzen and Fishbein predict that individuals will decide to enact that behavior in a given situation which they expect to lead to the outcome with the highest overall utility. Thus

the major difference between the economic and the psychological model appears to lie in the psychological model's use of subjectively perceived probabilities and utilities.

It seems to us that, in predicting behavior, economists and psychologists could learn from each other. Psychologists could adopt a clearer distinction between preferences and constraints, and develop a theory of classes of non-monetary constraints which would then be reflected as different weights in determining behavior. Economists, on the other hand, may profit from psychological theorizing and research on subjectively perceived utilities and probability estimates.

III. The Psychological and Economic Approaches to Human Behavior Applied: Marriage

Claiming that the economic approach could provide a unified framework for the understanding of *all* human behavior, some economists have recently turned from the monetary market sector to the explanation of marriage choice, sex, dating, cheating, and other areas which were previously the domain of psychology or sociology. The main protagonists of the economic approach to human behavior are Becker (1976) with his book *The Economic Approach to Human Behavior* as well as his joint article with Stigler (1977); Brunner and Meckling (1977) with their REMM model; and McKenzie and Tullock (1978) with their book *The New World of Economics*. In this section we will present the psychological approach to one of the issues which has recently been analyzed by economists and contrast it with the economic approach. Psychological theorizing and research on marriage choice will be used as an example to demonstrate that the economic and psychological approaches are not incompatible and that economists could profit from checking their theorizing about non-monetary factors against the large body of empirical research accumulated by psychologists (for a review on dating and marriage see Duck, 1977; Huston, 1975; Mikula and Stroebe, 1977). It will also be argued that economic predictions such as: "the association of likes is optimal when traits are complements and the association of unlikes is optimal when they are substitutes" (Becker, 1976, p. 218), lead to few testable hypotheses unless backed by psychological theory and psychological measurement procedures.

a) Market and Exchange in Marriage

Like economists, psychologists assume that a marriage market exists in which men and women compete, as they seek their mates. As Goffman (1952), a social psychologist, once formulated: "A proposal of marriage in our society tends to

be a way in which a man sums up his social attributes and suggests to a woman that hers are not so much better as to preclude a merger or partnership in these matters” (p. 456). Psychologists would also agree “that marriage occurs if, and only if, both of them are made better off – that is, increase their utility” (Becker, 1962, p. 207).

Psychologists derive these predictions from *exchange theory* (e.g. Homans, 1961; Thibaut and Kelley, 1959), which, as the major theory in the area of small group research, is typically used to analyze the choice of dates and marriage partners. The central assumption of exchange theory is that the “consequences or outcomes for an individual participant of any interaction or series of interactions can be stated . . . in terms of the rewards received and the costs incurred, these values depending upon the behavioral items which the two persons produce in the course of their interaction” (Thibaut and Kelley, 1959, p. 13). Costs and rewards do not refer to monetary but to psychological factors. Rewards are the pleasures, satisfactions, and gratifications a person enjoys; costs are the physical or mental effort required for an action, or the embarrassment and anxiety that may accompany it. Whether individuals enter into a relationship and remain in it will depend on the adequacy of the outcomes they receive from that relationship. However, the adequacy of outcomes cannot be determined in any absolute sense, but is evaluated against some standard or criterion the individual brings into the relationship. Thibaut and Kelley (1955) distinguish two such standards, a *comparison level* (CL) and a *comparison level for alternatives* (CL_{alt}). The CL is a standard by which an individual evaluates the rewards and costs of a given relationship against his past experience in comparable relationships. Basically, the CL is the adaptation level for outcomes and may be regarded as some modal or average value of all outcomes known to the individual. Outcomes above the prevailing CL would be relatively satisfying; outcomes below CL would be experienced as unsatisfying. While the CL determines the attractiveness of a relationship, the person’s willingness to maintain it depends on his CL_{alt}. The CL_{alt} can be defined as the lowest level of outcomes a person will accept, in the light of alternative opportunities. The height of a person’s CL_{alt} will depend mainly on the quality of the best of his available alternatives, which naturally include the option of staying alone. Thus, according to exchange theory, the satisfaction derived from the marital relationship must be above their individual CL_{alt} for both partners, and thus marriage should only occur if “both of them are made better off – that is, increase their utility” (Becker, 1976, p. 207).

It also follows from exchange theory, in conjunction with the notion of a competitive marriage market, that if “each chooses the mate who maximizes his or her ‘income’, the optimal sorting must have the property that persons not married to each other could not marry and make one better off without making the other worse off” (Becker, 1976, p. 215). Due to the segmentation of the mar-

riage market there are, however, high information and transaction costs to be taken into account. Psychologists would also agree with Becker's (1976) conclusion that "the association of like is optimal when traits are complements and the association of unlike optimal when they are substitutes" (p. 218). A similar principle has been developed in psychology by Cattell and Nesselroade (1967).

However, while Becker (1976) now leans back satisfied, this is only the beginning of a theory of marriage for a psychologist. Imagine for a moment that somebody wanted to use this model to run a marriage agency, one of those big computer operated outfits that are paid for matching people who are likely to get on well with each other in marriage. Just think what he could do with the principle that "the association of like is optimal when traits are complements and the association of unlike optimal when they are substitutes". Nothing! To apply it, he would need the following information: (1) Which traits are important for a marriage to function? (2) How should these traits combine, i.e. which pairs of traits are complements and which are substitutes? (3) How can these traits be measured? In other words, to test the economic approach to marriage, a psychological theory of marriage functioning and psychological tests are needed. Without psychological theory and methodology, the economic approach to marriage has little empirical content, i.e. leads to few testable hypotheses. It is therefore not surprising that the only empirical support Becker (1976) offers in his paper involves monetary income.

b) A Psychological Model of Marriage Choice

In developing a model of marriage choice, psychologists distinguish different stages in partner selection and assume that different processes operate at each stage. These stages are thought to operate like a set of filters, with each filter using different criteria to narrow down the number of potential partners. The four major filters are availability, physical attractiveness, compatibility and completeness.

Availability: People rarely marry complete strangers and although there is something like love at first sight, it usually takes some time to know a person well enough to consider matrimony. This narrows the sample of potential partners down to people one meets in situations which allow informal interactions to develop, like neighborhoods, schools, work, and social clubs. Thus residential propinquity has been found to be a particularly important factor in mate selection. Bossard (1932), who examined the addresses on 5,000 marriage licenses in which one or both applicants lived in Philadelphia, found that one third of them had lived within five blocks of each other and that the percentage of marriages decreased steadily and markedly as the distance between the residences of the engaged couples increased. Similar results were reported in a number of further

studies (for a review see Kerckhoff, 1974). Any characteristic of the social system that segregates unmarried males and females into more delimited non-interacting subpopulations is likely to have the same kind of effect as residential propinquity has (Kerckhoff, 1974). It has to be assumed, therefore, that the observed pattern of mate selection is not only a function of preferences but also of the geographical and social distribution of kinds of people in our society. In economic terms, these influences determine the individual's opportunity set, and thus belong to the constraints.

Physical attractiveness: Of the many members of the opposite sex one would have the opportunity to interact with informally, only a few are approached as potential partners for the development of a romantic relationship. It is here that physical attractiveness acts as an important filter. Since physical attractiveness is a valued attribute, one would, on the basis of market competition, expect the handsome to marry the handsome, and the ugly to marry the ugly. That this is in fact the case was demonstrated by Murstein (1972) who had pictures of marriage partners rated by physical attractiveness and found that the difference in the attractiveness of pictures of actually married couples was lower than that of randomly paired pictures. A study by Stroebe et al. (1971) indicates that such market considerations actually affect the selection process. In the context of a larger study, Stroebe et al. (1971) had subjects of low or high self-rated physical attractiveness indicate their willingness to consider an attractive or unattractive other (photograph) for a date. They found that within a general preference for attractive dates, the willingness to date an attractive other was higher among persons of high rather than low self-rated attractiveness, while the reverse was true for unattractive others.

Compatibility: Once two persons have begun to interact frequently and to consider (or at least not rule out) a romantic relationship, the actual development of that relationship will depend on their psychological compatibility, that is, that both derive outcomes from the relationship which are above their respective CL_{alt} . According to Thibaut and Kelley (1959) this is most likely under the following conditions:

“If both persons are able to produce their maximum rewards for the other at minimum cost to themselves, the relationship will not only provide each other with excellent reward-cost positions but will have the additional advantage that both persons will be able to achieve their best reward-cost positions at the same time” (p. 31).

Psychologists have identified a number of constellations of partner attributes which increase the correspondence of outcomes. The one relationship best supported by empirical evidence is that between attitude similarity and attraction. It should be obvious that a person who likes to go to concerts and hates movies

should get along better with a partner who holds the same attitudes than with somebody who loves movies and hates concerts – at least – if they like to do things together. One less obvious reason, however, why attitude similarity leads to liking is that agreement with others acts as consensual validation increasing one's trust in the soundness of that particular attitude. Psychological studies have demonstrated that friendship formation can be predicted on the basis of attitude similarity (e.g. Newcomb, 1961) and, further, that attraction increases as a linear function of the proportion of similar attitudes to the total number of attitudes communicated (Byrne and Nelson, 1965).

More problematic has been the research involving needs and other personality traits. Winch's (1958) theory of need complementarity, which predicts that dissimilarity on some needs should increase attraction, has not stood up well in empirical tests (for a review see Stroebe, 1977). Although it seems very plausible that a person with a high need for dominance should get along better with a person who is low rather than high on that need dimension, or that a nurturant individual should develop a satisfying relationship with somebody who is succorant, practically all attempts to support these predictions have proved unsuccessful. With regard to other personality dimensions, it was typically similarity rather than dissimilarity that led to liking.

Completeness: The welfare of any group depends on the fulfillment of two kinds of functions: the maintenance of social relationships among members (compatibility) and the performance of tasks for coping with the objective environment (Thibaut and Kelley, 1959). However, groups can be conceived to vary on a continuum that ranges from "complete concern with sociability" to a "complete concern with task performance" (Steiner, 1972) and, depending on their location on that dimension, satisfaction with interpersonal relations or with task achievement may become more important for group maintenance. Since most couples start out as socio-groups, and only later develop into task groups, it is likely that only *after* partners have proved compatible and started acting as a team does complementarity of attributes in the economic sense become really important. This type of complementarity has been called the "completion principle" by Cattell and Nesselrode (1967), which these describe as follows:

"Choice in marriage is directed also by a desire to possess characteristics (by sharing them in the possessed partner) which are felt by the individual to be necessary to his or her general life adjustment. For example, . . . a person who is not managing his affairs too intelligently would obviously experience gains from a wiser partner. It is not part of the principle that it must occur consciously, but only that it is sought and conduces to marriage stability if achieved" (p. 351).

While Cattell and Nesselroade (1967) find some support for the completion principle on a number of personality dimensions, it would have been a more interesting test of the hypothesis if measures of ability had been included as well. Since research on the performance of family tasks (e.g. Levinger, 1964) has consistently shown a high degree of task specialization, a complementarity in underlying abilities would seem plausible. However, closer inspection of these different tasks (e.g. putting out trash, repairing things around the house, keeping in touch with relatives) raises some doubt as to whether this specialization is really based on differences in abilities. One further complication for the complementarity hypothesis could derive from a potential interference of complementarity in attributes with compatibility. While it might be sufficient for task performance if one member of the family is intelligent and well educated, while the other is, for example, handsome and practical, a high differential on these dimensions might create problems with interpersonal relations.

c) Evaluation

Although we have concentrated on the economics and psychology of marriage to illustrate our point, it should be emphasized that a similar comparison of psychological and economic theorizing could have been undertaken in any other of the non-market domains mentioned above. In each case there is considerable similarity between the economic and psychological approaches. The empirical data collected by psychologists could therefore be used to test some of the hypotheses derived from the economic model. It is therefore hard to understand why neither Becker (1976), Brunner and Meckling (1977), nor McKenzie and Tullock (1978) refer to any empirical research conducted in psychology. This neglect is, however, not one-sided. Psychologists are completely unaware of work done in non-market economics.

IV. Concluding Remarks

The comparison of economics and psychology shows some notable similarities and differences. It has been argued that at least part of psychology looks at man's behavior in fundamentally the same way as economics, namely, as responding to positive and negative incentives in a coherent and predictable manner. Both psychological and economic man are thus regarded as behaving rationally and as maximizing their utility. This basic identity has most clearly been demonstrated for the analysis of marriage.

The economic model of behavior explicitly starts from more general premises and only then proceeds to consider a specific situation. Psychology from the very beginning makes an effort to clearly identify the benefits and costs relevant in a

specific situation. The identification of such specific benefits and costs, or utilities and probabilities, is taken to be the actual task. The economist runs the danger of not deducing testable hypotheses derived directly from his theory because the application of the general concepts to reality is no easy step, as it requires careful theoretical analysis. This has again been demonstrated in the case of marriage, where it is not at all a priori clear what the characteristics of "complements" (which should optimally associate likes) and of "substitutes" (which should associate unlikes) really are.

As a consequence of their emphasis on specific circumstances instead of general principles, psychologists clearly differentiate between subjectively-perceived and objective benefits and costs. They make an effort to experimentally test this difference, as well as differences between people and changes over time. This is quite a marked difference from the economist's typical approach, where subjective and objective constraints are not differentiated, and where – in the extreme – preferences are taken to be the same among all people. Economics can in this respect clearly profit from empirical findings reached by psychology through carefully devised laboratory experiments. Recently a growing number of economists (Castro and Weingarten, 1970; Kagel, 1972; Naylor, 1972; Smith, 1976) have acknowledged the value of experiments, and now perform large-scale tests in a laboratory setting.

Psychology, on the other hand, can learn from the economist's clear distinction between preferences and constraints. As has been shown in this paper, some progress has been made in this respect, compared to the early stages in which man's behavior was only explained by attitude. The path has thus only to be pursued further.

On the whole, we strongly argue that the two subjects could greatly benefit from at least some aspects of each other's methodology and empirical findings. At present, there is an almost complete mutual disregard of relevant work done in the other area. Psychological economics has so far not succeeded in bridging this gap. The apparent similarity in the two disciplines' basic models of human behavior and in their approach to the analysis of specific problem areas has been due to independent developments within each field. It can be hoped, however, that the awareness of this growing similarity should in time help to further mutual cooperation between the disciplines.

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Summary

In Defense of Economic Man: Towards an Integration of Economics and Psychology

Psychological economists such as Duesenberry, Simon, Katona, and Scitovsky have so far not succeeded in bridging the gap between economics and psychology. The new developments in both sciences suggest, however, that a fruitful cooperation is possible. The underlying models of human behaviour are very similar, but psychology makes an effort to consider the subjectively perceived benefits and costs of alternative activities, while economics stresses the role of constraints. Taking as an example the theory of marriage, the paper shows in what way the two sciences can benefit from each other with respect to theory and empirical research.

Zusammenfassung

Zur Verteidigung des ökonomischen Menschen: Einer Integration von Ökonomie und Psychologie entgegen

Psychologischen Ökonomen wie Duesenberry, Simon, Katona und Scitovsky ist es bisher kaum gelungen, die Kluft zwischen Ökonomie und Psychologie zu überwinden. Gerade die neuen Entwicklungen in diesen beiden Wissenschaften zeigen jedoch, dass eine fruchtbare Zusammenarbeit möglich ist. Das grundlegende Modell menschlichen Verhaltens ist sehr ähnlich, allerdings bemüht man sich in der Psychologie, die subjektiv empfundenen Nutzen und Kosten alternativer Tätigkeiten zugrunde zu legen, während in der Ökonomie die Rolle der Einschränkungen hervorgehoben wird. Am Beispiel der Theorie der Heirat wird gezeigt, in welcher Weise die beiden Wissenschaften voneinander hinsichtlich der verwendeten Theorie und der empirischen Analyse profitieren können.

Résumé

Dans la défense de l'homme économique: Vers une intégration des sciences économique et psychologique

Des économistes psychologues tels que Duesenberry, Simon, Katona et Scitovsky ne sont guère parvenus jusqu'à présent à combler le fossé qui existe entre l'économie et la psychologie. Et pourtant, les nouveaux développements qui se font jour dans ces deux disciplines scientifiques font voir la possibilité d'une fructueuse coopération. Le modèle fondamental du comportement humain est sensiblement le même de part et d'autre. Toutefois, en psychologie, on s'efforce de prendre pour base l'utilité et le coût d'activités alternatives subjectivement saisis, tandis qu'en économie c'est le rôle joué par les limitations qui est mis en évidence. Prenant la théorie du mariage comme exemple, il est montré en quoi et comment les deux sciences peuvent tirer profit l'une de l'autre en ce qui concerne la théorie utilisée et l'analyse empirique.