Industrial Relations Section
Princeton University
Working Paper #101
October 1977

Job Attitudes as Intervening Variables Between
Situational Factors and Economic Behavior

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JOB ATTITUDES AS INTERVENING VARIABLES BETWEEN
SITUATIONAL FACTORS AND ECONOMIC BEHAVIOR

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"All that is is the result of what we have thought".

- Buddhist saying

"The actuality of thought is life".

- Aristotle

What people do depends on who they are and what they think. In one way or another research in social and behavioral science seeks to clarify and amplify this simple-complex statement. "What people do" applies to a very broad range of political, social and economic behaviors. In this study, we focus upon economic behavior, including both general level of economic achievement and specific decisions. Our objective is to explore theoretically and empirically the situation-attitude-behavior nexus. The National Longitudinal Survey of Middle-Aged Men is a rich source of socioeconomic, demographic and psychological data; the large sample size (5,020 respondents) and panoply of variables permit research of scale and scope well beyond what is generally feasible in this area.

At the interface of sociology, economics and psychology lies the provocative question, "Is information about individual's attitudes more important than information about their situations?" This may indeed be a fatuous

question, by nature "unanswerable and serving only to stimulate futile polemics" (Mischel, 1973). Worse, the most appropriate answer (if one exists), "it all depends...", is utterly unsatisfactory for purposes of policy. Improving the plight of the economically disadvantaged demands more than equivocation. In practical ways, the question 'can we advance people best by altering their situation or their psychological states' is being asked and answered daily. Sometimes it is much easier to alter attitudes than to change basic socioeconomic characteristics. Does this provide a potential tool for reducing economic inequality?

In this study, we shall examine the nature of work-related attitudes and their relation to economic behavior. Specifically we shall test the theory that attitudes "moderate" (that is, act as intervening variables between) situational factors and levels of economic achievement or specific economic decisions. We shall estimate and compare both the qualitative significance and quantitative importance of three separate attitudes ^{1/} --perceived success, job satisfaction and motivation/initiative.

Our main conclusions are: (1) in a statistical sense, perceived success, job satisfaction and motivation/initiative do moderate a wide range of economic behaviors and decisions; (2) the degree of motivation is, quantitatively, the most important moderating variable of the three; (3) the proportion of variance in behaviors 'explained' by situational factors is generally improved by only one or two percentage points by adding the psychological variables. In a practical sense, and confined to the realm of economic outcomes, what people do seems largely determined by who they are.

Section 1 surveys the major theories associating attitude and behavior, and develops the hypotheses we wish to test. Section 2 outlines some previous empirical findings in this area. A factor analysis of eight attitudinal questions in the NLS survey is presented in the third section and three main attitudes are isolated. Section 4 then uses these three factors as covariates in studying the relation between situation and economic behavior using analysis of covariance. The final section looks at some implications of our findings for purposes of policy.

1. Work-Related Attitudes and Economic Behavior: Theory

The mainstream of economic theory has largely abstracted from attitudes in the study of economic behavior.^{2/} But there are notable exceptions, one of which is George Katona's theory of attitudes as 'intervening variables':

Although economic behavior is elicited by the environment and its changes, human beings do not react to stimuli as automatons. Their motives and attitudes, even their tastes, hopes and fears, represent intervening variables that influence both their perception and their behavior. In order to understand economic processes, psychological considerations and subjective variables must be incorporated in the analysis. (Katona, 1975, p.3).

According to Katona, one of the earliest applications of the 'intervening variable' concept to economics was connected with the study of reactions to changes in income. Since 1953, the University of Michigan's Survey Research Center has regularly constructed an Index of Consumer Sentiment. If "willingness to buy" intervenes between ability to buy and actual demand, consumer sentiment about future economic conditions should, in reflecting willingness to buy, be a helpful explanatory variable. In general, it has so proven (Thomas, 1974; Friend and Taubman, 1964; Duesenberry et al, 1965; Hymans, 1970; Juster and Wachtel, 1972).

Much of the theorizing about relationships between attitude and behavior

has been done by social psychologists. As Feather (1959) has noted, five major theories of "choice potential" can be described by a single equation:

$$(1) \text{ Behavior Potential} = \text{Expectancy times Reinforcement Value}$$

The particular terminology used in (1) is drawn from Julian Rotter's social learning theory (Rotter, 1954; Rotter, Chance and Phares, 1972). Equation (1) states that the potential for performing some action depends on the subjective value attached to 'rewards' contingent on that action, and the subjective probability that the rewards will be forthcoming if the action is performed. Rotter himself refrains from putting expectancy and reinforcement value in multiplicative form, though his theory is much akin to the statistical concept of expected value.

Feather (1959) points out that four other theories of behavior are essentially similar to (1). Replace "expectancy" by 'subjective probability' (Lewin et al, 1944), "expectation" (Tolman, 1955), "subjective probability" (Edwards, 1954, 1955), or Atkinson's definition of "expectancy" (Atkinson, 1957). Replace "reinforcement value" by "valence" (Lewin), "need push" (Tolman) "utility" (Edwards), or "motive times incentive value" (Atkinson). Replace "behavior potential" by "force" (Lewin), "performance vector" (Tolman), "subjective expected utility" (Edwards) or "resultant tendency" (Atkinson). Though the theories of Lewin, Rotter, Edwards, Tolman and Atkinson differ in important ways -- for instance, some regard expectancy and reward value as interdependent and others treat them as conceptually independent -- they are rather similar in distinguishing between the conditional probability of 'rewards' and the value of those rewards.

All five theories underline the subjective nature of both expectancies and reward values. It follows that behavior should be related both to situational factors (the choice condition and socioeconomic and demographic

circumstance) and psychological variables. Economists and sociologists emphasize the relation between behavior and situation. Psychologists, while "highly committed to the importance of the psychological situation" (Rotter, 1972) emphasize "transituational generality" in behavior, and search for relations between behavior and attitude.

Part of this search has involved painstaking construction of scales which measure certain attitudinal dimensions. One such scale is Rotter's Internal-External Locus of Control scale. In its original form, this scale was a series of 29 questions designed to measure whether people regard 'rewards' as contingent upon their own actions and behavior ("internal" control) or controlled by forces outside their control ("external" control) and hence independent of their behavior. Rotter regards I/E Control as a measure of "general expectancy" -- the greater the degree of internal control, the higher the expectancy that a behavior-contingent reward will indeed be forthcoming. (Rotter, 1966). By 1971, the I/E Scale had been translated into six languages and was used in more than 300 published books and articles (Rotter, 1971); a number which by now has likely doubled. Twice in 1969 and again in 1971, the NLS survey included an abbreviated, eleven-question version of the I/E scale. ^{3/} Other psychological variables such as perceived job success, job satisfaction, commitment to work, perceived job success, and motivation, were surveyed as well. Working with eight intercorrelated attitudes would prove cumbersome, so we chose to extract a smaller number of orthogonal factors. Before describing these factors, we first survey some empirical studies of attitude and behavior.

2. Attitudes and Behavior: Some Evidence

5,000 Families: A national sample of 5,060 families was studied over the five-year period 1968-72 by the Survey Research Center, with the intention

of analyzing "the dynamics of family well-being," (Morgan et al, 1974, 1975). Among the attitudes measured were: Efficacy, future orientation, trust and aspiration-ambition. Also, 'behavioral indexes' -- risk avoidance, connectedness to sources of information and help, money earning acts, economizing, real earning acts -- were estimated. The overall conclusion reported by Morgan (1974):

What seems to matter are the backgrounds and unchanging characteristics of individuals: age, sex, education, race and family background. We have not been able to find much evidence that people's attitudes or behavior patterns affect the trends in their well-being. (p.339)

Specifically, Duncan and Hill (1975) found, after controlling for background variables, that "the short run associations of attitudes and behaviors with economic status were negligible." (p.98). Although some attitudes had statistically significant effects on income changes, "they did not have powerful effects . . . Labor force experience and cognitive skills were . . . generally more important determinants of income than were the attitudinal and behavioral indexes" (p.99). With regard to voluntary job change, Miner (1975) found that for the same panel, "the results indicate that (psychological variables) are not significant" (cited in Morgan et. al. 1975 p. 407).

Vroom (1964) surveys 15 studies relating job attitudes to performance of individuals in a number of different occupations. He reports a mean product-moment correlation between job performance and attitudes of 0.14, with a range of -0.03 to 0.31 (one coefficient of 0.68 is of doubtful authenticity). Only seven correlation coefficients were significant beyond $p = 0.05$. Wicker (1969) concludes that this evidence suggests "only a slight and often insignificant relationship" between job attitudes and performance.

NLS: A number of studies based on NLS data have used various attitudes as explanatory variables. Parnes and Nestel (1975) found that "men who reported some degree of dislike for their jobs in 1966 were twice as likely as those who liked their jobs very much to have been with a different employer in 1971" (p.95). In his study of occupational mobility, Kohen reports that "upward movers were more likely than the immobile, who, in turn, were more likely than downward movers to exhibit increased (job) satisfaction" (p.147). However, he does find "among interfirm movers . . . no clear pattern of association between changes in job satisfaction and changes in occupational assignment". In their study of early retirement, Parnes and Nestel (1975) found a "14 percentage point spread (in the proportion expecting to retire before age 65) between those who reported liking their job very much and those who reported disliking it" (p.169). In their study of internal-external control and labor market experience, Andrisani and Nestel (1975) found that 'internals' (those who believe outcomes depend upon their own actions) are more aware of, and responsive to, labor market opportunities and tend to advance more rapidly. 'Internals' who do not shift employers are recognized and rewarded by employers "through greater intrafirm opportunities for advancement" (p.211). Interestingly, they find evidence of 'feedback' -- "internal-external attitudes of middle-aged men are influenced by labor market forces" and past job experiences, which reminds us that attitudes not only shape behavior but are also shaped by it.

3. A Factor Analysis of Eight Attitudinal Questions:

Eight attitudinal questions, offering a wide spectrum of feelings and opinions toward work, jobs and other people in general, were selected for further study. (For precise wording and coding, see Notes to Table 1). These questions measured perceived job satisfaction, perceived job success, motivation, commitment to work, the I/E scale, and perceived job pressure answers to the

seven questions as well as an I/E score (the sum of scores on 11 I/E questions) were available for 2,586 middle-aged men (out of the total sample of 5,020).

After Varimax rotation, four separate factors emerged (see Table 1). Three of these, accounting for 86 percent of common variance, were readily identified. "Perceived Job Success", accounting for 42 percent of common variance, had high loadings on perceived job progress and perceived changes in overall financial position.^{4/} The second factor has high loadings on the first two questions which reflect "Job Satisfaction".^{5/} The third factor loads high on three questions: Motivation, I/E control, and perceived job pressures. The higher the intrinsic motivation ("like the job" rather than "work for pay"), the greater the degree of 'internal' control, and the greater the feeling of job pressure, the higher is motivation and initiative. The fourth factor is difficult to identify, accounts for only 14 percent of common variance, and is henceforth ignored.

Next, we calculated, for each of the 2,586 men, a factor score for each of the three factors. These factor scores were then correlated with variables reflecting economic achievement and past and future decisions.

TABLE I. Factor Analysis of Job Attitudes:

L o a d i n g s

	<u>FACTOR 1</u>	<u>FACTOR 2</u>	<u>FACTOR 3</u>	
	Perceived Success	Job Satisfaction	Motivation, Initiative	h^2
a) 'Best' Job Same as Current or Last Job?	0.025	0.402	-0.120	0.18
b) Attitude Toward Current Job (like - dislike)	0.094	0.548	0.055	0.33
c) Motivation ('good wages' or 'like the work')	-0.073	-0.026	0.321	0.22
d) Would Work Even if Money not needed? (yes/no)	-0.005	0.040	0	0.07
e) Overall Financial Position (better/worse)	0.286	0.045	-0.027	0.09
f) Rotter I/E Score (1969)	0.154	0.101	-0.304	0.18
g) How Job Has Progressed, 1966-71 (progressed/moved)	0.438	0.027	0.073	0.19
h) Job Pressures, 1966-71 (increased/decreased)	0.070	-0.017	0.252	0.07
Proportion of Common Variance Explained by Factor	42%	27%	17%	

Notes for Table I.

<u>Question</u>	<u>Coding</u>
"Is Best Job Same as Current or Last Job?"	Yes = 0, No = 1
Attitude Toward job	like it very much, Like it fairly well = 0 dislike it somewhat, dislike it very much = 1
Commitment ("If, by some chance, you were to get enough money to live comfortably without working, do you think that you would work anyway?")	Yes = 0; No = 1
Motivation ("What would you say is the more important thing about any job-- good wages or liking the kind of work you are doing"?)	Good Wages = 0; Like the Work = 1
Comparison of Overall Financial Position, 1966-67	Better Off = 0; About the same or worse off = 1
Rotter Internal-External Scale	Sum of score on 11 questions; score on each question ranges from 1 ('internal' response) to 4 ('external' response).
Job Progress ("All in all, so far as your work is concerned, would you say that you've progressed during the past 5 years, moved backward or just about held your own?")	Progressed, held own, retired = 0 Moved backward = 1
Job Pressure ("As you look back over the past 5 years, would you say that the pressures you feel in your job have increased, decreased or remained the same?")	Increased = 1 Remained about the same, decreased = 0

Zero-order Correlations: We chose two groups of variables to reflect very different aspects of economic behavior: (1) economic achievement, or its lack, measured by average hourly wage, weeks unemployed, occupational status (Duncan index), poverty status (poor or non-poor). and (2) past and future decisions regarding occupational training, holding a second job, job mobility, expected age of retirement.

For economic achievement variables, the highest overall correlations pertained to motivation/initiative. (See Table II).^{6/} The mean of the fourteen correlation coefficients (disregarding their sign) between motivation and achievement is 0.218, compared with 0.108 for perceived job satisfaction and 0.066 for perceived success. Correlations between motivation and hourly wage, and motivation and occupational status, are positive and particularly high, ranging from 0.26 to 0.33. Signs of all correlations agree with theory and common sense, with higher levels of achievement positively correlated with perceived success, job satisfaction and motivation, and negative achievement (unemployment and poverty status), negatively correlated. All but two correlations are statistically significant at 0.01 (a common occurrence for large sample sizes).

For past decisions (Table III), motivation remains the most highly correlated attitude, with mean (absolute value) of 0.103, followed by perceived success (0.085) and job satisfaction (0.054). Occupational training undertaken in the past is seen to be positively associated with job satisfaction, perceived job success and motivation, while dual jobs and changes of employers, firms or occupations are negatively related to all three attitudes.

TABLE II Product Moment Correlations Between
Attitudes and Economic Achievement

Variables

(* significant at 0.01) (** significant at 0.05) (***) significant at 0.10)

	Perceived Success	Job Satisfaction	Motivation Initiative	N
Average Hourly Wage, 1966	+0.03***	+0.14*	+0.28*	2032
Average Hourly Wage, 1967	+0.06*	+0.11*	+0.26*	1959
Average Hourly Wage, 1969	+0.06*	+0.13*	+0.26*	2022
Weeks unemployed, 1965	-0.05*	-0.11*	-0.12*	2576
Weeks Unemployed, 1967	-0.008*	-0.10*	-0.11*	2579
Weeks Unemployed, 1969	-0.08*	-0.06*	-0.07*	2585
Occupation Index (Duncan), 1966	+0.04**	+0.13*	+0.31*	2560
Occupation Index (Duncan), 1967	+0.07*	+0.15*	+0.33*	2579
Occupation Index (Duncan), 1969	+0.07*	+0.15*	+0.33*	2572
Occupation Index (Duncan), 1971	+0.10*	+0.15*	+0.31*	2572
Poverty Status, 1966	-0.08*	-0.07*	-0.21*	1834
Poverty Status, 1967	-0.09*	-0.08*	-0.19*	2024
Poverty Status, 1969	n.s.	n.s.	-0.05*	2311
Occupation Index (Duncan) First Job After School	+0.03***	+0.09*	0.20*	2536

Notes: coding --poverty status (0 = not poor/or not ascertained; 1 = poor);
weeks unemployed and hourly wage -- actual values: occupation index --
score of 0 to 100.

TABLE III Product Moment Correlation Between Attitudes
and Economic Decisions, Past and Future

(* significant at 0.01) (** significant at 0.05)

(*** significant at 0.10)

	Perceived Success	Job Satisfaction	Motivation Initiative
<u>PAST DECISIONS:</u>			
Took Occupational Training, 1967?	n.s.	+0.04**	+0.10*
Took Occupational Training, 1969?	+0.03***	+0.04***	+0.17*
Took Occupational Training, 1971?	+0.03***	+0.05*	+0.15*
Held Dual Job, 1968?	-0.06*	-0.05*	-0.07*
Changed Employer, 1969-71?	-0.16*	-0.04**	-0.07
Changed Firms, 1966-71?	-0.11*	-0.11*	-0.11*
Changed Occupation, 1969-71?	-0.06*	-0.05*	-0.05*
<u>FUTURE DECISIONS:</u>			
Expected Age of Retirement, 1966	+0.09*	-0.06*	+0.07*
Expected Age of Retirement, 1967	+0.09*	n.s.	+0.05***
Expected Age of Retirement, 1969	+0.08*	n.s.	n.s.
Expected Age of Retirement, 1971	+0.09*	n.s.	+0.04**
Would accept hypothetical job offer?	-0.18*	-0.11*	n.s.
Plans future occupational training?	n.s.	n.s.	+0.10*

Notes: coding -- expected retirement age (actual age); all other questions
(0 = no, 1 = yes).

A priori, one might speculate that those who change jobs, firms or occupations should possess higher than average motivation and initiative. The negative correlations (though rather low) suggest that reality may be quite the opposite -- the lower a person's initiative and motivation, the more likely he will find himself changing -- voluntarily or involuntarily -- his job situation.

For future decisions (Table III), it is perceived success which has the highest correlations (mean equals 0.106), followed by job satisfaction (0.085) and motivation (0.065). The higher the perceived success, the more retirement is expected to be deferred, and the smaller the likelihood of accepting a hypothetical job offer. Plans for future occupational training, however, are significantly correlated only with motivation (+0.10).

Zero-order correlations are inadequate instruments for determining whether or not attitudes intervene between situations and behavior. Observed significant correlations between attitudes and behavior may simply show that attitudes reflect socioeconomic and demographic situation, rather than mediate them. In the next section, we apply a more refined statistical tool -- analysis of covariance -- to test the 'intervening variable' hypothesis.

4. Job Attitudes, Situation and Behavior: An analysis of Covariance Approach.

Method: Often, situations (e.g. private wage-earner, government wage-earner, self-employed) are nominal or qualitative variables; their effect upon behavior is best examined either through analysis of variance, or, after cumbersome conversion to (0,1) dummy variables, regression methods. The three attitudes described above are continuous, metric variables (another possible advantage of using factor scores). When variables used to 'explain' behavior are a mixture of non-metric and metric in nature, an appropriate statistical technique is analysis of covariance, which is simply a combination of regres-

sion and analysis of variance (Dunn and Clark, 1974, Chapter 13; Scheffe, 1959, Chapter 6).

Formally, we postulate that an individual k 's (metric) economic achievement or decision variable Y_k is a function of I situations and L attitudes:

$$(2) \quad Y_k = \bar{Y} + \sum_i \alpha_{ijk} + \sum_{\ell} \beta_{\ell} (X_{\ell k} - \bar{X}_{\ell}) + u_k,$$

$$i = 1. \dots I, \ell = 1. \dots L$$

where $\bar{Y}$ is the grand mean for all individuals, α_{ijk} is the deviation from the grand mean caused by falling into category j of situation i , $\beta_{\ell} (X_{\ell k} - \bar{X}_{\ell})$ is the deviation from the grand mean caused by attitude ℓ , and u_k is an error term.

Analysis of covariance (tabulated here in the form of 'multiple classification analysis', MCA) computes a coefficients -- I times J of them -- and β coefficients -- L of them. ^{7/} The statistical significance of both the α 's and the β 's may be tested and their relative magnitude inspected and compared.

The theory that attitudes intervene between situations and behavior amounts to testing the null hypothesis:

$$H_0 : \beta_{\ell} \neq 0, \ell = 1 \text{ (Motivation), } 2 \text{ (Job Satisfaction), } 3 \text{ (Perceived Success)}$$

If we interpret β_{ℓ} as standardized, beta coefficients, the rank order of their absolute values measures quantitatively the relative importance of each attitude. We estimated equation (2) for a number of economic achievement and decision variables; to facilitate comparison of β_{ℓ} values, we used the same, standard set of situation variables in every case: age, race, urban-rural, education, class of worker (government, private, self-employees.^{8/} Coefficients were estimated sequentially. First, α coefficients were estimated; second,

Figure 1.

the residual variance left unexplained by situation variables was 'explained' (using multiple regression) by the three attitudes, and the β_{ℓ} coefficients estimated.

A Schematic Illustration: Before our results are presented and analyzed, it may prove useful to explain by means of a simple illustration how analysis of covariance can pick up the presence of intervening variables.^{9/} Suppose achievement, measured perhaps by the 0-100 Duncan occupation scale, is a function of education and motivation. Mean achievement of two groups, one with high education and the other with low education, is measured and compared. If motivation is ignored, the entire difference in achievement may wrongfully be attributed to education. In terms of Figure 1, the vertical distance

between points A and D (line BD) may be ascribed to the influence of education and this may be reflected, for instance, in an upward-biased, high rate of return to investment in education. But, if in fact there is a positive linear relationship between achievement and motivation, part of the differential achievement of the two groups is explained by the higher motivation of the high achievers. The contribution of motivation to higher achievement is BC, equal to $\beta (X_{hi} - X_{lo})$, where β is the slope of Y regressed on X; the contribution of education is CD. Education's contribution is measured by the intercept coefficients α , estimated through analysis of variance.

Results: Separate analyses of covariance were performed for each of 26 economic achievement and decision variables, using as explanatory variables the same set of five situation variables and three attitudes as covariates. For each of the 26 behavior variables, a table like Table IV was computed.^{10/} Table IV, for example, applies to the average hourly wage, 1967, for a sample of 1,838 middle-aged men. The first column presents deviations from the grand mean wage, \$3.28, caused by various situations and adjusted for other situational independent variables only. Race is seen to be an important factor, with blacks earned \$0.68 less than the overall average and whites, \$0.26 more. The second column also presents deviations from the mean, this time adjusted for both other situational factors and attitudinal covariates. Comparison of the deviations from the grand mean in column 1 and 2 shows the magnitude of the three attitudes' influence as intervening variables. A comparison of R^2 with and without attitudes as explanatory variables shows that the three attitudes increase R^2 from 0.244 to 0.263, thus adding only about two percentage points to the proportion of variance in hourly pay

Table IV Analysis of Covariance of Average Hourly Wage, 1967
With Situational Independent Variables and Attitudes
as Covariates:

Multiple Classification Analysis Table				
		Grand Mean	\$ <u>3.28</u>	
N = 1,838	Adjusted for Independent Variables Only		Adjusted for Independent Variables and Covariates	
<hr/>				
	<u>AGE</u>			
	45-49	+\$0.11	+\$0.11	
	50-54	- 0.07	- 0.06	**
	55-59	- 0.12	- 0.12	
<hr/>				
	<u>RACE</u>			
	Black	- 0.68	- 0.59	*
	White	+ 0.26	+ 0.23	
<hr/>				
	<u>EDUCATION</u>			
	0-8 yrs.	- 0.54	- 0.47	
	9-12 "	- 0.01	- 0.04	*
	13 + "	+ 1.37	+ 1.28	
<hr/>				
<u>URBAN/RURAL RESIDENCE</u>				
	Urbanized area, 1 million +	+ 0.43	+ 0.42	
	" " under 1 million	+ 0.18	+ 0.18	*
	Not Urbanized, over 10,000	- 0.31	- 0.31	
	Rural, Under 10,000	- 0.44	- 0.43	
<hr/>				
	<u>CLASS OF WORKER</u>			
	wage-earner, private	+ 0.06	+ 0.06	
	" " , govt.	- 0.19	- 0.19	**
	self-employed	- 0.17	- 0.14	
	without pay	-	-	
<hr/>				
MULTIPLE R SQUARED		0.244	0.263	

Covariate Beta Coefficients

***significant at p = 0.10	Perceived Success	+ 0.080
**significant at p = 0.05	Job Satisfaction	+ 0.258*
significant at p = 0.01	Motivation	+ 0.405

'explained'. Finally, the beta coefficients of the three attitudes indicate that motivation is the largest and most important, followed by job satisfaction and perceived success (the latter coefficient being statistically insignificant from zero).

Table V summarizes the twenty-six analyses of covariance. For each of the 26 behavior variables, asterisks indicate the statistical significance of motivation, job satisfaction and perceived job success. With regard to economic achievement, all but six attitude coefficients are significantly different from zero at $p = 0.10$ or less, and all but 10 at $p = 0.01$. We conclude that the null hypothesis--attitudes are intervening variables -- should not be rejected. The same holds true for past and future decisions -- at least one attitude coefficient is significantly different from zero at $p = 0.05$ or less, for each of the eleven decisions.

For each behavior variable, the relative magnitude of the three attitudes' impact is indicated by rank order: 1, 2, 3, of their beta coefficients. Motivation/initiative is the attitude most importantly related to achievement, for all but weeks unemployed, 1967 and 1969. Mean rank order for the 15 achievement variables is: 1.13 for motivation/achievement, 2.40 for perceived success and 2.46 for job satisfaction. Among middle-aged men, there are indeed traces of a 'Horatio Alger' effect.

For the eleven decision variables, motivation/initiative remains the most important attitude of the three, but with a smaller advantage. Mean rank order is 1.64 for motivation, 2.09 for job satisfaction and 2.27 for perceived job success. Among the decision variables there are interesting differences. Motivation has the biggest influence upon the decision to undertake occupational

TABLE V. Analyses of Covariance of Economic Behavior Variables,
with Situational Factors as Independent Variables and
Attitudes as Covariates:

a) Statistical Significance of Attitudes; b) Rank order of Magnitude of Beta Coefficients (* p = 0.01) (** p = 0.05) (***) p = 0.10)

ECONOMIC ACHIEVEMENT	Motivation	Job Satisfaction	Perceived Success
Average Hourly Wage, 1966	*1	*2	3
Average Hourly Wage, 1967	*1	*2	3
Average Hourly Wage, 1969	*1	*2	3
No. of Weeks Unemployed, 1967	*1	*3	*2
No. of Weeks Unemployed, 1969	***2	***3	*1
No. of Weeks Unemployed, 1971	*2	3	*1
Occupation Index, 1967	*1	*2	3
Occupation Index, 1969	*1	*2	**3
Occupation Index, 1970	*1	*2	*3
Poverty Status, 1966	*1	*2	3
Poverty Status, 1967	*1	**3	*2
Poverty Status, 1969	*1	3	*2
Income from Wages and Salary, 1966	*1	*2	*3
Income from Wages and Salary, 1968	*1	*3	*2
Income from Wages and Salary, 1970	*1	*3	*2

Source: Tables A1 to A15, B1 to B11 (see footnote 10).

Table V (Cont'd).

	Motivation	Job Satisfaction	Perceived Success
<u>PAST AND FUTURE DECISIONS</u>			
Took Occupational Training, 1967	*1	2	3
Took Occupational Training, 1969	*1	2	3
Took Occupational Training, 1971	*1	***2	3
Changed Employer, 1969-71	*2	3	*1
Changed Firms, 1966-71	*2	*3	*1
Changed Occupation, 1969-71	***2	**3	*1
Expected Age of Retirement, 1967	2	*1	3
Expected Age of Retirement, 1969	2	*1	3
Expected Age of Retirement, 1971	***1	**2	3
Would accept hypothetical job offer?	3	*2	*1
Plans future occupational training?	*1	2	3

training, but as we might expect, job satisfaction seems most closely related to the decision at what age to retire.^{11/} The decision to accept a (hypothetical) job offer is associated most closely with perceived success at the present job, with low perceived success, of course, related to willingness to accept a different job. Perceived success is also the leading attitude for actual (past) decisions to change employers, firms or occupations, again in the expected direction.

Inspection of these rank orders must not be allowed to obscure the quantitatively small (in absolute terms) influence of all three attitudes on both achievement and decision variables. Addition of attitudes to situation variables in 'explaining' economic achievement rarely increased the proportion of explained variance by more than one or two percentage points.

5. Summary and Conclusions:

Three different 'attitudes' -- motivation/initiative, perceived job success, job satisfaction -- were treated as covariates in analyses of variance of economic achievement and decisions with situational factors as independent variables. While in general statistically significant, the three attitudes taken together contributed little additional explanatory power to the situational variables. Of the three, motivation/initiative proved to be largest in magnitude in its effect on behavior.

Quantitatively, relationships between attitudes and economic achievement for middle-aged men were found to be quite weak. One explanation for this might be that 'attitudes' are already reflected in 'situation', those with high motivation have had several decades in which to acquire education, for example. But, for the most part, zero order correlations between situational variables and

attitudes are quite small.^{12/} Attitudes do appear to capture additional information about middle-aged men which is independent of their situation but not strongly related either to their level of achievement or their past and future decisions. This study would seem to indicate that even if achievement-oriented attitudes could be fostered, situational variables would continue to dominate the level of economic achievement.

FOOTNOTES

1. We use the term 'attitude' as a rubric for three rather different concepts: "perceptions" (the process of forming opinions), "attitudes" (evaluative feelings of pro or con, favorable or unfavorable, with regard to particular objects, people or situations), and "motives" (an impulse, emotion or desire that moves one to action). "Psychological variables" would be a more accurate, but more cumbersome, substitute for attitudes.
2. "Changes in demand that are due to changes in taste cannot be identified because taste changes cannot be measured". (Lipsey and Steiner, 1972, p.154).
3. Parnes and Nestel (1975) provide a full list of the eleven questions.
4. Because of the way 'overall financial position' and 'job progress' are coded, low job success is associated with a high factor score. To prevent confusion, we henceforth reverse the signs of correlation and regression coefficients involving this factor.
5. Because the first two questions are (0,1) dichotomous variables, with 1 representing dissatisfaction, a high factor score represents low job satisfaction. Henceforth, we reverse the signs of correlation and regression coefficients involving this factor to prevent confusion.
6. Correlation coefficients between factor-score attitudes and behavior are generally higher than correlations between individual attitudinal questions and behavior variables. This is, of course, to be expected; but it still offers some support to the procedure of factor-analysing attitudinal questions.

7. For each situation variable, a vector of α_{ij} values is estimated -- one value for each situation category.
8. The ANOVA computer program for analysis of variance, which we used, is limited to a maximum of five non-metric independent variables and five covariates.
9. For a treatment of intelligence as an intervening variable using analysis of covariance, see Duncan, Featherman and Duncan (1972), p.75.
10. These 26 tables were unfortunately too bulky for reproduction and inclusion in this paper, even as an appendix; they are available on request from the first author.
11. For expected age of retirement, 1971, the beta coefficient for motivation was larger in absolute value (-0.324) than that for job satisfaction (+0.274) but significant at $p = 0.10$ only, compared with $p = 0.05$ for job satisfaction.
12. The following are zero-order correlation coefficients between attitudes and selected socioeconomic and demographic variables:

	Age	Race	Urban- Rural	Educ- ation	Father's Education	No. Fam. Members	Nationality
Perceived Success	n.s.	n.s.	-0.03***	+0.04**	n.s.	n.s.	n.s.
Job Satisfaction	+0.03***	-0.05*	n.s.	+0.06*	+0.06*	n.s.	n.s.
Motivation/ Initiative	-0.05*	-0.31*	n.s.	+0.31*	+0.18*	-0.06*	+0.19*
N =	2,586	2,586	2,586	2,579	1,612	2,586	2,448

Coding: Age - actual years; Race -- white - 0, black - 1; Urban-Rural -- scale of 1 (more than 1,000,000) to 4 (rural, less than 10,000); Education -- actual years; Father's education -- actual years, measured when respondent was age 15; number of family members = actual number; nationality -- 0 = U.S. or Canada, 1 = other. (* $p = 0.01$) (** $p = 0.05$) (***) $p = 0.10$)

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