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ABSTRACT

This followup study on plant closures was designed to replicate an earlier study in order to ascertain whether training would again show no payoff relative to direct labor market participation. The major variables used were: Influence of personal characteristics, psychological attributes and job search patterns, in addition to the variables of age, skill, race, education, and previous earnings. The implications of the findings, which in general matched those of the earlier study, are discussed in detail, and it is suggested that the fact that the laid-off men are already proven workers outweighs their disadvantagement in other areas is of significance. The tabulated data from the study and an explanation of the formula for estimating earnings form the 20-page appendix. (BP)

TRAINING, TRANSFER and the INFLUENCE OF JOB SEARCH PROCEDURES, PSYCHOLOGICAL ATTRIBUTES and PERSONAL CHARACTERISTICS ON EARNINGS OF WORKERS AFFECTED BY A PLANT CLOSURE

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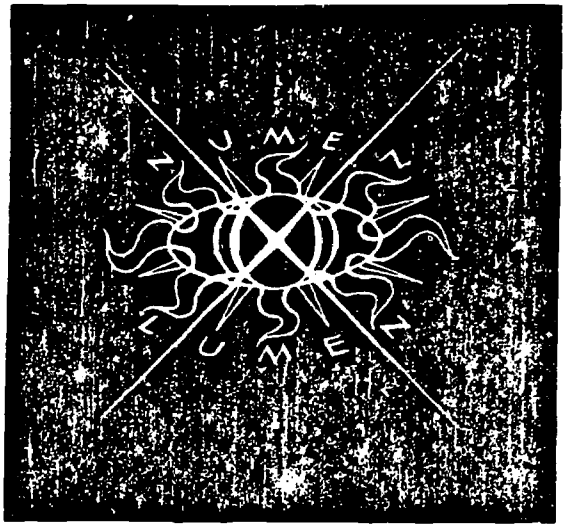

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Training, Transfer and the Influence of Job Search Procedures, Psychological Attributes and Personal Characteristics On Earnings of Workers Affected by a Plant Closure

by

James L. Stern, Kenneth A. Root and Stephen M. Hills*

In an earlier study of the closure of one facility of a multi-plant corporation an analysis was made of the effect on annual post-shutdown earnings of workers who elected one vocational choice in preference to another. It was found that men who transferred to another plant of the corporation earned substantially more by making this choice than they would if they had chosen instead to be retrained for jobs with other employers in the local labor market or found such jobs without retraining.[1]

An unexpected finding of the earlier study was that workers who enrolled in and successfully completed MDTA institutional training courses after the plant closed did not have significantly higher annual earnings subsequently than workers who found jobs in the local labor market without retraining, either with or without controlling for variations in age, sex, race, skill, education and pre-shutdown earnings.

This second finding gave rise to this attempt to ascertain whether the poor payoff associated with training might be attributable in part to undetected variations in worker quality that affected earning ability.

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[1] James L. Stern, "Consequences of Plant Closure", Journal of Human Resources, Vol. VII, No. 1, Winter 1972, pp. 1-25.

Other studies of the value of retraining usually control for variations in age, sex, race, education and past earnings but take no account of differences in personal characteristics, psychological attributes, or job search patterns.[2] In evaluating manpower programs where self-selection of vocational choice dominates, controlling for the conventional variables may not be sufficient to obtain accurate measures of the value of MDTA training programs.

The objectives of this study and the initial hypotheses are explained in the first section of this article; the sample and its relation to the earlier study are described in the second; the results of the regression analyses are summarily presented in the third; the impact of training on earnings is discussed in the fourth; the influence of psychological attributes and personal characteristics on earnings is examined in the fifth; and the summary and policy implications are set forth in the final section.

Initial Hypotheses

The principal reason for undertaking this followup study was to determine whether assesments of the value of retraining and job placement by the State Employment Services can be greatly improved by controlling for the influence of personal characteristics, psychological attributes and job search patterns, in addition to the conventional demographic and economic variables of age, skill, race, education and previous earnings. In the earlier project, in which training showed no payoff compared to direct market participation, the market group included both those individuals who found jobs through the State Employment Service and those who found jobs on their own.

In this study a proxy for use of the employment service has been introduced so that earnings of the group which used the State Employment Service can be used as a base and compared with earnings of workers who found jobs on their own and with workers who received training or who took intra-corporation transfers. Also, standardized questions were used to develop scales for measuring differences in personal characteristics

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[2] A list of such studies was compiled by Gerald G. Somers and can be found in his testimony before the Joint Economic Committee. See "Federal Programs for the Development of Human Resources", Joint Economic Committee, U.S. Congress Vol. 1 (Washington: 1968) pp. 162-163.

and psychological attributes and were introduced into the regression equations to control for the influence that these differences have on earnings.

The hypotheses posed at the outset of this followup study were: (1) The findings of this study would be similar to those of the previous study when the same controls were used, that is, we would again find that post-shutdown annual earnings of men who entered the labor market directly would exceed those of men who first completed MDTA institutional training courses, and that after controlling for age, education, race, seniority, skill and pre-shutdown earnings by regression analysis, training would still show no payoff relative to market. (2) The finding, in so far as training was concerned, would change in this followup study when a control for non-use of the State Employment Service was introduced, and that the regression coefficient for training would become significantly positive when compared to the base of men who found jobs in the local labor market with the help of the State Employment Service. A corrolary to this second hypothesis was that the men who used the State Employment Service would have lower average post-shutdown earnings than men who did not because a greater proportion of the men who did would be unskilled, black, older and less educated.

The third hypothesis was that by use of standardized questions we could ascertain the effect that differences in personal characteristics and psychological attributes have on earnings. Responses to questions were scaled, grouped and introduced into regression equations. It was hypothesized that regression coefficients of favorable combinations of items used to measure anomie, self-concept, sociability and personal problems would be significant and positively related to earnings. Since it seems plausible that individuals who use the State Employment Service may have characteristics and attributes that employers find less attractive than people who do not use the State Employment Service, and since the individuals enrolled in training programs may also differ in these respects from others who use the State Employment Service but are not retrained, it was thought that controlling for these differences would improve both the measure of the value of retraining and the control for non-use of the State Employment Service.

In summary, therefore, this investigation was designed to replicate the earlier study in order to ascertain whether retraining would again show no payoff using the conventional variables. Then, assuming that this would be the case, it was thought that by the introduction of a control for non-use of the State Employment Service in the job search process, training would show a payoff. In addition, an attempt was made to measure the influence of personal characteristics and psychological attributes on earnings and to use such a measure as a further control for differences in worker earning ability.

Description of Samples and Research Procedures

The previous study of a large Kansas City meatpacking plant closure involved an attempt to determine whether intra-corporation transfer and MDTA retraining paid off relative to finding a job in the local labor market, and was based on a sample of approximately 700 men and 200 women who had been employed at Armour and Company prior to its plant closure in 1964-65. The "replica" study reported here is based on a sample of 500 men employed in a similar Armour plant in Omaha which was closed in 1968.

This study is confined to men because, in the Kansas City study, the marital status and the head of household status of the women were not obtained, and the results were inconclusive. Also, it facilitates the incorporation of data from an independent study of personal characteristics and psychological attributes which had been limited to a 25 percent sample of the men affected by the Armour Omaha closure.[3] The analysis dealing with this aspect of the study is therefore necessarily limited to the 105 of the 486 men in the Omaha sample for whom both post-shutdown earnings data and personal characteristics and psychological attributes were available.

The male samples drawn in the study of the Kansas City and Omaha closures are similar and in both instances are representative of the plant populations.[4] Both samples are composed mainly of unskilled and

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[3] Root, Kenneth A. "The Consequences of Displacement: Anomia and Deviant Behavior", Unpublished Dissertation, University of Iowa, 1970.

[4] Analysis of variance and chi-square tests of differences in age, education and other characteristics were run on the sample and the Omaha and Kansas City plant populations to ascertain whether the samples were representative. Summaries of these tests are shown in Appendix Table 1.

semiskilled workers, many of whom are disadvantaged by age, race, lack of education and meatpacking skills that are non-transferable to other industries. The Omaha plant had fewer blacks and the men were slightly younger and better educated.[5] Also, the unemployment rate in the Omaha labor market was slightly lower than the unemployment rate in the Kansas City labor market.[6] We recognize that the two labor markets are different and that workers may have faced different prospects in the two closures because of a myriad of factors for which it would have been impossible to collect comparative data, but there is no evidence to suggest that these autonomous events are biased in such a way as to invalidate the claim that the second study is a reasonable replica of the first.

Three regression models showing the effect of vocational choice and the usual demographic variables on the post-shutdown earnings of Kansas City workers and similar equations for the Omaha sample are summarized in Table 1. The dependent variable, post-shutdown earnings, is derived from Social Security Administration (SSA) earnings information.[7] Since the Kansas City plant was closed in two phases, with the slaughtering facility closing at the end of the summer, 1964, and the processing facility closing nine months later in the spring of 1965, the 1967 post-shutdown earnings reflect the situation about two and one-quarter to three years after the worker was terminated. The Omaha post-shutdown

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[5]The comparative demographic statistics are shown in Appendix Table 2. Temporary workers employed in the course of phasing out production are excluded from the Kansas City and Omaha samples. This exclusion also applied to the few men in the Omaha plant who acquired seniority in 1967, or later, during the closure process.

[6]When the Omaha plant closed in 1968, unemployment in that SMSA was approximately 3 percent and rose to almost 4 percent three years after the closure. The Kansas City unemployment rate was about 5 percent in 1964-65 and declined to 4 percent three years later.

[7]Because some of the workers have annual earnings in excess of the amount subject to social security tax, it is necessary to use the quarterly earnings code to estimate those earnings. The estimating procedure is a simple and rough one which assumes that the worker maintains a constant rate of earnings throughout the year and works for one employer. The same procedure was used in both the Kansas City and Omaha studies. It should be noted, however, that only about one-third of the Kansas City sample had earnings in excess of the SSA 1967 maximum of $6600 as compared to 50 percent to 60 percent of the Omaha sample who had earnings in excess of the SSA 1970 and 1971 maximum of $7800 and the 1972 maximum of $9000. Appendix B contains additional information about the estimating procedure.

earnings data are for 1970, 1971 and 1972, covering a span of one and one-half to four and one-half years after the June, 1968 closure.[8] A two and one-quarter to three year period subsequent to the Omaha worker termination date would center about the end of 1970 or the beginning of 1971.

The independent variables of age, education, race and seniority are based on Armour data in both studies and were check against State Employment Service information. The 1963 pre-shutdown Kansas City earnings are based on SSA earnings data because Armour pre-shutdown earnings had not been kept. The 1967 pre-shutdown Omaha earnings are actual earnings taken from Armour records.

The first phase of the Kansas City closure occurred before SSA earnings authorization releases were sought and these primarily unskilled slaughter-house employees had to be arrayed by race, sex and skill into cells of at least five people in order to meet SSA confidentiality rules. These individuals were identified in the Kansas City regression equations as "Nos" -- people from whom "no" authorization to release SSA earnings had been obtained. As was noted in the earlier study, the unskilled "nos" were even more unskilled than the unskilled workers who worked in the processing facility.[9]

In the Omaha study, workers were divided into skilled, semi-skilled and unskilled categories and compare roughly to the skilled, unskilled and "nos" breakdown used in the Kansas City closure. Skill breakdowns in both studies were determined on the basis of Armour occupational titles, and in the Omaha study were supplemented by State Employment Service information concerning secondary skills.

Workers in both the Kansas City and Omaha plants were able to opt for intra-corporation transfer, or to complete an MDTA training program, or to seek employment in the local labor market without the benefit of retraining. There were sufficient jobs in other Armour plants for all men who wished to transfer, and there were enough training slots to accommodate all the men who wished to be retrained, although the men may

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[8] Some workers were released in the spring of 1968 before the plant closed, but most workers were terminated June 1, 1968.

[9] Op. cit. Stern, p. 14. Aggregation into cells also meant that the workers terminated before SSA earnings release authorizations were sought (the "nos") were given the mean cell value of education and age, thereby eliminating the intra-cell variance in age and education of the "nos".

not have been able to transfer to the particular job or specific type of training program in which they were interested.

The vocational choice that the worker elected was ascertained by examination of Armour records, supplemented by checking against State Employment Service information and followups by mail and by telephone. The "Transfer" group is composed of men who transferred to Armour plants in other cities. The "Market" group includes the men who sought employment in the local labor market and excludes those who withdrew from the labor market or moved to another city, or who took training before entering the local labor market. The "Training" group includes the men who completed short-term MDTA retraining courses such as auto mechanic, autobody repair, welding and building maintenance courses.

An Overview of the Effect of Vocational Choice and the Conventional Demographic Variables on Post-Shutdown Earnings

Regression equations were run for the Omaha replica study using the same variables that were used in the earlier Kansas City study. As can be seen by inspection of Table 1, the regression coefficients in the two studies are similar. Transfer has a very large, positive and highly significant effect on post-shutdown earnings in all equations in both studies. These findings reinforce the conclusion reached in the earlier study that government financial assistance to facilitate transfer may have a far greater payoff than expenditures for retraining in situations involving middle-aged unskilled blue collar workers of major corporations.

The Omaha equations in Table 1 also corroborate the Kansas City equations insofar as the value of training is concerned. With the conventional controls for age, education, skill, race and pre-shutdown earnings, training either shows no significant payoff,[10] or a significantly negative one.[11]

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[10]The regression coefficient for training is not significant when the sample consists of Kansas City all workers, Kansas City yeses only, and Omaha males including labor market withdrawals on the basis of ('70 + '71 + '72)/3 earnings, on the basis of 1971 and 1972 earnings excluding labor market withdrawals, and the smaller sample of Omaha males for whom psychological attributes were obtained.

[11]Kansas City males only excluding labor market withdrawals and Omaha males excluding labor market withdrawals with ('70 + '71 + '72)/3 earnings and 1970 earnings as the dependent variables.

Table 1 COMPARISON OF INFLUENCE OF TRAINING AND TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE KANSAS CITY AND OMAHA PLANT CLOSURES

	Identification of group									
	Kansas City Samples			Omaha Samples - All Males						
				Dependent Variables in Annual Earnings In:						
	All Workers	Males Only[a]	"Yeses" Only[a]	('70+'71+'72)/3[d]	('70+'71+'72)/3[ad]	1970[a]	1971[a]	1972[ad]	1972[ac]	('70+'71+'72)[b]/3[ac]
Number of Observations	946	704	222	497	486	494	494	486	104	104
R^2	.30***	.23***	.37***	.18***	.17***	.21***	.14***	.09***	.29***	.34***
$\bar{R}^2$	----	----	----	.16***	.15***	.19***	.12***	.07***	.19***	.25***
Mean Value of dependent variable, post-shutdown earnings	$4688	$5656	$5537	$8231	$8418	$8067	$8306	$8949	$8844	$8284
Constant	$7785	$9113	$8007	$8802	$8554	$9163	$10102	$8700	$11139	$9527
Independent Variables	Regression Coefficients & (Standard Errors) in Dollars									
Transfer (as compared to Market)	3093***	2691***	2118***	2610***	2364***	2905***	2184***	1967***	2372*	2757***
	(278)	(267)	(488)	(364)	(350)	(350)	(381)	(476)	(1001)	(775)
Training (as compared to Market)	-303	-663*	-12	-763	-928*	-1250**	-758	-817	-713	-550
	(232)	(239)	(368)	(475)	(459)	(463)	(503)	(625)	(1227)	(951)
Change associated with each dollar change in pre-shutdown earnings	.21***	.18***	.27***	.35***	.33***	.28**	.28**	.36**	.16	.16
	(.05)	(.06)	(.09)	(.09)	(.09)	(.09)	(.09)	(.12)	(.25)	(.20)
Sex (female as compared to male)	-2123***	------	-1731***	------	------	------	-----	-----	-----	-----
	(248)		(365)							
Age (for each add. year of age)	-50*	-75**	-64**	-72***	-68**	-61**	-88***	-71*	-107*	-96*
	(25)	(26)	(23)	(23)	(22)	(22)	(24)	(30)	(55)	(43)
Seniority (for each add. year)	-63*	-16	-28	-42	-29	-23	-23	-34	-172*	-102
	(31)	(38)	(31)	(31)	(30)	(30)	(33)	(41)	(79)	(61)
Education	122*	111	131*	13	25	-3	7	18	329	319*
	(60)	(62)	(56)	(67)	(64)	(65)	(70)	(88)	(202)	(157)
Race: Black as compared to White	-284	-496*	-24	216	113	-295	-117	584	1086	195
	(225)	(239)	(400)	(326)	(316)	(317)	(344)	(430)	(1018)	(789)
Race: Span. Amer. as comp. to White	-156	-125	606	576	439	-705	215	1175	2753	2031
	(371)	(392)	(587)	(654)	(628)	(622)	(677)	(854)	(1489)	(1154)
Unskilled as compared to Skilled & "Nos" as compared to "Yeses" (K.C.)	-986***	-940***	-----	-1231**	-924*	-1296**	-1232**	-703	-2752	-2248**
	(236)	(278)		(457)	(440)	(437)	(475)	(599)	(1172)	(908)
Semi-skilled as compared to Skilled	-1570***	-1537***	-2018***	-864	-694	-1432**	-985*	-249	-1247	-1601
	(386)	(371)	(588)	(483)	(464)	(460)	(501)	(632)	(1186)	(919)

*Significant at the .05 level, **at the .01 level, ***at the .001 level. [a]Excludes workers who have withdrawn from the labor market.

[b]Includes labor market withdrawals. [c]Sample of males for whom psychological attributes and personal characteristics were obtained.

[d]The 1972 earnings and the average of the 1970, '71 and '72 earnings are based on a total of 8 fewer respondents because of death in 1972 or irregular earnings patterns which prevented estimation of annual earnings.

Table 1 also shows that the effects of age, education, race, seniority, skill and pre-shutdown earnings on post-shutdown earnings in the Omaha equations are similar to the effects found earlier in the Kansas City study. Lack of skill and each additional year of age has significantly negative effects on post-shutdown earnings. Because seniority is correlated with age, it does not have an independent significant effect in most equations.[12] Pre-shutdown earnings are positively and significantly associated with post-shutdown earnings in all samples except the smaller one of Omaha males for whom personal characteristics and psychological attributes were obtained.

Differences in education are not significantly related to post-shutdown earnings in most of the Omaha equations and only slightly so in the prior Kansas City study. This finding probably arises because the sample is a stratified one consisting mainly of middle-aged meatpacking workers with limited educational backgrounds obtained many years ago. Being black or of spanish american origin does not depress earnings significantly in most equations, although for the most part the regression coefficients have the expected negative sign.

It appears, therefore, that when the independent variables used in the Omaha study are the same as those used in the prior Kansas City study, the same results are obtained and once again, controlling for the same economic and demographic variables, we find that there is no payoff associated with the choice of retraining in preference to direct entrance into the local labor market. In the next sections controls are introduced for the use of the State Employment Service and for differences in psychological attributes and personal characteristics in order to determine whether this causes the training regression coefficient in the Omaha equations to become positive. If this is the case, it may also provide the explanation for the negative finding in the Kansas City study.

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[12] The first order correlation between age and seniority of the 487 Omaha men still in the labor market in 1972 and for whom 1970, 1971 and 1972 earnings were obtained was 0.553.

In the Kansas City and Omaha Armour plant closures there were many workers who did not claim unemployment compensation nor other benefits to which they were entitled, and presumably found new jobs on their own.[13] As is hypothesized at the outset of this article, the market group may be made up of two sub-groups which are dissimilar in earnings ability. One group -- presumably made up of fewer unskilled workers and blacks, and younger, better educated men who are more aggressive in their job search -- will find employment on their own and will make the post-shutdown adjustment more easily than the other group which may first look unsuccessfully for work and then turn to the State Employment Service for help in finding jobs. Failure to separate the workers who opted for the market into these two categories and to control for non-use of the State Employment Service is thought to be a possible explanation for the absence of payoff to training relative to market in the Kansas City study.

It was not possible to ascertain directly whether or not a person used the employment service, but, as a proxy for it, we found out whether or not a person filed an unemployment compensation claim during the fiscal year extending from April 1, 1968 through March 31, 1969, the year following the beginning of the plant shutdown. This is not a perfect proxy as some men who filed for unemployment compensation probably did not seek or receive assistance from the State Employment Service and some men who did not file for unemployment compensation may have been helped by the State Employment Service. These are offsetting factors and, since we believe that the first group is larger than the second and probably of lower earning ability, the possible error in the proxy would introduce a pro-training bias rather than an anti-training bias.

Another related possible source of error arises from the fact that the training group includes men who did not file for unemployment compensation either before or after completing training. Since men in the market group who did not file for unemployment compensation have been segregated from those who did, and since it is believed that those who

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[13]Data from the Nebraska Department of Labor show that 609 initial unemployment compensation claims were filed after the Omaha Armour closure by the approximately 1100 individuals who were eligible to do so. See, James L. Stern, "Evolution of Private Manpower Planning Armour's Plant Closings", Monthly Labor Review, December, 1969, p. 25.

did not need to file for unemployment compensation have greater earning ability, it could be argued that we should have followed this same procedure with the training group. The sample was too small to permit this, however, and, in effect, we have considered the training allowance to be analogous to unemployment compensation. In any case, the error introduced by comparing a training group including men who did and did not file for unemployment compensation with a market group comprised only of men who did file does not introduce an anti-training bias. Therefore, if training does not show a payoff relative to market in this study, it is doubtful that this finding can be attributed to the use of this particular proxy.

Table 2 shows the mean post-shutdown earnings and other characteristics of the four vocational choice groups. The hypothesis that men who use the State Employment Service are lower quality labor than those who do not is confirmed. They have lower post-shutdown earnings -- with the difference running about $200 to $1000 annually depending on which year's earnings are used as the measure of post-shutdown earnings. It is also clear that the percent of unskilled workers who used the State Employment Service is much greater than the percent who found jobs in the local labor market on their own. In addition, although the differences are slight, the men using the State Employment Service are older, more of them are blacks, they have less education, and they have lower pre-shutdown earnings.

Inspection of Table 2 also enables us to compare the characteristics of the men who took training with those who found jobs with the help of the State Employment Service but who were not retrained. The average post-shutdown earnings of men who were retrained is $500 a year less than the men who were not even though the average pre-shutdown earnings of the men who took training were several hundred dollars higher than those of the other group. In addition, Table 2 shows that the characteristics of the men selected for retraining do not seem to differ greatly from those who are helped to find employment by the State Employment Service without retraining. There is little evidence of either positive or negative "creaming". On the average, the group selected for training was younger, had higher pre-shutdown earnings, and contained a smaller proportion of blacks; but offset against this is the fact that a higher proportion of

Table 2 Comparison of Mean Post-Shutdown Earnings And Other Characteristics of Workers Who Made Different Vocational Choices

	MARKET: With Help of Employment Service	Without Help of Employment Service	TRAINING	TRANSFER
Number in Group:	138	180	57	119
Mean Post-Shutdown Earnings & (Standard Deviations) For:				
1970	$7120	$7875	$6289	$10305
	(3243)	(3163)	(2890)	(3577)
1971	$7372	$8318	$7201	$9899
	(3908)	(3449)	(2952)	(3503)
(Number in Group)[d]:	137	175	57	117
1972	$8441	$8673	$7869	$10485
	(4996)	(4272)	(3890)	(3847)
(1970+1971+1972)/3	$7644	$8231	$7119	$10235
	(3661)	(3049)	(2841)	(3177)
---------- Other Characteristics ----------				
Percent Black	40	37	35	40
Percent Unskilled	61	43	72	55
Mean Age (when plant closed)	39.2	37.0	36.4	41.0
Mean Seniority (years)	11.3	10.8	10.1	12.2
Mean Pre-Shutdown Earnings	$7840	$8091	$8125	$8507
Mean Education (years)	9.6	10.5	10.2	9.5

[d] The 1972 earnings and the average of the 1970, 1971, and 1972 earnings are based on a total of 8 fewer respondents because of death in 1972 or irregular earnings patterns which prevented estimation of their annual earnings.

of the group selected for retraining were unskilled.

When controls for these variables are introduced, and the group which took training is compared with those who were placed by the State Employment Service without being retrained (as opposed to being compared with the market group as a whole, including those who found jobs on their own), the regression coefficients for training shown in Table 3 are still insignificant in most equations. In a majority of models, however, the negative coefficients for training become smaller when measured against the base of those placed through the State Employment Service than they were when measured against the market group including men who found jobs on their own. Also, it should be noted that the regression coefficient for training, which is significantly negative in the equation in which the dependent variable is the average of the three years' earnings and the sample is the 486 men who remained in the labor market, is no longer significantly negative when measured against the base of those placed by the State Employment Service.

The data in Table 3 confirm that the payoff to training is slightly understated when compared to the market group as a whole rather than to the portion of the market group which found jobs locally with help from the State Employment Service. The original hypothesis, however, is not confirmed because the training coefficient did not become positively significant as predicted when the control for non-use of the State Employment Service was introduced.

Controlling for Personal Characteristics and Psychological Attributes

Several socioeconomic and psychological scales were used to analyze whether differences in psychological attributes and personal characteristics were significantly related to earnings. These scales focused on self-concept, sociability, anomia, and personal problems. The self-concept scale was a seven-item scale which sought self-feelings through responses to subjective placement in the social class hierarchy, self-image about personal health, and responses to first hearing that the plant would close down. A second scale, sociability, was an eight-item scale, indexing involvement --- involvement with fellow workers, interaction with friends, exchanges of help with family and relatives, as well as church, union, and club participation. The third scale, the Srole Anomia Scale, was also used to measure alienation. This scale had five items, containing such questions

Table 3 COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

	All Males Who Did Not Withdraw From Labor Market				All of Those Males For Whom Personal & Psychological Attributes Were Obtained			
Dependent Variable is Annual Earnings In:	('70+'71+'72)/3	1970	1971	1972	('70+'71+'72)/3	1970	1971	1972
Number of Observations	486	494	494	486	104	105	105	104
Mean Value of Dependent Variable, Post-Shutdown Earnings	$8418	$8067	$8306	$8949	$8284	$7864	$8237	$8844
Constant	$8419	$8900	$9758	$8790	$9531	$7856	$9742	$11173
$\bar{R}^2$	.15***	.19***	.12***	.07***	.25***	.21***	.26***	.19***
Independent Variables	Regression Coefficients & (Standard Errors)							
Training (as compared to Mkt. + E.S. help)	-$813 (501)	-$1022* (504)	-$460 (548)	-$894 (682)	-$568 (1034)	-$454 (1078)	-$333 (1052)	-$880 (1333)
Regression Coefficients & (Standard Errors) From Table 1								
Training (as compared to total market group)	-$928* (459)	-$1250* (463)	-$758 (503)	-$817 (625)	-$550 (950)	-$504 (998)	-$453 (973)	-$713 (1227)

* Significant at the .05 level

[a] The other independent variables in the above regression equations are vocational choice, pre-shutdown earnings, age, seniority, education, race and skill). The complete equations are shown in Appendix Table 3.

as: "In spite of what some people say, the lot of the average man is getting worse, not better." The last scale used in this analysis was a four-item personal problem scale, emphasizing drinking behavior and involvement with professionals for personal problems. The questions on each scale and frequency distributions of responses are shown in Appendix Table 10.

It was hypothesized that men who had relatively low self-concept, high alienation, low community involvement and high personal problem scores would have significantly lower earnings. The regression equations summarized in Table 4 show that none of the coefficients for the different psychological scales are significant.[14] It suggests, therefore, either that differences in psychological attributes and personal characteristics are not determinants of earnings, or that, if they are, the questions used in the various scales are not able to measure possible differences in earning power. The failure of the sociability index and community involvement questions to show any significant earnings effect does not mean that other questions specifically designed to measure the effect of social-job-contacts on earnings would not show that "who you know" is significant.

Various other possibilities were explored. The individual items in the scale were analyzed by factor analysis, and regrouped into new scales according to the relationships found in the Varimax loading process.[15] The regressions were then re-run, but, again, as can be seen by inspection of Table 4,[16] none of the coefficients were significant.

Another line of investigation was to examine whether personal characteristics and psychological attributes were systematically related to vocational choice and whether, for example, workers who found jobs on their own had personal characteristics and psychological attributes that were significantly superior to workers who did not and whether the higher earnings of workers who found jobs on their own were associated with these characteristics. Neither cross tabulations nor

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[14] The full equations are shown in Appendix Tables 4,5 and 6.

[15] This is the University of Wisconsin Computing Center Program which follows the varimax procedure outlined in "The Varimax Criterion For Analytic Rotation in Factor Analysis" by H.F. Kaiser, Psychometrika, 23 (1958).

[16] The full equation is shown in Appendix Table 7.

Table 4 Influence of Psychological Attributes and Personal Characteristics on Average 1970-1972 Earnings

Number of Observations:	104	104	104	104	104
$\bar{R}^2$	.25***	.25***	.25***	.25***	.21***
Mean Value of Dependent Variable Post-Shutdown Earnings	$8284	$8284	$8284	$8284	$8284

Selected Independent Variables Measuring Psychological Attributes And Personal Characteristics	Regression Coefficients & (Standard Errors) in Dollars				
All Scales	62 (81)				
All but McClosky		58 (121)			
McClosky		-69 (182)			
All but Srole			47 (149)		
Srole			-300 (305)		
Newspaper				2209 (1406)	
Television				-449 (1131)	
Extended Family				-220 (677)	
Friends				21 (158)	
Union Meetings				560 (570)	
Church				-166 (222)	
Drinking				421 (441)	
Health				-216 (503)	
Class				-117 (242)	
Luck and Pull				150 (161)	
Anomie				-54 (124)	
Sociability					80 (224)
Personal Characteristics					-18 (338)
Self Conception					156 (261)

[a] Complete equations shown in Appendix Tables 4,5,6,7, and 8.

zero order correlations between vocational choices and psychological attributes and personal characteristics showed such a relationship between these factors.

Similar attempts to relate economic and socio-psychological variables have met with inconclusive results in studies that have recently been made at the University of Wisconsin of the New Jersey-Pennsylvania negative income tax experiments. The effect of the experiment on social and psychological attributes measured by scales similar to ours proved insignificant as well as tests of the possible mediating role that such characteristics could play in behavior which occurs as a response to changes in economic incentives.[17]

Finally, it should be noted that the introduction of psychological attributes and personal characteristics do not significantly change the regression coefficients for training. In none of the equations shown in Appendix Tables 4-8 do the regression coefficients for training become positively significant.

Summary and Policy Implications

The replica study conducted here showed once again that training does not pay off although controls for differences in men who did or did not use the State Employment Service slightly improve the regression coefficient for training. Further controls for differences in psychological attributes and personal characteristics do not alter the situation -- training still does not show a payoff relative to direct labor market participation. These findings should not be interpreted to show conclusively that training is of no value. They show, however, in the two closures of meat packing plants involving mainly unskilled workers, that short term training did not improve earnings significantly, whether this is attributable to the type of training provided, or to the nature of the post-training placement services, or to unexplained differences in the worker populations, or to other factors, is unknown.

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[17] Russell Middleton and Vernon Allen, "The Social Psychological Consequences of the Graduated Work Incentive Experiment" and Sonia Wright, "Social-Psychological Characteristics and the Labor Force Response of Male Heads," in The Graduated Work Incentive Experiment in New Jersey and Pennsylvania -- Final Report, (Forthcoming) Institute for Research on Poverty, University of Wisconsin, Madison, Wisconsin.

The lack of payoff to training for this sample may not be inconsistent with the finding that training pays off for more severely disadvantaged workers who have a long history of being unemployed and on welfare. In that situation, training may make a man employable and thereby show a substantial payoff. The men in this sample, however, although disadvantaged by age, lack of general skills and education, are proven wage workers. Their average earnings before the plant closure were $8,133 and their average wages several years after the closure were $8,418. For such a group, the controlling variable may be the market wages for unskilled and semi-skilled workers in manufacturing, and short term training may not change the situation appreciably -- that is, they may end up on production worker jobs in manufacturing, either with or without the training.

Variations in the future earnings of the workers may be attributable to trends affecting the industry and firm in which they happened to find such a job, rather than to relatively small differences in worker ability that may be associated with the completion of MDTA training programs. It should be kept in mind that most cross-sectional studies of the value of training explain only a small portion of the variation in earnings (In this study, for example, the corrected R^2's ranged from .07 to .25.), and it is quite possible that the absence of payoff to training is caused by some other as yet unidentified variables. Finally, the estimating procedure for determining post-shutdown earnings is approximate and deficiencies in this procedure may explain in part why the regression coefficient for training is not positively significant. A full discussion of the estimating procedure is contained in Appendix B.

It was hoped that in this study, the value of different vocational choices could be measured more accurately by inclusion of controls for use of the State Employment Service and differences in psychological attributes and personal characteristics. The individual questions and scales of psychological attributes and personal characteristics shed no light on variations in earnings. It seems sensible to assume that there are differences in earnings associated with differences in assertiveness, aggressiveness and other such personal and psychological characteristics, but that the questions used in this study do not detect them. Perhaps, other questions and different scales may enable us to identify the personal factors that influence earnings abilities, and it is to the

development of such new measures that attention should be focussed.

Use or non-use of the State Employment Service also does not seem to be of great value in detecting further differences in earning ability when controls for previous earnings, race, age and lack of education and skill are available. This may be partially attributable, however, to the use of unemployment compensation data as a proxy for assistance from the State Employment Service. In future studies, it would be preferable to determine directly from State Employment Service files whether a person received counseling or other assistance from the State Employment Service. This data can be used to control more effectively for use of the State Employment Service and to determine whether the clientele served by the State Employment Service is more disadvantaged on the average than individuals who find jobs on their own.

In conclusion, one last point should be made. Almost 10% of the men in the Omaha sample had average 1970-1972 annual earnings of less than $3,000. Appendix Table 9 shows that insofar as age, education, race, pre-shutdown earnings and psychological attributes and personal characteristics are concerned, these men do not differ greatly from the sample as a whole. Appreciably more of the low earners are unskilled and proportionately fewer men who transferred are in the low earnings group, but it is clear that we do not know why these unskilled men, between the ages of 22 and 54 have suffered earnings losses that far exceed those of other individuals who are similar insofar as the characteristics under study are concerned. Perhaps, the search for an answer to this question might also provide clues to why training shows no payoff in this study.

Appendix A

Tables 1 - 10

APPENDIX TABLE 1

Comparison of the 946 person Kansas City Sample For Whom SSA Earnings Were Sought With the 298 person group Excluded Because of Missing Data

	Frequency	Mean Age	Mean Education	Mean Seniority	Percent of Males	Percent that made $4800 in 1963*
Sample	946	42.1	9.0	13.0	80.1	79.4
Excluded Group	298	41.7	9.1	13.0	84.6	74.8

Comparison of the 557 Male Omaha Sample For Whom SSA Earnings Were Sought With the 329 Males Excluded for Lack of SSA Authorization

	Frequency	Mean Age	Mean Education	Percent Unskilled	Percent Using Employment Service	Percent Black	Mean 1967 Earnings*
Sample	557	39.5	9.9**	68.2	49.4	40.0	$8069
Excluded Group	329	38.4	10.3**	65.4	50.0	35.9	$8094

Comparison of the 130 Male Omaha Sample With Psychological Data For Whom SSA Earnings Were Sought With the 756 Males Excluded For Lack of Psychological Data or SSA Earnings Authorizations

	Frequency	Mean Age	Mean Education	Percent Unskilled	Percent Using Employment Service	Percent Black	Mean 1967 Earnings*
Sample	130	39.6	10.3	62.3	46.9	27.7**	$8339
Excluded Group	756	39.0	10.0	68.0	50.1	40.2**	$8033

* Last Full pre-shutdown year

** Differences between the samples and excluded groups were tested for each of the above variables and were not found to be significant at the .05 level except in the case of education for the 557 person Omaha sample and in the case of proportion of Blacks in the 130 person Omaha sample.

Appendix Table 2

COMPARISON OF KANSAS CITY AND OMAHA SAMPLES OF MALES WHO HAD NOT WITHDRAWN FROM THE LABOR FORCE THREE YEARS AFTER THEIR RESPECTIVE PLANT CLOSURES

Characteristic	Kansas City	Omaha
Sample Size	704	486
Age (mean years)	41.3	38.5
Education (mean years)	8.8	10.0
Seniority (mean years)	12.1	11.?
Percent Black	69	39
Percent Spanish-American	9	6
Percent Skilled	9	16
Percent that chose Training	17	12
Percent that chose Transfer	13	24

Appendix Table 3 COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

	All Males Who Did Not Withdraw From Labor Market				All Of Those Males For Whom Personal & Psychological Attributes Were Obtained			
Dependent Variable is Annual Earnings In:	('70+'71+'72)/3	1970	1971	1972	('70+'71+'72)/3	1970	1971	1972
Number of Observations	486	494	494	486	104	105	105	104
Mean Value of Dependent Variable, Post Shut-down Earnings	$8418	$8067	$8306	$8949	$8284	$7864	$8237	$8844
Constant	$8419	$8900	$9758	$8790	$9531	$7856	$9742	$11173
$\bar{R}^2$	.15***	.19***	.12***	.07***	.25***	.21***	.26***	.19***
Independent Variables[a]	Regression Coefficients & (Standard Errors) in Dollars							
Market, Non-Use of E.S. (as compared to Mkt. +E.S. help)	214	416	545	-142	-37	100	242	-336
	(369)	(368)	(400)	(502)	(765)	(796)	(777)	(986)
Training (as compared to Mkt. + E.S. help)	-813	-1022*	-460	-894	-569	-454	-333	-880
	(501)	(504)	(548)	(682)	(1034)	(1078)	(1052)	(1333)
Transfer (as compared to Mkt. + E.S. help)	2477***	3127***	2476***	1892***	2738**	3384***	3069***	2195*
	(401)	(402)	(437)	(546)	(831)	(899)	(877)	(1137)
Change associated with each $ change in pre-shutdown earns.	.33***	.28**	.28**	.37**	.16	.22	.08	.17
	(.09)	(.09)	(.10)	(.12)	(.20)	(.21)	(.20)	(.26)
Age (for each add. yr. of age)	-66***	-58**	-85***	-72*	-97	-70	-109*	-109*
	(22)	(22)	(24)	(30)	(43)	(45)	(44)	(56)
Seniority (each add. yr.)	-29	-24	-23	-33	-102	-79	-70	-171*
	(30)	(30)	(33)	(41)	(62)	(65)	(63)	(80)
Education	21	-11	-3	19	320*	234	360*	342
	(65)	(65)	(71)	(88)	(161)	(168)	(164)	(208)
Race: Black compared to White	112	-295	-117	584	192	-62	-100	1052
	(316)	(317)	(344)	(430)	(801)	(825)	(804)	(1034)
Race: Sp. Am. compared to White	450	-689	235	1168	2030	1555	1702	2748
	(629)	(622)	(676)	(855)	(1166)	(1216)	(1186)	(1504)
Unskilled (comp. to skilled)	-891*	-1232**	-1147*	-725	-2253**	-1786	-2048*	-2791*
	(444)	(440)	(478)	(605)	(922)	(961)	(937)	(1190)
Semi-skilled (comp. to skilled)	-682	-1405**	-950	-256	-1602	-1586	-1933*	-1254
	(465)	(461)	(501)	(633)	(929)	(969)	(945)	(1198)

*Significant at the .05 level, **Significant at the .01 level, ***Significant at the .001 level.

Appendix Table 4

COMBINED SCALES CONTROLLING FOR PSYCHOLOGICAL ATTRIBUTES AND PERSONAL CHARACTERISTICS: COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

Dependent Variable is Annual Earnings In:	1970	1971	1972	1970-1972
Number of Observations[a b]	105	105	104	104
$\bar{R}^2$	.20***	.24***	.19***	.25***
Mean Value of Dependent Variable Post-Shutdown Earnings	$7864	$8237	.8844	$8284
Constant	$6614	$9143	$10532	$8665
Independent Variables	Regression Coefficients & (Standard Errors) in Dollars			
Market, Non-Use of E.S. (as compared to Mkt. + E.S. help)	44	215	-366	-77
	(802)	(786)	(993)	(768)
Transfer (as comp. to Market)	3396**	3075***	2197*	2741**
	(904)	(885)	(1142)	(883)
Training (as compared to Mkt.)	-333	-275	-819	-485
	(1090)	(1068)	(1347)	(1042)
Change associated with each dollar change in pre-shutdown earnings	.20	.07	.16	.15
	(.21)	(.21)	(.26)	(.20)
Age (for each add. yr. of age)	-60	-104*	-104	-90*
	(46)	(46)	(57)	(44)
Seniority (for each add. year)	-76	-69	-169*	-100
	(65)	(64)	(81)	(62)
Education	173	331	311	279
	(180)	(174)	(220)	(170)
Race: Black as comp. to White	135	-5	1151	325
	(849)	(832)	(1062)	(822)
Race: Sp. Amer. as comp. to White	1555	1702	2749	2032
	(1222)	(1197)	(1511)	(1169)
Unskilled as comp. to Skilled	-1734	-2023*	-2765*	-2218*
	(967)	(947)	(1196)	(926)
Semi-Skilled as comp. to Skilled	-1431	-1858*	-1174	-1495
	(985)	(965)	(1217)	(941)
All Scales	89	43	46	62
	(84)	(83)	(104)	(81)

[a] Excludes workers who have withdrawn from the labor market

[b] The 1972 earnings and the average of the 1970, 1971, and 1972 earnings are based on a total of 8 fewer respondents because of death in 1972 or irregular earnings patterns which prevented estimation of their annual earnings.

* Significant at the .05 level, ** at the .01 level, *** at the .001 level

Appendix Table 5

COMBINED SCALES CONTROLLING FOR PSYCHOLOGICAL ATTRIBUTES AND PERSONAL CHARACTERISTICS: COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA PLANT CLOSURE

Dependent Variable is Annual Earnings In:	1970	1971	1972	1970-1972
Number of Observations[a] [b]	105	105	104	104
$\bar{R}^2$	.20***	.23***	.19***	.25***
Mean Value of Dependent Variable Post-Shutdown Earnings	$7864	$8237	$8844	$8284
Constant	$6955	$9923	$10974	$9204
Independent Variables	**Regression Coefficients & (Standard Errors) in Dollars**			
Market, Non-Use of E.S. (as compared to Mkt. + E.S. help)	24 (805)	229 (790)	-356 (1001)	-77 (773)
Transfer (as comp. to Mkt.)	3393** (907)	3094** (891)	2196* (1150)	2743** (889)
Training (as comp. to Mkt.)	-308 (1100)	-221 (1081)	-838 (1365)	-463 (1055)
Change associated with each dollar change in pre-shutdown earnings	.19 (.22)	.08 (.21)	.16 (.27)	.14 (.21)
Age (for each add. yr. of age)	-57 (47)	-103* (46)	-106 (58)	-89* (45)
Seniority (for each add. yr.)	-77 (65)	-68 (64)	-170* (81)	-101 (63)
Education	154 (179)	328 (176)	321 (223)	274 (172)
Race: Black as comp. to White	182 (855)	30 (840)	1117 (1073)	341 (829)
Race: Sp. Amer. as comp. to White	1563 (1226)	1726 (1204)	2752 (1522)	2045 (1176)
Unskilled as comp. to Skilled	-1744 (979)	-1972* (962)	-2776* (1217)	-2207* (940)
Semi-skilled as comp. to Skilled	-1411 (992)	-1818 (974)	-1204 (1231)	-1483 (951)
All But McClosky	123 (126)	12 (124)	30 (157)	58 (121)
McClosky	-70 (190)	-101 (186)	-24 (235)	-69 (182)

[a] Excludes workers who have withdrawn from the labor market

[b] The 1972 earnings and the average of the 1970, '71 and '72 earnings are based on a total of 8 fewer respondents because of death in 1972 or irregular earnings patterns which prevented estimation of annual earnings.

* significant at the .05 level, ** at the .01 level, *** at the .001 level.

Appendix Table 6

COMBINED SCALES CONTROLLING FOR PSYCHOLOGICAL ATTRIBUTES AND PERSONAL CHARACTERISTICS: COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

Dependent Variable is Annual Earnings In:	1970	1971	1972	1970-1972
Number of Observations[a b]	105	105	104	104
$\bar{R}^2$	.20***	.24***	.18***	.25***
Mean Value of Dependent Variable Post-Shutdown Earnings	$7864	$8237	$8844	$8284
Constant	$7838	$10122	$11144	$9361
Independent Variables	**Regression Coefficients & (Standard Errors) in Dollars**			
Market, Non-Use of E.S. (as compared to Mkt. + E.S. help)	36 (806)	155 (791)	-441 (1001)	-157 (772)
Transfer (as comp. to Mkt.)	3496** (907)	3142*** (891)	2257* (1148)	2805** (886)
Training (as comp. to Mkt.)	-440 (1093)	-353 (1073)	-871 (1354)	-548 (1045)
Change associated with each dollar change in pre-shutdown earnings	.24 (.21)	.10 (.21)	.19 (.27)	.17 (.21)
Age (for each add. yr. of age)	-55 (47)	-100* (46)	-98 (58)	-84 (45)
Seniority (for each add. year)	-84 (66)	-75 (64)	-174* (82)	-105 (63)
Education	159 (176)	315 (173)	288 (218)	258 (169)
Race: Black as comp. to White	339 (879)	168 (863)	1332 (1101)	503 (850)
Race: Sp. Amer. as comp. to White	1712 (1241)	1838 (1219)	2867 (1538)	2155 (1186)
Unskilled as comp. to Skilled	-1543 (981)	-1888* (963)	-2618* (1217)	-2059* (939)
Semi-skilled as comp. to Skilled	-1239 (1003)	-1729 (985)	-1000 (1243)	-1308 (959)
All But Srole	43 (154)	-5 (151)	32 (194)	47 (149)
Srole	-373 (319)	-269 (313)	-274 (395)	-300 (305)

[a] Excludes workers who have withdrawn from the labor market

[b] The 1972 earnings and the average of the 1970, 1971, and 1972 earnings are based on a total of 8 fewer respondents because of death in 1972 or irregular earnings patterns which prevented estimation of their annual earnings.

* Significant at the .05 level, ** at the .01 level, *** at the .001 level.

Appendix Table 7

CONTROLLING FOR PSYCHOLOGICAL ATTRIBUTES AND PERSONAL CHARACTERISTICS BY INDIVIDUAL ITEMS (FACTOR LOADED VERIMAX PROCEDURE): COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

Dependent Variable is Annual Earnings In:	1970-1972	1972
Number of Observations	104	104
$\bar{R}^2$	.25***	.22***
Mean Value of Dependent Variable Post-Shutdown Earnings	$8284	$8844
Constant	$11850	$13733
Independent Variables	**Regression Coefficients & (Standard Errors) in Dollars**	
Market, Non-Use of E.S. (as compared to Mkt. + E.S. help)	413 (798)	57 (1013)
Transfer (as compared to Market)	3102*** (879)	2370* (1116)
Training (as compared to Market)	-1018 (1060)	-1715 (1346)
Change associated with each dollar change in pre-shutdown earnings	.01 (.20)	-.05 (.26)
Age (for each add. year of age)	-125** (44)	-155** (56)
Unskilled as compared to Skilled	-1917* (957)	-2569 (1215)
Semi-skilled as compared to Skilled	-1036 (989)	-722 (1255)
Newspaper	2209 (1406)	2954 (1785)
Television	-449 (1131)	-584 (1436)
Extended Family	-220 (678)	-447 (860)
Friends	21 (158)	-201 (201)
Union Meetings	560 (570)	1060 (724)
Church	-166 (222)	-283 (282)
Drinking	421 (441)	869 (561)
Health	-216 (503)	-2 (639)
Class	-117 (242)	-87 (307)
Luck and Pull	150 (161)	224 (205)
Anomie	-54 (124)	2 (157)

* Significant at the .05 level, ** at the .01 level, *** at the .001 level

Appendix Table 8

INDIVIDUAL SCALES CONTROLLING FOR PSYCHOLOGICAL ATTRIBUTES AND PERSONAL CHARACTERISTICS: COMPARISON OF INFLUENCE OF NON-USE OR USE OF THE EMPLOYMENT SERVICE, TRAINING, OR TRANSFER ON POST-SHUTDOWN EARNINGS OF WORKERS TERMINATED IN THE OMAHA ARMOUR PLANT CLOSURE

Dependent Variable is Annual Earnings In:	1970-1972	1972
Number of Observations	104	104
$\bar{R}^2$	.21***	.15***
Mean Value of Dependent Variable Post-Shutdown Earnings	$8284	$8844
Constant	$13656	$14305
Independent Variables	**Regression Coefficients & (Standard Errors) in Dollars**	
Market, Non-Use of E.S. (as compared to Mkt. + E.S. help)	-65	-431
	(784)	(1009)
Transfer (as compared to Market)	2895**	2174*
	(883)	(1137)
Training (as compared to Market)	-694	-1240
	(1091)	(1405)
Change associated with each dollar change in pre-shutdown earnings	.06	.00
	(.20)	(.26)
Age (for each add. year of age)	-136***	-175***
	(39)	(51)
Unskilled as compared to Skilled	-2141*	-2610*
	(979)	(1261)
Semi-skilled as compared to Skilled	-1266	-841
	(979)	(1260)
Srole	-255	-180
	(323)	(416)
Sociability	80	302
	(224)	(289)
Personal Characteristics	-18	467
	(338)	(435)
McClosky	-20	39
	(204)	(263)
Self Concept	156	292
	(261)	(337)

* Significant at the .05 level, ** at the .01 level, *** at the .001 level

Appendix Table 9 Comparison of Total Sample and Individuals Whose 1970-1972 Average Earnings Were Less Than $3000

	% in SubSample Less Than $3000	% in Total Sample
Black	40.4	38.6
Spanish	----	6.0
Unskilled	78.7	55.3
Semi-skilled	14.9	29.4
Market & Used E.S.	44.7	28.4
Market & No Use of E.S.	38.3	36.4
Training	14.9	11.7
Transfer	2.1	23.5
	Mean of SubSample Less Than $3000 (Standard Error)	**Mean of Total Sample (Standard Error)**
Education	9.9 yrs. (1.9)	10.0 (2.4)
Seniority	13.5 yrs. (7.2)	11.3 (6.0)
Age	40.1 yrs. (8.6)	38.5 (8.4)
All Scales	3.6 (7.0)	3.5 (6.9)
All But McClosky Scale	3.0 (5.7)	2.8 (5.6)
All But Srole Scale	2.9 (5.3)	2.6 (5.1)
McClosky	1.1 (2.3)	0.8 (1.9)
Srole	0.8 (1.5)	0.4 (1.0)
Sociability	0.9 (1.8)	0.8 (1.6)
Personal Characteristics	0.3 (0.8)	0.2 (0.6)
Self-Concept	1.1 (2.1)	1.0 (2.0)
Earnings 1967	$7742 (1472)	$8122 (1770)
Earnings 1972	$707 (1434)	$8751 (4576)
Average Earnings 1970-1972	$1047 (1059)	$8231 (3591)
Number of Observations	47	497

Appendix Table 10 Questions Comprising Various Psychological and Personal Characteristics Scales and Frequencies on 107 Observations

Personal Characteristics:

Do you spend any time in bars or taverns?

Yes 54
No 53

Do you ever do some pretty heavy drinking?

Yes 20
No 87

Do you ever go to a doctor or clergyman or anyone like that about your personal problems, or nervousness or such things?

Yes 17
No 90

How has your health been over the past few years -- would you say it was:

Excellent 47
Good 47
Fair 12
Poor 1

Srole Scale:	Strongly Agree	Agree	Not Sure	Dis-agree	Strongly Disagree
In spite of what some people say, the lot of the average man is getting worse, not better.	4	36	8	55	4
These days a person doesn't really know whom he can count on.	7	57	6	36	1
It's hardly fair to bring children into the world with the way things look for the future.	0	29	8	64	6
Nowadays a person has to live pretty much for today and let tomorrow take care of itself.	5	29	5	62	6
There's little use in writing to public officials because often they aren't really interested in the problems of the average man.	6	41	10	49	1
McClosky-Schaar Scale:					
I often feel awkward and out of place.	0	20	6	72	9
People were better off in the old days when everyone knew just how he was expected to act.	1	18	5	75	8
It seems to me that other people find it easier to decide what is right than I do.	1	18	5	78	5

Appendix Table 10 (Cont.) Questions Comprising Various Psychological and Personal Characteristics Scales and Frequencies on 107 Observations

McClosky-Schaar Scale (cont.):	Strongly Agree	Agree	Not Sure	Dis-agree	Strongly Disagree
With everything so uncertain these days, it almost seems as though anything could happen.	6	92	2	6	1
What is lacking in the world today is the old kind of friendship that lasted for a lifetime.	6	62	4	31	4
With everything in such a state of disorder, it's hard for a person to know where he stands from one day to the next.	1	57	9	39	1
Everything changes so quickly these days that I often have trouble deciding which are the right rules to follow.	5	41	9	44	8
I often feel that many things our parents stood for are just going to ruin before our very eyes.	1	54	6	45	1
The trouble with the world today is that most people don't really believe in anything.	4	34	9	59	1

Sociability (Involvement) Scale:

Do you read any newspaper regularly?

Yes 91
No 16

How about radio and television -- about how much time do you spend on radio and TV a day?

Uncodable	5	5 hours	5
Less than 1/2 hour	1	6 hours	3
1 hour	24	7 hours	1
2 hours	28	8 hours	1
None	2	9 hours	1
3 hours	19	10 hours	1
4 hours	16	11 hours	0

Sometimes family and relatives are close and help each other in many ways -- loans or baby sitting are two examples. For you and your family/relatives, has there been such exchanges of help?

Yes 64
No 43

About how often do you get together with your friends?

Daily	6	Pretty often	10
Once or twice a week	50	About once a month	16
Several times a week, but not daily	7	Rarely	18

Appendix Table 10 (Cont.) Questions Comprising Various Psychological and Personal Characteristics Scales and Frequencies on 107 Observations

Sociability (Involvement) Scale (cont.):

What about the people you work with, do you spend any time with them away from work? Would you say it was:

Often (daily)	6
Frequently (at least once a week)	24
Seldom (perhaps once a month)	39
Never	38

Are you a member of any clubs or organizations -- like a:

Veterans organization	12
Social organization, fraternal lodge	12
PTA or other school organization	8
Nationality club	2
Church group (not church services)	2
Recreation or sports club	5
Others	4
No membership	62

How often do you attend the union meetings?

Once a month	19
About every other time	11
Maybe 1/4 of the time	19
Once or twice a year	39
Never	19

And how about church. How often do you attend church?

At least weekly	42
Less than weekly, but more often than monthly	11
About once a month	18
Once or twice a year	21
Never	15

Self-Concept Scale:

Omaha is a large city made up of several groups and classes of people. If asked to use one of these four names for the group you belong to which one would you choose -- the middle class, lower class, working class or upper class?

Middle Class	37
Lower Class	1
Working Class	65
Upper Class	1
Undecided	3

How has your health been over the past few years -- would you say it was:

Excellent	47
Good	47
Fair	12
Poor	1

Self-Concept Scale (cont.):

Do you ever go to a doctor or clergyman or anyone like that about your personal problems or nervousness or such things?

Yes	17
No	90

I often feel awkward and out of place.

Strongly agree	0
Agree	20
Not sure	6
Disagree	72
Strongly disagree	9

It seems to me that other people find it easier to decide what is right than I do.

Strongly agree	1
Agree	18
Not sure	5
Disagree	78
Strongly disagree	5

Getting ahead in this world is mostly a matter of luck and pull.

Strongly agree	5
Agree	38
Not sure	4
Disagree	54
Strongly disagree	6

How did you feel when you first heard Armour was closing down?

Bad, disappointed, unhappy, sick, hurt, grim, let down, not good, etc.	31
Shocked, surprised, didn't believe it, didn't know what to do, didn't expect it, didn't know why	20
Nothing, indifferent, didn't bother me, not too bad	16
Expected it, not surprised	24
Nothing I could do about it, fate, bad break	4
Good, happy, not bad	4
Felt was going to lose job, have to get new job	6
Felt glad I could get another job or transfer	1
Felt bad for others or thought about others	1
Don't know	0

Appendix B

Estimating Earnings in Excess of SSA Maximum

In this appendix the estimating formula is explained and the results are tested against earnings obtained without its use. The estimating formula is based on the quarterly earnings code. If an individual reached maximum earnings in the year, the quarterly earnings code is used to estimate how long it took to reach maximum. If a person reached maximum in two quarters, the social security quarterly earnings code of "2200" would indicate earnings of $50 or more in each of the first two quarters and no earnings in each subsequent quarter. A quarterly earnings code of "2100" would mean that the individual reached maximum in two quarters by earning $50 or more in the first quarter and $1-49 in the second quarter. If we assume that the individual's rate of earnings are constant over the year and that he works for only one employer, we can then estimate his earnings in the following fashion.

In 1970 and 1971, the Social Security maximum was $7,800. Therefore, the maximum rate of earnings to generate a code of 2200 would be to earn $7,750 in the first quarter. If earnings exceeded $7,750 in the first quarter, less than $50 would remain to be earned in the second quarter before maximum was reached and the earnings would be coded 2100 or 2000. The minimum rate of earnings to generate a code of 2200 would be to earn $7,800 in the first two quarters -- if the individual earned less than this amount, spread evenly over the two quarter period, he would have earned sufficient in the third quarter to be assigned a code of 2210 or 2220.

$7,750 earned in one quarter, under an assumption of constant earnings, generates a maximum annual earnings of $31,000 whereas $7,800 earned in two quarters generates a minimum annual earnings of $15,600. The mid-point of these two extremes serves as the estimate for a code of 2200, namely $23,300. Similarly codes of 2220 and 2222 result in estimates of $12,950 and $9,100 respectively, and codes of 2210 and 2221 become $15,550 and $10,366.

In 1972, the Social Security maximum was raised to $9,000. The new base yields the following estimates for that year: 2200, $26,900; 2220, $14,950; 2222, $10,466; 2210, $17,950; 2221, $11,968.

If the codes were not used, all earnings above maximum would be treated equally. In 1970, 55% of the sample earned $7,800 or more. By use of the formula 40% are assigned earnings of $9,100 or $10,366, 13% are assigned earnings of $12,950, and 2% are assigned earnings of $23,300. Corresponding figures for 1971 are as follows: 60% earned $7,800 or more. Of these, 42% are assigned earnings of $9,100 or $10,366, 16% to $12,950, and 2% to $23,300. Finally in 1972 with a maximum of $9,000, 53% of the sample exceeded the maximum, 36% were estimated to have earned $10,466 or $11,968, 15%, $14,950, and 2%, $26,900.

One possible source of error in the estimating formula arises from the fact that the total earnings figure includes income from self-employment or agricultural labor but that this is not included in the quarterly earnings code. A person in this situation may have earned less than maximum in his non-agricultural employee status but may have been judged to reach maximum because of the inclusion of this income. In such cases, the individual's SSA earnings record will show that self-employment or agricultural labor income is included in the total earnings for the year. Due to the small number reporting self-employed or agricultural income (about 5% of the sample), it is highly unlikely that income from self-employment or agriculture affected the estimating procedure appreciably.

Another source of error flows from the assumption that the individual worked for only one employer during the year. If he worked for two and had total earnings in excess of the maximum, the estimate based on the quarterly earnings code would be incorrect. By examining earnings records over the $7,800 maximum in 1970 and 1971 an estimate can be made of how prevalent this situation was. About 15% of the sample reported total SSA earnings in excess of $7,800 in 1970 and again in 1971. If such income had been earned with one employer, social security deductions would have been stopped at $7,800; the reporting of total earnings in excess of that figure arises therefore when the individual has worked for two employers in the year and generates total earnings in excess of $7,800. It should be noted that employment by two employers during the year does not affect the earnings estimate unless total income from these two sources exceeds the maximum.

Although one cannot say for certain how great an error this introduces, because we do not know the exact earnings of the people who worked for two employers, we can provide an estimate of the minimum error this introduces. If we assume that the earnings reported by the two employers are his total earnings, that is, the person did not earn maximum or more from any one employer we are able to calculate the average earnings of those affected and compare this average with the average based on the estimates. Estimated earnings in 1971 average $9,575 for the 15% of the sample with reported earnings exceeding $7,800. The average of the reported earnings was $9,205. This difference of $370 means that the earnings generated by the formula were 4% too high for 15% of the people in the sample, resulting in a possible overestimate of earnings.

The greatest methodological problem in use of the estimating formula lies not in the source of error introduced, however, but in the variance which is suppressed by assigning only a few estimates of earnings above the social security maximum to individuals whose income varies over a wide range. Suppressing the income variance through the necessary estimating procedure places a more heavy burden on the lower income range for isolating the sources of variation. Since isolating the variation due to enrollment in a training course is a main focus of this study, the percentages of trainees who fell in the "over maximum" category were calculated. Of 57 trainees in the sample of 494 individuals, 15 (26%) had earnings above maximum in 1970, 21 (37%) in 1971 and 22 (37%) in 1972. The necessary restriction of variation in this portion of the sample may create an unknown bias in the results of the statistical analysis.

To test how the estimating formula performed, data was obtained from the Social Security Administration for 1967, the year for which earnings data was also available from Armour's own records. Our sample provided a good test of the estimating formula since in 1967, 88% of the observations exceeded the social security maximum of $6,600. For the 12% who fell below the maximum, actual Armour earnings were correlated with earnings reported to social security. The correlation coefficient was 0.949, indicating that the assumption of earnings from a single employer was fairly accurate at least for the lower range of earnings received when the worker was still employed at Armour.

The adequacy of the estimating formula was tested by correlating the actual earnings figures and estimated earnings with each other. The mean of the estimated earnings exceeded that of actual earnings by a little more that $200 which proved significant at 5%. The correlation coefficient between the two series was 0.649, indicating that the formula provides only a rough estimate of an individual's actual earnings. For this particular study, the estimating procedure was used for approximately 55% of the sample in 1970, 60% in 1971, and 53% in 1972. It was hoped that the rise in the social security maximum to $9,000 in 1972 would result in a much smaller percent of the sample for which estimates would be necessary, but unfortunately the rise in the maximum just kept pace with the rise in earnings. The rise in the maximum to $10,800 in 1973 and to $12,600 in 1974 should make the estimating problem more tractable, but for purposes of this study, the formula was necessary, rough though the estimates proved to be.