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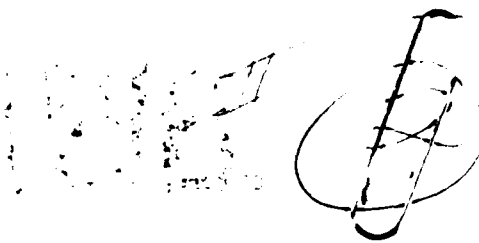
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HUMAN RESOURCES

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6 **ORGANIZATIONAL ASSESSMENT INDICES
OF EFFECTIVENESS**

By
10 William H. Hendrix/Lt Col, USAF

OCCUPATION AND MANPOWER RESEARCH DIVISION
Brooks Air Force Base, Texas 78235

11 Dec 1979
9 FINAL REPORT

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This final report was submitted by Occupation and Manpower Research Division, under project 2313, with HQ Air Force Human Resources Laboratory (AFSC), Brooks Air Force Base, Texas 78235.

This report has been reviewed by the Information Office (OI) and is releasable to the National Technical Information Service (NTIS). At NTIS, it will be available to the general public, including foreign nations.

This technical report has been reviewed and is approved for publication.

RAYMOND E. CHRISTAL, Technical Director
Occupation and Manpower Research Division

RONALD W. TERRY, Colonel, USAF
Commander

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prohibit administration of the entire OAP and the criterion inventories have been excluded to shorten OAP length.

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PREFACE

This research was completed under Work Unit 2313T103, Supervisory Style Effects on Productivity and Retention; in response to Request for Personnel Research 77-10, Development and Analysis of Organizational Assessment Package (OAP).

The authors are indebted to the Leadership and Management Development Center (LMDC) personnel whose assistance in data gathering were invaluable to this research effort. In particular, the constructive comments of Major David Wilkerson (LMDC/EDC) and Lt Col Fred Petty (LMDC/EDC) were especially beneficial. Also, this program could not have been accomplished without the assistance provided by Col Peter A. Land (LMDC/DMC), Col Henry M. Kelly (LMDC/EDC), Major L. B. Henry, Jr. (LMDC/DMC), CMSgt Richard G. Buxton (LMDC/EDC), and SMSgt Judith A. Vermilya (LMDC/DMC). The computer support provided by Computational Sciences Division, Air Force Human Resources Laboratory (AFHRL) was without a doubt outstanding. These personnel worked long, hard hours to meet stringent deadlines. In particular, the efforts of Mrs. Doris Black (AFHRL/SMSM), SrA Debbie McQuiston (AFHRL/SMOQ), and Amn Joe Belef (AFHRL/SAW) were especially noteworthy. In addition, the technical assistance provided by A1C Vicki B. Halverson (AFHRL/ORE) was extremely valuable in development of analysis work requests and data tabulation.

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ORGANIZATIONAL ASSESSMENT INDICES OF EFFECTIVENESS

I. INTRODUCTION

Research personnel and practitioners of Organizational Development (OD) programs have had an interest in specifying in some precise way what changes have occurred within organizations when a variety of intervention strategies have been employed. To accomplish this intervention, strategies need to be specified precisely, as well as the resulting effects. The effects are usually thought of as criteria of organizational effectiveness. Frequently used criteria in organizational change programs include job satisfaction, organizational climate, performance ratings, product production rates, and perceived productivity. The research discussed in this report focused on one aspect of the subject by viewing organizational change within a contingency model of effectiveness. Specifically, this research investigated how to develop quantitative indices which reflect various aspects of an organization which are subject to change when the organizational system is modified.

II. METHOD

Model and Survey Instrument

The three Component Organizational Effectiveness Model (Figure 1) previously reported by Hendrix (1976) considered Organizational Effectiveness (F) to be a function of the criterion selected (c), the managerial style employed (m), and the situational environment (s) which includes the manager's subordinates, peers, and other personnel in the environment; that is, $F = f(c, m, s)$. In Hendrix (1976), the model was initially entitled the Three Component Leadership Effectiveness Model and has since been expanded to focus on the entire organization. Also the concept of leader (l) has been replaced in the model by the manager (m).

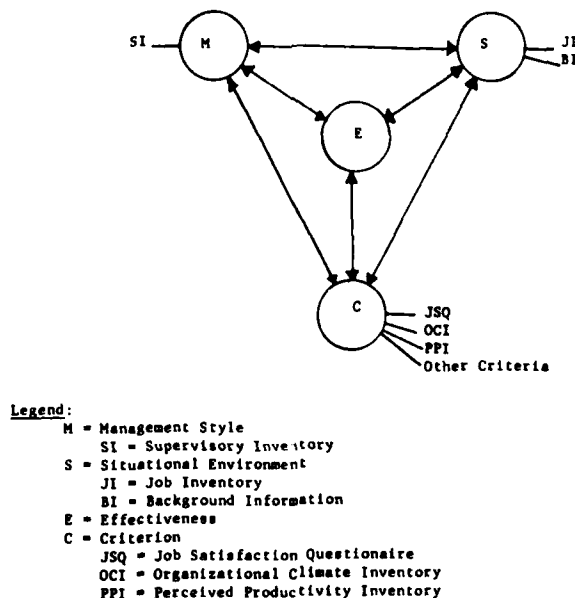


Figure 1. Three component organizational effectiveness model.

The Organizational Assessment Package (OAP) was designed to measure the basic components of the Three Component Organizational Effectiveness Model. As can be noted in Figure 1, the Supervisor Inventory (SI) was designed to measure managerial style (m), while the situational environment (s) was to be measured by two sections of the OAP, the Background Information (BI) section, and the Job Inventory (JI). The Job Inventory included items to measure job enrichment components as defined by Hackman, Oldham, Janson, and Purdy (1975). The criteria selected included satisfaction, organizational climate, and perceived productivity. These were to be measured by the sections entitled Job Satisfaction Questionnaire (JSQ), Organizational Climate Inventory (OCI), and Perceived Productivity Inventory (PPI). The version of the Organizational Assessment Package (OAP) used for data collection for this research effort is provided in Appendix A and consists of 16 Background Information items and 149 attitudinal items. The attitudinal items are 7-point (some contained a 0 point for not-applicable responses) Likert scales.

Sample

Data were collected by Air Force consultants from the Air Force Leadership and Management Development Center (LMDC) who administered the Organizational Assessment Package (Hendrix & Halverson, 1979a, 1979b) at selected Air Force installations to all available personnel. A sample of 4,786 subjects (military and civilian) was collected at five Air Force bases representing six major commands. The sample's composition was 2% high school non-graduates, 39% high school graduates or equivalent (e.g., GED certified), 37% some college work, 9% bachelor's degree, 6% some graduate work, 6% master's degree, 1% doctoral degree; 78% white, 10% black, 5% hispanic, 7% listed as other than white, black, or hispanic; 86% males, 14% females; 17% officers, 66% airmen, and 17% civilians.

Procedure

The job enrichment core dimensions as defined by Hackman et al. (1975) were computed. These are listed in Table 1 with the formula used to compute each, and they included the dimensions of skill variety, task identity, task significance, autonomy, and feedback from the job. In addition, the Job Motivation Index (JMI) was computed. The JMI is the OAP's equivalent to the Job Diagnostic Survey's (JDS) Motivation Potential Score (MPS), which was developed by Hackman et al. (1975) to measure their job enrichment core dimensions. The job enrichment core dimensions were also used to compute two additional formulas for comparison with the JMI to see if the alternative formulas were more predictive of the OAP's criteria. In Table 1 they are identified as variables 808 (JI total) and 809 (JMI-Additive). One formula (808) simply sums the five core dimensions, while the other formula sums variables 803 (autonomy) and 804 (job feedback) instead of multiplying them as was performed in computing the JMI. These job enrichment dimensions and their associated generated variables (i.e., variables 807 to 809) were then correlated with four criteria: *General Organizational Climate*, *Organizational Communications Climate*, *Job Related Satisfaction*, and *Perceived Productivity*. The four criteria were developed in a previous study (Hendrix & Halverson, 1979a) where they were extracted during factor analysis of OAP's attitudinal items (i.e., items 17 to 165). For each of these four factors, factor scores for each subject were computed to produce the four criteria indices of organizational effectiveness. In addition, factor scores were generated for subjects on 12 other OAP factors isolated by Hendrix and Halverson (1979a). (See Appendix B for factor score coefficients.) Table 2 lists the 16 factors which had scores computed to provide a single index for each factor for each subject. The resultant factor score variable is identified in Table 2 in the column labeled "Dependent Variable" (i.e., variables 830 to 851). Variable numbers can be used to identify OAP items by referring to Appendix A. The numbers provided in parentheses in Appendix A are the variable numbers associated with the respective OAP items. For example, the factor score criterion of *General Organizational Climate* is listed as variable 830.

Table 1. Job Enrichment Indices

Generated Variable Number ^a	Index Title	Computational Formula
800	Skill Variety	$(201 + 212)/2$
801	Task Identity	$(202 + 211)/2$
802	Task Significance	$(203 + 210)/2$
803	Autonomy	$(204 + 213)/2$
804	Job Feedback	$(205 + 209)/2$
807 ^b	Job Motivation Index	$[(800 + 801 + 802)/3] \times 803 \times 804$
808	JI Total	$800 + 801 + 802 + 803 + 804$
809	JMI Additive	$\{(800 + 801 + 802)/3\} + 803 + 804$

^a Variables were generated by computing the associated formula. For example, variable 800 was created for skill variety by using the computational formula $(201 + 212)/2$ where 201 and 212 are OAP variable numbers.

^b Hendrix and Halverson (1979a) in describing the JMI computational formula averaged four variables instead of the three listed here (i.e., $800 + 801 + 802$). The additional variable used was work irritants which has not been used here since it correlated less well with the criteria than did the 800, 801, and 802 variables.

Table 2. Estimated Factor Score Regression Variables

Analysis Number	Generated Variable Number	Factor	R ²	Estimated Factor Score Variables	
				Dependent Variable	Independent Variable
1	860	General Organizational Climate	.827	830	111, 121, 110, 122, 109, 112, 116, 115, 117, 114.
2	861	Organizational Communications Climate	.838	831	104, 103, 105, 107, 113.
3	862	Job Related Satisfaction	.849	832	717, 723, 716, 718, 719, 710, 715, 705, 713, 714.
4	863	Perceived Productivity	.989	833	260, 265, 261, 259, 264.
5	864	Job Enrichment	.743	840	215, 244, 210, 203, 201, 212, 230, 209, 217, 202.
6	865	Planning Time Management	.883	841	224, 223, 225, 222, 219, 229, 232, 231, 235.
7	866	Task Autonomy	.778	842	213, 204, 214, 248.
8	867	Advancement Recognition	.764	843	239, 240, 234, 241.
9	868	Task Accomplishment	.766	844	218, 206, 228, 212, 201, 202, 230.
10	869	Work Repetition	.835	845	226, 227.
11	870	Meaningful/Response	.920	846	252, 253, 251, 250, 254.
12	871	Management Supervision	.732	847	404, 412, 413, 416, 411, 414, 405, 410.
13	872	Supervisor Assistance Feedback	.673	848	435, 437, 442, 433.
14	873	Autonomous Control	.847	849	421, 419, 415, 417.
15	874	Training Satisfaction	.858	850	711, 712.
16	875	Base Facilities Satisfaction	.944	851	721, 720, 722.

The next step involved estimating what will be referred to as the true factor score, which was computed on all items associated with a given factor, by using a sub-set of the items. For example, Appendix B provides the factor score coefficients for the 16 factors used in this research and includes the four criteria of *General Organizational Climate*, *Organizational Communications Climate*, *Job Related Satisfaction*, and *Perceived Productivity*. The purpose of these analyses was to establish whether a small sub-set of items would adequately tap the common variance predicted by the true factor score. If the R^2 values were significantly high, then the OAP items not used in the equations could be deleted, thereby reducing the length of the OAP. In Appendix B, for the *General Organizational Climate* factor, there are a total of 23 items used to compute a given subject's factor score. Of these 23 items, the 10 items loading the highest on the factor were regressed against the true factor score (variable 830) to produce the *General Organizational Climate Estimated Factor Score*. These 10 items are listed in Table 2 under the column labeled "Independent Variable." As previously noted, each item is identified by its variable number which can be used to identify the OAP item in Appendix A. For the *Organizational Climate Inventory*, the response options available did not include a 0 - not applicable response option. The *Perceived Productivity Inventory*, *Supervisor Inventory*, and *Job Satisfaction Questionnaire*, however, did have the 0 = not applicable response option. A provision had to be made for inclusion of this response option in the regression equations associated with variables from these inventories. This was accomplished by creating a new variable to represent the 0 = not applicable response for each item having that response option. For example, in Table 2, analysis 4 has five independent variables listed; however, the regression equation computed consisted of 10 independent variables: five of which were those that could be responded to on a 7-point scale, plus the five variables created for the 0 = not applicable response options. In Table 2, the items/variables provided under the column labeled "Independent Variables" for *General Organizational Climate Estimated Factor Score* are listed in descending order of the magnitude of their factor loadings. This order can also be noted in Table 3 which contains the highest loading 10 items for each factor isolated during a series of factor analyses performed by Hendrix and Halverson (1979a). These factor estimation scores were computed for all 16 factors listed in Table 2.

The next group of analyses performed involved regressing a series of prediction variables from the *Job Inventory* and *Supervisor Inventory* against the four criteria to develop equations which could be used to predict the criteria should the Job and Supervisor Inventories be used separately. Table 4 lists the series of regression analyses performed in developing these equations. The first set of analyses in this group involved regressing situational variables from the OAP's Job Inventory against the four criteria (i.e., variables 830 to 833). The second set of analyses regressed Managerial variables from the *Supervisor Inventory* against the criteria. The third set of analyses regressed the combined set of variables from the *Job Inventory* and *Supervisor Inventory* to obtain an aggregate index for predicting the four criteria. The purpose of these analyses was to find the smallest sub-set of predictor variables which would account for the majority of predictive variance. To accomplish this a stepwise regression procedure (i.e., stepup procedure) was desired. The computer programs available, however, did not have a stepwise program which added each variable in terms of maximally increasing R^2 to some specified stop criterion.

To accomplish the desired end, two available programs, REGR and REGREFX, were run. These two programs were developed by the Computational Sciences Division, Air Force Human Resources Laboratory. The first program (REGR) added three variables at a time, selecting the three variables which had the highest combined R^2 of any three-variable set. Iteratively, the next three most predictive variables were added until a stop criterion was met. In this case, the stop criterion was .0001 for R^2 increase. That is, an R^2 increase of .0001 or larger had to occur with the candidate variable for it to be entered in the equation. The next step involved putting those

Table 3. OAP Sections Detailed Factor Analyses

Var.	Loading	Alpha	Var.	Loading	Alpha	Var.	Loading	Alpha	Var.	Loading	Alpha
Situational Environment											
Job Enrichment			Task Autonomy			Planning and Time Management			Supervisor Influence ^a		
215	.73		213	.79		224	.80		247	.77	
244	.70	.86 ^d	204	.78	.81 ^d	223	.68	.71 ^d	246	.74	.79
210	.63	.79 ^d	214	.67	.83 ^d	225	.61	.71 ^d	245	.74	.84
203	.61	.81 ^d	248	.49	.84 ^d	222	.59	.70 ^d	248	.60	.86
201	.58	.82 ^d	205	.41	.84	219	.45	.70 ^d	216	.44	.84
212	.54	.84 ^d	209	.36	.86	229	.39	.71 ^d	241	.38	.85
230	.52	.85 ^d	211	.35	.86	232	.36	.73 ^d	217	.31	.85
209	.51	.86 ^d	246	.28		231	.35	.76 ^d	244	.31	.86
217	.49	.87 ^d	231	.28		235	.35	.78 ^d	220	.27	
202	.49	.87 ^d	202	.25		241	.25		236	.26	
Advancement/ Recognition			Equipment/Work Space/Goal Clarity ^b			Work Repetition			Task Accomplishment ^c		
239	.80		208	.74		226	.81		218	.64	
240	.64	.69 ^d	207	.65	.53 ^d	227	.80	.71 ^d	206	.52	.32 ^d
234	.61	.69 ^d	220	.34	.56	228	.47	.62	228	.51	.40 ^d
241	.48	.75 ^d	211	.33	.62	225	.23		212	.42	.46 ^d
233	.27		209	.30	.70	244	.22		201	.41	.58 ^d
231	.21		217	.30	.75	215	.17		202	.32	.62 ^d
235	.21		221	.28		223	.17		230	.31	.68 ^d
244	.20		233	.26		206	.17		220	.27	
219	.19		202	.22		202	.16		221	.27	
221	.19		234	.21		203	.15		217	.22	
Supervisory Inventory											
Management/ Supervision			Supervisor Assistance/Feedback			Autonomous Autonomous Control ^c					
404	.77		435	.76		421	.69				
412	.76	.86 ^d	437	.74	.85 ^d	419	.65	.53 ^d			
413	.73	.89 ^d	442	.73	.87 ^d	415	.56	.51 ^d			
416	.72	.90 ^d	433	.71	.91 ^d	417	.56	.58 ^d			
411	.72	.91 ^d	431	.71	.92	434	.35	.55			
414	.71	.93 ^d	436	.69	.92	425	.31	.60			
405	.70	.93 ^d	429	.68	.93	422	.29	.66			
410	.68	.94 ^d	438	.67	.94	443	.29				
440	.68	.95	428	.66	.95	403	.28				
406	.67	.95	427	.62	.95	426	.26				
Organization Climate Inventory						Perceived Productivity					
General Organizational Climate			Organizational Communications Climate			High Productivity			Performance Distribution		
111	.76		104	.86		260	.83		262	.78	
121	.75	.82 ^d	103	.84	.88 ^d	265	.80	.74 ^d	263	.77	.34
110	.73	.85 ^d	105	.71	.86 ^d	261	.78	.80 ^d	259	.16	
122	.71	.87 ^d	107	.67	.87 ^d	259	.72	.81 ^d	264	.05	
109	.69	.90 ^d	113	.61	.89 ^d	264	.71	.82 ^d	260	.05	
112	.69	.90 ^d	124	.59	.89	263	.24		261	.01	
116	.66	.91 ^d	106	.52	.90	262	.23		265	.01	
115	.66	.92 ^d	102	.51	.91						
117	.66	.92 ^d	120	.48	.91						
114	.61	.93 ^d	109	.44	.92						
			114	.44	.93						

Table 3 (Continued)

Var.	Loading	Alpha	Var.	Loading	Alpha	Var.	Loading	Alpha	Var.	Loading	Alpha
Job Satisfaction											
Job Related Satisfaction			Local Area/Social Satisfaction ^b			Training			Base Facilities		
717	.75		707	.81		711	.80		721	.86	
723	.72	.62 ^d	708	.69	.63 ^d	712	.79	.71 ^d	720	.78	.75 ^d
716	.69	.78 ^d	706	.45	.64	704	.45	.67	722	.71	.74 ^d
718	.68	.79 ^d	705	.39	.72	713	.43	.73	707	.20	
719	.63	.82 ^d	709	.36	.75	705	.39	.77	715	.18	
710	.56	.84 ^d	714	.35	.77	709	.38	.80	704	.17	
715	.52	.85 ^d	704	.33	.80	706	.35	.82	714	.16	
705	.50	.86 ^d	713	.28		716	.31	.84	718	.14	
713	.50	.87 ^d	716	.28		719	.31	.86	717	.14	
714	.42	.88 ^d	710	.27		723	.29		711	.12	
Need for Enrichment											
Meaningful/Responsible Work			Desired Repetitive/Easy Tasks								
252	.87		255	.86							
253	.84	.85 ^d	258	.83	.64						
251	.84	.88 ^d	254	.22							
250	.83	.91 ^d	251	.19							
254	.82	.92 ^d	250	.18							
249	.69	.92	256	.14							
256	.68	.92	252	.13							
257	.66	.91	253	.09							
255	.10		249	.04							
258	.05		257	.04							

^aThis factor recommended for deletion since in the overall OAP factor analysis variables listed here load on factor in the Supervisor Inventory.

^bRecommend deletion since internal consistency index is low for variables recommended for inclusion. Additional variables not recommended for inclusion since they do not logically relate to the factor.

^cThis factor is weak in terms of internally consistency. Should this factor be included, additional items to strengthen it is recommended.

^dRecommended for inclusion.

Table 4. Job Inventory and Supervisor Inventory Regression Equation Variables

Analysis Number	Regression Analysis	R ²	Dependent Variable	Independent Variable
17	Situational variables regressed with General Organizational Climate	.517	830	201 215, 217 234, 238 244, 249 258.
18	Situational variables regressed with Organizational Communications Climate	.235	831	201 215, 217 234, 238 244, 249 258.
19	Situational variables regressed with Job Satisfaction	.522	832	201 215, 217 234, 238 244, 249 258.
20	Situational variables regressed with Perceived Productivity	.425	833	201 215, 217 234, 238 244, 249 258.
21	Managerial variables regressed with General Organizational Climate	.416	830	403 443.
22	Managerial variables regressed with Organizational Communications Climate	.186	831	403 443.
23	Managerial variables regressed with Job Satisfaction	.265	832	403 443.
24	Managerial variables regressed with Perceived Productivity	.300	833	403 443.
25	OAP variables regressed with General Organizational Climate	.565	830	201 215, 217 234, 238 244, 249 258, 403 443.
26	OAP variables regressed with Organizational Communications Climate	.304	831	201 215, 217 234, 238 244, 249 258, 403 443.
27	OAP variables regressed with Job Satisfaction	.547	832	201 215, 217 234, 238 244, 249 258, 403 443.
28	OAP variables regressed with Perceived Productivity	.469	833	201 215, 217 234, 238 244, 249 258, 403 443.

variables identified by the REGR program as the most predictive set into the REGRIX program. This program did not provide a stop criterion as did REGR, but did permit adding each variable iteratively starting with the variable yielding the highest R^2 , then adding a second variable which, when combined with the first, produced the highest combined R^2 , and then in a like fashion, the remaining variables were added. Therefore, by using these two programs, the stepwise regression equations were produced.

III. RESULTS

Table 5 lists the job enrichment variables described earlier as well as the four criteria of *General Organizational Climate*, *Organizational Communications Climate*, *Job Related Satisfaction*, and *Perceived Productivity*. For each variable, the minimum or lowest rating and the maximum or highest rating given by an individual is also listed along with the mean and standard deviation for each variable. Table 6 is an intercorrelation matrix of the job enrichment formulas (V807 to V809) and the four criterion variables. Also included are the regression correlation coefficients from analyses 17 to 20, where variables from the Job Inventory (i.e., situational variables) were regressed against the four criteria. In reviewing the correlations of the three job enrichment formulas (i.e., JMI, V807; JI Total, V808; and JMI Additive, V809) with the four criteria (i.e., V830 to V833), a pattern appears. Although the differences between the correlations are small, in all cases the JI Total and JMI Additive formulas are more predictive of the four criteria than was the JMI multiplicative formula. For three of the criteria (i.e., V830 to V832), the JMI Additive formula was the best predictor, while for Perceived Productivity (V833), the JI Total predicted best. Instead of using these rather simple formulas, better prediction of the criteria would be expected if a series of job enrichment items were regressed against them. Analyses 17 to 20, which will be discussed in more detail later, were such analyses which incorporated job relevant variables for prediction of the four criteria. The factors which these variables measured are listed in Table 3 under the headings of *Situational Environment* and *Need for Enrichment*. All variables were included in the stepwise regression pool prior to analysis, except for items loading on the *Supervisor Influence* factor. As can be noted in Table 6, the regression equations multiple correlations are consistently higher than were the correlations for the JMI, JI Total, and JMI Additive formulas. Therefore, if the definition of the world of work is broadened beyond that usually applied to job enrichment so that it includes all factors identified by the OAP's Job Inventory, then a better predictive system results for predicting satisfaction, climate, and productivity (V830 to V833) as defined within this report. Since this concept is somewhat broader than defined previously in this report, the term *Situational Environment Index* (SEI) will be used to identify the predicted value for an individual or work group when computed by the regression equations provided in Appendix D. The SEI can be considered simply an index for predicting the four OAP criteria (i.e., *General Organizational Climate*, *Organizational Communications Climate*, *Job Related Satisfaction*, and *Perceived Productivity*) from job related variables associated with the nine factors of Table 3 *Situational Environment* and *Need for Enrichment* sections (the *Supervisor Influence* factor variables were not included).

The second group of analyses involved developing an *estimated factor score* for the *true factor score* of the 16 factors listed in Table 2. The variance accounted for in the true factor score by using a sub-set of variables to produce the estimated factor score is identified by the R^2 column in Table 2. The predictive accuracy of the estimated factor score equations was rather high, ranging from a low of .673 (Supervisor Assistance/Feedback factor) to a high of .989 (Perceived Productivity factor). Three factors had R^2 values in the .90's; seven factors were in the .80's; five factors were in the .70's; and one factor had an R^2 in the .60's. The equations for each estimated factor score are provided in Appendix C, which is an abbreviated version of the computer regression analysis output.

Table 5. Job Enrichment Dimensions, Job Related Formulas, and Four Criteria of Effectiveness

VAR	T/S	VAR	DESCRIPTION	MAXIMUM	MINIMUM	MEAN	S.D.
1	FO800	V800	SKILL VARIETY	2,0000	1,0000	4,5244	1,5957
2	FO801	V801	TASK IDENTITY	2,0000	1,0000	5,2052	1,4382
3	FO802	V802	TASK SIGNIFICANCE	7,0000	1,0000	5,6549	1,4257
4	FO803	V803	AUTONOMY	2,0000	1,0000	4,1170	1,6244
5	FO804	V804	JOB FEEDBACK	7,0000	1,0000	5,1877	1,4522
6	FO807	V807	JOB MOTIVATION INDEX (JMI)	343,0000	1,0000	122,3291	81,2545
7	FO808	V808	J1 TOTAL	35,0000	5,0000	29,4893	5,3623
8	FO809	V809	JMI ADDITIVE	21,0000	3,0000	14,4330	3,4179
9	FO810	V810	GENERAL ORGANIZATIONAL CLIMATE	2,8491	-3,7298	0,383	1,0039
10	FO811	V811	ORGANIZATIONAL COMMUNICATIONS CLIMATE	2,7101	-1,8433	0,0103	0,9874
11	FO812	V812	JOB RELATED SATISFACTION	2,8105	-3,3032	0,0986	1,0696
12	FO813	V813	PERCEIVED PRODUCTIVITY	1,4518	-4,5765	0,0017	1,0450

Table 6. Correlations of Job Related Formulas
with Four Criteria of Effectiveness

Criteria	JMI (V807)	Jl Total (V808)	JMI Additive (V809)	SEI Regression Equation (Analyses 17-20)
General Organizational Climate (V830)	.436	.462	.467	.719
Organizational Communications Climate (V831)	.215	.219	.226	.484
Job Related Satisfaction (V832)	.505	.520	.532	.723
Perceived Productivity (V833)	.394	.459	.437	.652

The estimated factor score can be computed operationally, by adding the regression constant to the sum of each variable times its associated regression weight, that is $y = \text{regression constant} + \text{regression weight}_1 (\text{variable}_1) + \text{regression weight}_2 (\text{variable}_2) + \dots + \text{regression weight}_n (\text{variable}_n)$. The variable numbers associated with OAP items are those preceded by the letters "FO" (e.g., variable 109 is listed as F0109). Both raw score and standardized weights are provided for computing equations using respondents' actual score responses or using scores that had been standardized. As noted earlier, those items having a 0 = *not applicable* response option had the not-applicable responses coded as a separate variable from the respective item. For example, in Appendix A for item number 75, it can be noted that if the item is applicable, it can be responded to on a 1 to 7 scale, and a 1 to 7 response would be coded as variable 259 for analysis purposes. If an individual enters a 0 to indicate the item is not applicable, then this response would be coded as variable 724. This permits developing regression equations which allow for weighting both the 1 to 7 response options and the 0 = *not applicable* response options. This can be seen for analysis 4 (Perceived Productivity Estimated Factor Score) in Appendix C where variables 259, 260, 261, 264, and 265 are the 1 to 7 response variables and variables 724, 725, 726, 729, and 730 are the respective 0 = *not applicable* responses associated with the above 1 to 7 response variables.

The next group of analyses involved developing regression equations using predictor variables from the Job Inventory and Supervisor Inventory to predict the four criteria. In Table 4 under the R^2 column is listed the variance in the criterion accounted for by the predictor/independent variables when regressed against the respective criterion using the stepwise regression procedure described earlier. Those variables identified as situational variables were from the Job Inventory, those identified as managerial variables were from the Supervisor Inventory, and those identified as OAP variables included variables from both the Job and Supervisor Inventories. These regression equations provide a single index for predicting a given criterion. If the Job Inventory and Supervisor Inventory were administered without the other inventories, then the "OAP variables" prediction equations would serve to estimate the criteria scores. If either the Job Inventory or the Supervisor Inventory was used separately, then the "situational variable" equation or "managerial variable" equation could be used to predict the criteria. The "OAP variables" equations had the highest R^2 values since both situational and managerial variables were included (R^2 Range = .304 - .565). The "situational variables" equations were the next most predictive (R^2 Range = .235 - .522), with the "managerial variables" equations being the least predictive (R^2 Range = .186 - .416).

The equations for predicting the four criteria from the situational and managerial variables are provided in Appendix D. The regression equations provided in Appendix D follow the same format as those in Appendix C, and operationally, the estimated criterion scores are computed the same as previously described.

IV. DISCUSSION

Three groups of analyses have been presented. The first compared various formulas for determining job enrichment in terms of their predictive ability of four OAP criteria. The JMI formula was the least predictive, while the SEI was the most predictive. The SEI included more variables and its computation was more complex and did not readily permit handscoring as did the JMI, JI total, and JMI Additive formulas. Nonetheless, its increase in predictability over the other formulas was sufficiently large to recommend it for consideration for operational use as a predictive index of the four OAP criteria.

The second group of analyses involved estimating factor scores for OAP factors from a small sub-set of variables associated with each factor. These equations were highly predictive (R^2 Range = .673 - .989) of the true factor scores and provided a means of accurately predicting the true factor scores with fewer variables.

The third group of analyses involved predicting the four criterion factor scores with variables from the Job Inventory and Supervisor Inventory. By combining variables from the Job and Supervisor Inventories, the most predictive equations of the four criteria were obtained (R^2 Range = .304 - .565).

The equations provided here are recommended for use with the OAP. First, a single index for each factor can be obtained using the factor score coefficients provided in Appendix B. In addition, there are equations which provide a means for computing the JMI by the traditional Hackman et al. (1975) formula, plus other formulas, of which the SEI is recommended if predictive accuracy of the OAP criteria is desired. Also, equations to estimate factor scores permits an OAP user to reduce the length of the OAP. This can be accomplished by selecting only those inventories or factors of interest and then selecting those items from the factor score variable sub-sets used to estimate the true factor scores. The regression equations (Analysis 17 to 20) developed for predicting the OAP criteria from the Job and Supervisor Inventory variables permits estimating the criterion scores for work groups without administering the *Perceived Productivity Inventory*, *Job Satisfaction Questionnaire*, or the *Organizational Climate Inventory*. Therefore, this is another way of reducing the survey length if desired.

V. SUMMATION

The Organizational Assessment Package (OAP) was developed to measure the components of the Three Component Organizational Effectiveness Model. Each inventory or questionnaire within the OAP was designed to be used independently, or as a part of the total package. This modular concept when used with the regression equations presented in this report provides a flexible instrument package to be used in total or in part. If a shorter version of the OAP is needed, a variety of methods for reducing survey length are presented. If length is not an important consideration, then the full length OAP provides a means of tapping factors associated with the manager, the situational environment, and the various criteria of effectiveness.

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APPENDIX A: ORGANIZATIONAL ASSESSMENT PACKAGE (VERSION 3)

The Organizational Assessment Package (OAP) is a series of surveys for collecting information about you, your job, your work group, your supervisor, and your organization.

The terms **work group**, **organization**, and **supervisor** are used throughout the OAP and need some clarification. The term **work group** refers to a group of individuals working for the same supervisor, while the term **organization** refers to the overall organizational unit. For example, if your position is within a section of a squadron then the squadron would be your organization and your section would be your work group.

With the exception of the Background Information Section, two types of scales are used in the OAP. Most surveys will have a seven point (1 - 7) scale; however, three inventories will include a zero point (0 - 7) which should be marked if an item is non-applicable. Mark your answers on the separate answer sheet provided. **Please use a number 2 pencil only.** Make heavy black marks that fill the oval-shaped space. For example, using the scale below, if you **moderately agree** with item statement 1 then you would blacken oval number 6 on the answer sheet as shown in the example below.

Scale:

0 = Not applicable
1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree

4 = Neither agree nor disagree
5 = Slightly agree
6 = Moderately agree
7 = Strongly agree

Item Statement

1. The information your work group receives from other work groups is helpful.

Answer Response:

() 001 (1) (2) (3) (4) (5) ☒ (7)

Should the above statement not be applicable for you then you would mark the unnumbered oval as shown below.

Answer Response:

☒ 002 (1) (2) (3) (4) (5) (6) (7)

It is important that you answer **all** items honestly. Only in this way can an accurate description of your organization be obtained.

Summary results only describing your organization will be provided to your organization. In turn, your organization will have the opportunity to present the results to you and discuss them. Your individual responses are confidential, and will **not** be provided to your organization or any other agency. Only those individuals performing this research will have access to your completed OAP.

DO NOT STAPLE OR OTHERWISE DAMAGE THE ANSWER SHEET.

PRIVACY ACT STATEMENT

1. Authority: 10 USC 8012, Secretary of the Air Force, Powers, Duties, Delegation by Compensation E.O. 9397, 22 Nov 43, Numbering System for Federal Accounts Relating to Individual Persons.
2. PRINCIPAL PURPOSE(S): This information will be used for Air Force research and development purposes and for organizational problem area identification.
3. ROUTINE USES: Information provided by respondents will be treated **confidentially** and will be used for official research purposes and organizational problem area identification. Information obtained will also be used to improve instruments and techniques for organizational assessment.
4. WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION: Disclosure of this information is voluntary. The Air Force continues to improve only with your assistance to make additional refinements in management of its resources. Your cooperation in this effort is appreciated.

BACKGROUND INFORMATION

Instructions

The first section of this survey concerns your background. Please use the separate answer sheet and darken the oval which corresponds to your response to each question.

1. You are an:
(901)* 1. Officer (904) 4. Civilian (Wage Employee)
(902) 2. Airman (905) 5. Non-Appropriated Fund (NAF) Employee
(903) 3. Civilian (GS) (906) 6. Others
2. Your grade level is:
(907) 1. 1-3 (911) 5. 10-12
(908) 2. 4-5 (912) 6. 13-15
(909) 3. 6-7 (913) 7. 16 or Higher
(910) 4. 8-9
3. Total months in this organization is:
(914) 1. Less than 1 month.
(915) 2. More than 1 month, less than 6 months.
(916) 3. More than 6 months, less than 12 months.
(917) 4. More than 12 months, less than 18 months.
(918) 5. More than 18 months, less than 24 months.
(919) 6. More than 24 months, less than 36 months.
(920) 7. More than 36 months.

*Number in parenthesis identifies variable for reference only.

4. Total months experience in present job is:

- (921) 1. Less than 1 month.
- (922) 2. More than 1 month, less than 6 months.
- (923) 3. More than 6 months, less than 12 months.
- (924) 4. More than 12 months, less than 18 months.
- (925) 5. More than 18 months, less than 24 months.
- (926) 6. More than 24 months, less than 36 months.
- (927) 7. More than 36 months.

5. Your race is:

- (928) 1. American Indian or Alaskan Native
- (929) 2. Asian or Pacific Islander
- (930) 3. Black, not of Hispanic Origin
- (931) 4. Hispanic
- (932) 5. White, not of Hispanic Origin
- (933) 6. Other

6. Your sex is:

- (934) 1. Male
- (935) 2. Female

7. Your highest educational level obtained was:

- (936) 1. Non high school graduate
- (937) 2. High School graduate or GED
- (938) 3. Some college work
- (939) 4. Bachelor's degree
- (940) 5. Some graduate work
- (941) 6. Master's degree
- (942) 7. Doctoral degree

8. Highest level of professional military education (residence or correspondence):

- | | |
|--|---|
| (943) 0. None or not applicable | (946) 3. NCO Academy (Phase 4) |
| (944) 1. NCO Orientation Course or
USAF Supervisor Course
(NCO Phase 1 or 2) | (947) 4. Senior NCO Academy (Phase 5) |
| (945) 2. NCO Leadership School
(NCO Phase 3) | (948) 5. Squadron Officer School |
| | (949) 6. Intermediate Service School (Officer) |
| | (950) 7. Senior Service School (Officer)
(i.e., Air War College) |

9. How many people do you directly supervise (i.e., those you write performance reports for)

- | | |
|-----------------|---------------------|
| (951) 1. None | (955) 5. 9 to 12 |
| (952) 2. 1 to 2 | (956) 6. 13 to 20 |
| (953) 3. 3 to 5 | (957) 7. 21 or more |
| (954) 4. 6 to 8 | |

10. Does your supervisor actually write your performance report?

- (958) 1. Yes
- (959) 2. No

11. Your work requires you to work primarily:

- (960) 1. Alone
- (961) 2. With one or two people
- (962) 3. As a small group team member
- (963) 4. As a large group team member (6 or more people)
- (964) 5. Other

12. How stable are your work hours?

- (965) 1. Highly Stable – Routine 8 hours a day
- (966) 2. Very Stable – Nearly routine 8 hour day
- (967) 3. Moderately Stable – Shift work which periodically changes
- (968) 4. Slightly Unstable – Irregular working hours
- (969) 5. Highly Unstable – Frequent TDYs, frequently on call

13. Your job requires how much communication between workers?

- | | |
|----------------------|----------------------------|
| (970) 1. Very little | (973) 4. Very frequent |
| (971) 2. Little | (974) 5. Almost continuous |
| (972) 3. Moderate | |

14. To what extent in your work group are group meetings used to solve problems and establish goals and objectives?

- | | |
|-----------------------|------------------------------|
| (975) 1. None | (977) 3. About half the time |
| (976) 2. Occasionally | (978) 4. Almost totally |

15. Your work schedule is basically:

- (979) 1. Shift work, usually days.
- (980) 2. Shift work, usually swing shift.
- (981) 3. Shift work, usually nights.
- (982) 4. Shift work, usually days and nights.
- (983) 5. Daily work only.
- (984) 6. Crew schedule.
- (985) 7. Other.

16. Which of the following best describes your career intentions?

- (986) 1. To continue in the Air Force.
- (987) 2. Will most likely continue in the Air Force.
- (988) 3. May continue in the Air Force.
- (989) 4. Planning to retire in the next 12 months.
- (990) 5. Other.

JOB INVENTORY

Instructions

Below are items which relate to your job. Read each statement carefully and then decide to what extent the statement is true of your job. Indicate the extent that the statement is true for your job by choosing the statement below which best represents your job.

- | | |
|-----------------------------|------------------------------|
| 1 = Not at all | 5 = To a fairly large extent |
| 2 = To a very little extent | 6 = To a great extent |
| 3 = To a little extent | 7 = To a very great extent |
| 4 = To a moderate extent | |

Select the corresponding number for each question and enter it on the separate answer sheet.

PART I: THE JOB ITSELF

- (201) 17. To what extent does your job require you to do many different things, using a variety of your talents and skills?
- (202) 18. To what extent does your job involve doing a **whole** task or unit of work?
- (203) 19. To what extent is your job significant, in that it affects others in some important way?
- (204) 20. To what extent does your job provide an great deal of freedom and independence in scheduling your work and selecting your own procedures to accomplish it?
- (205) 21. To what extent does just doing your job provide you with chances to find out how well you are doing?
- (206) 22. To what extent do **additional duties** interfere with the performance of your primary job?
- (207) 23. To what extent do you have adequate tools and equipment to accomplish your job?
- (208) 24. To what extent is the amount of work space provided adequate?
- (209) 25. To what extent does your job provide the chance to know for yourself when you do a good job; and to be responsible for your own work?
- (210) 26. To what extent does doing your job well affect a lot of people?
- (211) 27. To what extent does your job provide you with the chance to finish completely the piece of work you have begun?
- (212) 28. To what extent does your job require you to use a number of complex skills?
- (213) 29. To what extent does your job give you freedom to do your work as you see fit?
- (214) 30. To what extent are you allowed to make the major decisions required to perform your job well?
- (215) 31. To what extent are you proud of your job?
- (216) 32. To what extent do you feel accountable to your supervisor in accomplishing your job?
- (217) 33. To what extent do you know exactly what is expected of you in performing your job?
- (218) 34. To what extent are your job performance goals difficult to accomplish?
- (219) 35. To what extent are staff assistance visits helpful in achieving job performance?
- (220) 36. To what extent are your job performance goals clear and specific?
- (221) 37. To what extent are your job performance goals realistic?

1 = Not at all
2 = To a very little extent
3 = To a little extent
4 = To a moderate extent

5 = To a fairly large extent
6 = To a great extent
7 = To a very great extent

- (222) 38. To what extent do you use Management Information Systems(e.g., Computer Printouts, reports, etc.) to make decisions in your job?
- (223) 39. How much of your time is used for planning more than 6 months ahead?
- (224) 40. How much of your time is used for weekly or monthly planning?
- (225) 41. How much of your time is used for daily planning?
- (226) 42. To what extent do you perform the same tasks repeatedly within a short period of time?
- (227) 43. To what extent are you faced with the same type of problem on a weekly basis?
- (228) 44. To what extent are tasks you perform easy to accomplish?
- (229) 45. To what extent is planning modified to meet changing job related needs? Changing environment?
- (230) 46. To what extent does your job keep you busy?
- (231) 47. To what extent are the people affected by decisions asked for their ideas?
- (232) 48. To what extent is the amount of information you get from other work groups adequate to meet your job needs?
- (233) 49. To what extent do you know what the objectives of your organization are?
- (234) 50. To what extent are you aware of promotion/advancement opportunities that affect you?
- (235) 51. To what extent is your work group involved in establishing goals?
- (236) 52. To what extent does your work group solve problems effectively?
- (237) 53. To what extent does your work group perform effectively under pressure?
- (238) 54. To what extent do coworkers in your work group maintain high standards of performance?
- (239) 55. To what extent do you have the opportunity to progress up your career ladder?
- (240) 56. To what extent are you being prepared to accept increased responsibility?
- (241) 57. To what extent do people who perform well receive recognition?
- (242) 58. To what extent do you feel adequately trained to perform your assigned tasks?
- (243) 59. To what extent are you satisfied with your job?
- (244) 60. To what extent does your work give you pride and feeling of self-worth?
- (245) 61. To what extent does your supervisor provide the assistance you need to manage your work?
- (246) 62. My supervisor asks for ideas before making decisions.
- (247) 63. To what extent does your supervisor encourage the people in your work group to work as a team?
- (248) 64. To what extent does your supervisor allow you to make decisions concerning your job?

Instructions

Below are statements which deal with job characteristics. Some of these may not be in your job now. However, read each statement below and choose the answer which best represents how much **you would like to have each characteristic in your job.**

In my job, I would like to have the **characteristics** described:

- | | |
|---------------------------|-------------------------------|
| 1 = A slight amount | 5 = A large amount |
| 2 = An average amount | 6 = A very large amount |
| 3 = A moderate amount | 7 = An extremely large amount |
| 4 = A fairly large amount | |

- | | | |
|-------|-----|--|
| (249) | 65. | Opportunities to have independence in my work. |
| (250) | 66. | A job that is meaningful. |
| (251) | 67. | The availability for personal growth in my job. |
| (252) | 68. | Opportunities in my work to use my skills. |
| (253) | 69. | Opportunities to perform a variety of tasks. |
| (254) | 70. | Opportunities in my work to learn new and exciting things. |
| (255) | 71. | A job in which tasks are repetitive. |
| (256) | 72. | Opportunities to keep busy in my work. |
| (257) | 73. | The opportunity to perform all tasks or jobs in my career field from time to time. |
| (258) | 74. | A job in which tasks are relatively easy to accomplish. |

PERCEIVED PRODUCTIVITY

Instructions

The statements below deal with the output of your work group. For some jobs certain statements may not be applicable. Should this be the case for your work group, then you should select the **not applicable** statement coded "0" below. Indicate your agreement with the statement by selecting the answer which best represents your attitude concerning your work group.

- | | | | |
|------------------------------|-------|-------------------------|---|
| | | 0 = Not applicable | 4 = Neither agree nor disagree |
| | | 1 = Strongly disagree | 5 = Slightly agree |
| | | 2 = Moderately disagree | 6 = Moderately agree |
| | | 3 = Slightly disagree | 7 = Strongly agree |
| N/A Response Variable | | | |
| 724 | (259) | 75. | The quantity of output of your work group is very high. |
| 725 | (260) | 76. | The quality of output of your work group is very high. |
| 726 | (261) | 77. | When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations. |
| 727 | (262) | 78. | There is a bottleneck in my organization that seriously affects the flow of work either to or from my work group. |
| 728 | (263) | 79. | Your work group is frequently involved in crash programs, short suspenses, schedule changes, etc. |

		0 = Not applicable	4 = Neither agree nor disagree
		1 = Strongly disagree	5 = Slightly agree
		2 = Moderately disagree	6 = Moderately agree
		3 = Slightly disagree	7 = Strongly agree
N/A Response Variable			
729	(264)	80.	Your work group always gets maximum output from available resources (e.g., personnel and material).
730	(265)	81.	Your work group's performance in comparison to similar work groups is very high.

SUPERVISOR INVENTORY

Instructions

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the statement below which best represents your attitude concerning your supervisor.

- | | |
|-------------------------|--------------------------------|
| 0 = Not applicable | 4 = Neither agree nor disagree |
| 1 = Strongly disagree | 5 = Slightly agree |
| 2 = Moderately disagree | 6 = Moderately agree |
| 3 = Slightly disagree | 7 = Strongly agree |

Select the corresponding number and mark your answer on the separate answer sheet.

N/A Response Variable			
731	(403)	82.	My supervisor tells me exactly what he expects me to do.
732	(404)	83.	My supervisor is a good planner.
733	(405)	84.	My supervisor sets high performance standards.
734	(406)	85.	My supervisor's group meetings are well planned with specific objectives.
735	(407)	86.	My supervisor encourages goal setting within our group.
736	(408)	87.	My supervisor informs me of changes in advance.
737	(409)	88.	My supervisor is consistent in predicting events in our organization.
738	(410)	89.	My supervisor encourages teamwork.
739	(411)	90.	My supervisor represents the group at all times.
740	(412)	91.	My supervisor establishes good work procedures.
741	(413)	92.	My supervisor has made his responsibilities clear to the group.
742	(414)	93.	My supervisor fully explains procedures to each group member when appropriate.
743	(415)	94.	My supervisor's directions must be followed exactly.
744	(416)	95.	My supervisor performs well under pressure.
745	(417)	96.	My supervisor usually makes decisions without group discussion.
746	(418)	97.	My supervisor encourages me toward greater accomplishment.
747	(419)	98.	My supervisor overemphasizes the need to accomplish more than other groups.
748	(420)	99.	My supervisor resolves conflicts within the group.
749	(421)	100.	My supervisor over controls my work.

			0 = Not applicable	4 = Neither agree nor disagree
			1 = Strongly disagree	5 = Slightly agree
			2 = Moderately disagree	6 = Moderately agree
			3 = Slightly disagree	7 = Strongly agree
N/A Response	Variable			
750	(422)	101.	My supervisor is approachable.	
751	(423)	102.	My supervisor tries to make the work more satisfying for group members.	
752	(424)	103.	My supervisor takes time to help me when needed.	
753	(425)	104.	My supervisor respects work group members' opinions in his decision making.	
754	(426)	105.	My supervisor asks members for their ideas on task improvements.	
755	(427)	106.	My supervisor is very interested in helping me resolve my problems.	
756	(428)	107.	My supervisor explains how my job contributes to the overall mission.	
757	(429)	108.	My supervisor helps to stimulate enthusiasm for the job.	
758	(430)	109.	My supervisor focuses on major goals.	
759	(431)	110.	My supervisor helps me set specific goals.	
760	(432)	111.	My supervisor is consistent in his managerial behavior.	
761	(433)	112.	My supervisor lets me know when I am doing a good job.	
762	(434)	113.	My supervisor lets me know when I am doing a poor job.	
763	(435)	114.	My supervisor always helps me improve my performance.	
764	(436)	115.	My supervisor insures that I get job related training when needed.	
765	(437)	116.	My job performance has improved due to feedback received from my supervisor.	
766	(438)	117.	My supervisor encourages ideas for improving procedures.	
767	(439)	118.	When I need technical advice I usually go to my supervisor.	
768	(440)	119.	My supervisor is an effective manager.	
769	(441)	120.	My supervisor keeps me informed of changes that affect my job.	
770	(442)	121.	My supervisor frequently gives me feedback on how well I am doing my job.	
771	(443)	122.	My supervisor usually supports my decisions.	

ORGANIZATION CLIMATE INVENTORY

Instructions

Below are items which describe characteristics of your organization. Indicate your agreement by choosing the statement below which best represents your opinion concerning your organization.

- | | |
|--------------------------------|----------------------|
| 1 = Strongly disagree | 5 = Slightly agree |
| 2 = Moderately disagree | 6 = Moderately agree |
| 3 = Slightly disagree | 7 = Strongly agree |
| 4 = Neither agree nor disagree | |

Select the corresponding number and enter it on the separate answer sheet.

- (102) 123. Ideas developed by your work group are readily accepted by management personnel above your supervisor.

1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree
4 = Neither agree nor disagree	

- (103) 124. Your organization provides all the necessary information for you to do your job effectively.
- (104) 125. Your organization provides adequate and accurate information to your work group.
- (105) 126. Our work unit is usually aware of important events and situations.
- (106) 127. Your complaints are aired satisfactorily.
- (107) 128. Your organization is very effective in planning the work to be accomplished.
- (108) 129. Your organization is better run now than in the past.
- (109) 130. Your organization is very interested in the attitudes of the group members toward their jobs.
- (110) 131. Your organization has a very strong interest in the welfare of its people.
- (111) 132. I am very proud to work for this organization.
- (112) 133. I feel responsible to my organization in accomplishing its mission.
- (113) 134. The information in your organization is widely shared so that those needing it have it available.
- (114) 135. The people affected by decisions are asked for their ideas before the decisions are made.
- (115) 136. Personnel in my unit are recognized for outstanding performance.
- (116) 137. I am usually given the opportunity to present the results of my work to others.
- (117) 138. There is a high spirit of teamwork that exists between co-workers.
- (118) 139. There is outstanding cooperation between work groups of your organization.
- (119) 140. My supervisor's boss is aware of the needs of my work group.
- (120) 141. This organization has clear-cut, reasonable goals.
- (121) 142. I feel motivated to contribute my **best** efforts to the mission of this organization.
- (122) 143. This organization rewards individuals based on performance.
- (123) 144. Rules and regulations of this organization help me to perform my job.
- (124) 145. This organization insures that I have the necessary supplies to adequately accomplish my job.

JOB SATISFACTION QUESTIONNAIRE

Instructions

The items below relate to your job or the Air Force as a profession. Indicate how satisfied or dissatisfied you are with each item. Choose the statement below which best describes your degree of satisfaction or dissatisfaction.

			0 = Not applicable	4 = Neither satisfied or dissatisfied
			1 = Extremely dissatisfied	5 = Slightly satisfied
			2 = Moderately dissatisfied	6 = Moderately satisfied
			3 = Slightly dissatisfied	7 = Extremely satisfied
N/A Response Variable				
772	(704)	146.	Information on Policies and Procedures	
			The adequacy and availability of information on policies, such as promotion or other organization policies.	
773	(705)	147.	Feeling of Helpfulness	
			The chance to help people and improve their welfare through the performance of your job. The importance of your job performance to the welfare of others.	
774	(706)	148.	Control of Others (Non-Supervisory)	
			The chance to tell others what to do. The control your job gives you over material.	
775	(707)	149.	Characteristics of the Local Area	
			The geographical area in which you work, weather in the local area, recreational opportunities available, and the size of the surrounding community.	
776	(708)	150.	Social Contact	
			Opportunity to meet new people, the amount and the meaningfulness of social contacts required by the job.	
777	(709)	151.	Co-Worker Relationships	
			Your amount of effort compared to the effort of your co-workers, the extent to which your co-workers share the load, and the spirit of teamwork which exists between your co-workers.	
778	(710)	152.	Family Attitude Toward Job	
			The recognition and the pride your family has in the work you do.	
779	(711)	153.	On-the-Job Training (OJT)	
			The OJT instructional methods and instructors' competence.	
780	(712)	154.	Technical Training (Other than OJT)	
			The technical training you have received to perform your current job.	
781	(713)	155.	Moral Acceptability of Job	
			The chance to do things not violating your sense of "right and wrong."	
782	(714)	156.	Self-Improvement Opportunities	
			The educational and recreational opportunities provided in the surrounding community, and the opportunity provided by the Air Force for self-improvement education.	
783	(715)	157.	Verbal and Written Communication	
			The amount of required telephone communication and required paperwork in your job.	
784	(716)	158.	Work Itself	
			The challenge, interest, importance, variety, and feelings of accomplishment you receive from your work.	

			0 = Not applicable	4 = Neither satisfied or dissatisfied
			1 = Extremely dissatisfied	5 = Slightly satisfied
			2 = Moderately dissatisfied	6 = Moderately satisfied
			3 = Slightly dissatisfied	7 = Extremely satisfied
N/A Response	Variable			
785	(717)	159.	Work Schedule Your work schedule; flexibility and regularity of your work schedule; the number of hours you work per week.	
786	(718)	160.	Job Security	
787	(719)	161.	Acquired Valuable Skills The chance to acquire valuable skills in your job which prepare you for future opportunities.	
788	(720)	162.	Base Exchange Services At your base.	
789	(721)	163.	Commissary At your base.	
790	(722)	164.	Medical Facilities At your base.	
791	(723)	165.	Your Job as a Whole	

APPENDIX B: FACTOR SCORE COEFFICIENTS

ORGANIZATIONAL CLIMATE INVENTORY FACTOR ANALYSIS

COEFFICIENTS - FACTOR SCORES

V831 Organizational Communications Climate

V830 General Organizational Climate

VAR.	FACTOR 1	FACTOR 2
102	-.02694	.11616
103	-.23439	.37289
104	-.22226	.36437
105	-.13252	.25237
106	.03820	.05503
107	-.08620	.20145
108	.08105	-.01670
109	.10658	-.02387
110	.12810	-.04851
111	.16869	-.10001
112	.19687	-.15355
113	-.02265	.12938
114	.07227	.00892
115	.14798	-.08836
116	.16416	-.11117
117	.15240	-.09568
118	.06332	.01617
119	.05401	.02120
120	.04395	.04264
121	.20679	-.15493
122	.15624	-.09094
123	.07206	.00285
123	-.08239	.18263

JOB SATISFACTION FACTOR ANALYSIS

COEFFICIENTS - FACTOR SCORES

V851 Base Facilities

Local Area/Social Satisfaction

V850 Training

V832 Job Related Satisfaction

VAR.	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
704	-.09611	.19307	.10366	.02456
705	.04525	.07675	.11260	-.08621
706	-.02890	.07600	.20747	-.09113
707	-.17664	-.18096	.61207	.01459
708	-.06400	-.08958	.42648	-.04551
709	-.01500	.10529	.12006	-.03226
710	.13306	-.00782	.01823	-.02556
711	-.15688	.52794	-.16679	.01707
712	-.14868	.50662	-.14022	.00036
713	.05813	.11922	.01198	-.03258
714	.05418	.02654	.11693	.02027
715	.15846	-.05224	-.04205	.04806
716	.19492	-.01694	-.00682	-.08642
717	.36920	-.21715	-.19197	.03768
718	.30917	-.17858	-.14175	.03886
719	.19193	.01953	-.11315	-.00381
720	-.10325	-.00779	.06032	.40282
721	-.03587	-.03902	-.05177	.46178
722	.04584	-.01465	-.15505	.38178
723	.21746	-.04036	-.02736	-.06233

PERCEIVED PRODUCTIVITY FACTOR ANALYSIS

COEFFICIENTS - FACTOR SCORES

Performance Disruption

V833 Perceived Productivity

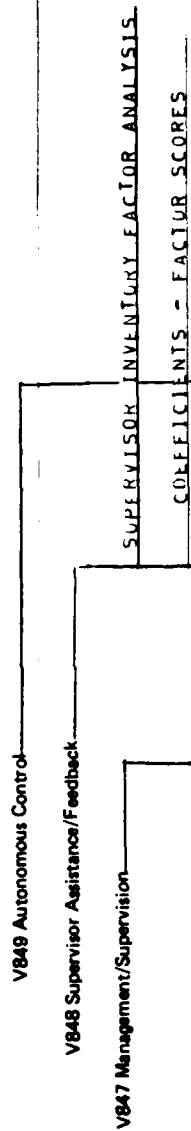
VAR.	FACTOR 1	FACTOR 2
259	.23215	.12132
260	.27008	-.04725
261	.25363	-.01404
262	-.08183	.63557
263	.07323	.62665
264	.23259	-.04819
265	.26229	-.01092

JOB INVENTORY FACTOR ANALYSIS						
COEFFICIENTS - FACTOR SCORES						
VAR.	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
201	.11435	-.07479	-.02655	.03327	-.00008	.20883
202	.08442	-.08194	-.06131	.06760	-.07137	.19785
203	.17375	.00198	-.02996	-.10188	-.09977	.10376
204	-.11220	.00185	-.01396	.42120	-.05030	-.02458
205	.06244	-.02220	-.08649	.14768	-.00886	.00635
206	-.03119	.00161	-.00131	-.01905	.01591	.26482
207	-.06880	.01991	-.03931	-.02612	-.01910	.03698
208	-.06514	.01379	-.07278	-.05989	-.00322	.04664
209	.07010	-.04465	-.07593	.09372	-.00353	.01492
210	.17321	.02396	-.03043	-.08464	-.10435	.04373
211	.04642	-.02247	-.02678	.10574	-.11771	-.00118
212	.08642	-.04607	-.01123	.02426	-.01173	.21431
213	-.08920	-.04605	-.01904	.42961	-.02951	.01590
214	-.03398	-.05546	-.03519	.30813	.02965	-.00223
215	.23416	-.00339	-.06434	-.03954	.00167	.10424
217	.14944	-.02124	-.01714	-.10689	-.00608	-.12584
218	-.06328	.00112	.00042	-.01681	.07795	.33486
219	-.01228	.17871	-.07558	-.02516	.03492	-.02739
220	.12555	.00702	-.02820	-.12282	.02102	-.14222
221	.12314	.03642	-.07498	-.07480	.00326	-.14805
222	-.04241	.25820	-.00697	-.02274	-.10982	.00487
223	-.02595	.31598	-.05539	-.03992	-.09653	-.08727
224	-.02946	.35957	-.06221	-.05932	-.06814	.02263
225	.03872	.27420	-.05900	-.10466	-.03023	.11277
226	.04182	.00835	-.01438	.00928	.01530	-.03363
227	-.02088	-.02353	-.02485	.08023	.08661	.43639
228	-.00846	.03576	.01267	.10169	-.03670	.26089
229	-.09164	.11539	.05430	.03700	.02850	.03601
230	.11765	-.00454	.05544	-.04448	-.06977	.12989
231	-.08147	.06865	.11334	.07611	.03308	.04145
232	-.07444	.11145	.12217	-.03587	-.02359	.01336
233	-.02387	.03267	.10984	-.02269	.03013	.01073
234	-.12605	-.03808	.00717	-.02730	.31674	.09035
235	-.03917	.08774	.18904	-.01880	-.02798	-.05715
236	-.08826	-.02485	.41162	-.00700	-.10354	-.00797
237	-.06319	-.09428	.44165	-.03533	-.08634	.03014
238	-.07417	-.06385	.36310	-.01060	-.05070	.02906
239	-.06056	-.08816	-.12120	-.02643	.50076	.06255
240	-.01048	-.05169	-.07912	-.02633	.37773	.04727
241	-.07695	.00857	-.00263	.04143	.26467	-.01941
242	.07357	-.02676	.05236	-.02538	-.00048	-.07683
243	.20212	-.00342	-.07456	-.03520	.08172	-.14379
244	.22056	.00787	-.06528	-.04113	.03855	-.12454

V846 Meaningful/Responsible Work

NEED FOR ENRICHMENT FACTOR ANALYSIS
COEFFICIENTS - FACTOR SCORES

VAM#	FACTOR 1	FACTOR 2
249	.14685	.04236
250	.16312	-.04209
251	.16370	-.04953
252	.17616	-.00555
253	.17480	.02349
254	.15647	-.06674
255	.06121	.56505
256	.16134	.16146
257	.14643	.08702
258	.07027	.55369



VAR.	FACTOR 1	FACTOR 2	FACTOR 3
403	.12423	-.08194	.14442
404	.16686	-.12475	.00782
405	.16623	-.12352	.07848
406	.12549	-.08591	.00163
407	.07832	-.02842	.03163
408	.07419	-.03167	-.02836
409	.09645	-.05349	.00312
410	.11061	-.06629	.00676
411	.14893	-.10937	-.00288
412	.14441	-.09924	.00694
413	.15924	-.11549	.04328
414	.12536	-.08012	.01663
415	.18391	-.14945	.26122
416	.16660	-.13168	-.01644
417	.07582	-.06616	.24875
418	-.00288	.05834	.03416
419	-.07196	.11488	.30662
420	.07508	-.03240	.01545
421	-.06735	.08618	.31099
422	.05904	-.03028	-.11543
423	.01354	.03455	-.04824
424	.03360	.00971	-.06454
425	.01083	.02987	-.11514
426	-.02055	.06607	-.09326
427	-.01656	.06811	-.04887
428	-.07275	.13578	.04772
429	-.05193	.11209	-.00551
430	.00670	.04765	.04453
431	-.10659	.17361	.05465
432	.04871	-.00772	-.03126
433	-.11605	.17490	-.02940
434	-.12947	.18460	.17826
435	-.12804	.19836	.04501
436	-.13150	.19515	.04603
437	-.14437	.21259	.04320
438	-.06361	.11917	-.04129
439	-.05461	.10566	.04999
440	.06451	-.01460	-.01944
441	.00587	.04659	-.01155
442	-.13450	.19931	.01446
443	-.00856	.04655	-.10795

APPENDIX C: FACTOR SCORE ESTIMATION EQUATIONS (ANALYSIS 1 16)

REGRESSION PROBLEM 1 ANALYSIS 1									
DEPENDENT 219 F0799 V830									
NUMBER OF PREDICTORS 10									
FORCED PREDICTORS 8- 11, 13- 16, 20- 21									
STOP = 20									
TOL = .00100000									
STEP NUMBER 10									
MULTIPLE R ² STD ERR EST ERR MEAN SQ. REG CONST									
.827113	.418172								
VAR = 13 F0114									
PREDICTOR SYSTEM:									
VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION
8 F0109	4.264880	1.888421	.071570	.038046	.007996	.007996	.008225	.720078	.001934
9 F0110	4.352335	1.832854	.021718	.058153	.004555	.004555	.012781	.750088	.002134
10 F0111	4.224517	1.709913	.093321	.047051	.007608	.007608	.015005	.697585	.002834
11 F0112	3.882287	1.623735	.189991	.09052	.007286	.007286	.071282	.540465	.013244
13 F0114	3.854046	1.799670	-.011402	-.005360	.008503	.008503	.000350	.537027	.000441
15 F0115	3.712810	1.691813	.107440	.059388	.008929	.008929	.026201	.597018	.004852
16 F0116	4.394694	1.736942	.136302	.079931	.008359	.008359	.054704	.474915	.010005
18 F0117	3.622245	1.720351	.131633	.072831	.008021	.008021	.052132	.508230	.003521
20 F0121	3.168552	1.785678	.219055	.123149	.007327	.007327	.093766	.627212	.017888
21 F0122	3.218188	1.692723	.138278	.073333	.007211	.007211	.036502	.657453	.006550

REGRESSION PROBLEM 2 ANALYSIS 2									
DEPENDENT 219 F0799 V831									
NUMBER OF PREDICTORS 5									
FORCED PREDICTORS 2- 4, 6, 12									
STOP = 10									
TOL = .00100000									
STEP NUMBER 5									
MULTIPLE R ² STD ERR EST ERR MEAN SQ. REG CONST									
.837488	.390952								
VAR = 12 F0113									
PREDICTOR SYSTEM:									
VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION
2 F0103	4.614374	1.635845	.08512	.247057	.007809	.007809	.267908	.649073	.059398
3 F0104	4.267356	1.573325	.23723	.210738	.005942	.005942	.185038	.713714	.032028
4 F0105	4.042087	1.580214	.202451	.126751	.007248	.007248	.100579	.557151	.018151
6 F0107	4.582269	1.668948	.137873	.087644	.006583	.006583	.061219	.519631	.010585
12 F0113	4.748632	1.649047	-.066505	-.039900	.008886	.008886	.012128	.549476	.001993

REGRESSION PROBLEM 3 ANALYSIS 3 DEPENDENT 220 F0800 V032
 NUMBER OF PREDICTORS 20
 FORCED PREDICTORS 131, 136, 139-145, 149, 204, 207-213, 217
 STEP NUMBER 20

MULTIPLE RSQ		STO	ERR	MEAN	SQ.	REG	CONST	ANALYSIS OF VARIANCE		DF	SUM OF SQ.	MEAN SQ.	F-RATIO	PROBABILITY
-0.89203														
VAR = 199 F0773														
PREDICTOR SYSTEM:														
VARIABLE		MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL								
131 F0705	5.012749	1.697130	-0.05337	-0.05943										
134 F0710	4.774535	2.022169	-0.10445	-0.052636										
139 F0713	5.164940	1.618767	-0.07594	-0.013589										
140 F0714	5.232294	1.617873	-0.07365	-0.028784										
141 F0715	4.555204	1.671082	-0.08084	-0.052042										
142 F0716	5.000000	1.678795	-0.08371	-0.050119										
143 F0717	4.933394	1.918668	-0.07353	-0.020073										
144 F0718	5.114381	1.781852	-0.06578	-0.051111										
145 F0719	4.941042	1.952624	-0.07626	-0.054589										
149 F0723	4.942145	1.820613	-0.06484	-0.072000										
199 F0773	4.010580	1.023114	-0.00090	-0.00439										
204 F0778	0.04932	0.023103	-0.00570	-0.007165										
207 F0781	0.00913	0.024768	-0.010205	-0.013504										
208 F0782	0.00763	0.032222	-0.01510	-0.025534										
209 F0783	0.00764	0.031622	-0.016130	-0.025111										
210 F0784	0.00730	0.031002	-0.01747	-0.025178										
211 F0785	0.01094	0.031065	-0.023430	-0.028683										
212 F0786	0.06202	0.038509	-0.032497	-0.045900										
213 F0787	0.06202	0.078509	-0.030945	-0.023840										
217 F0791	0.02189	0.046735	-0.004058	-0.028827										

REGRESSION PROBLEM 4 ANALYSIS 4 DEPENDENT 221 F0801 V033
 NUMBER OF PREDICTORS 10
 FORCED PREDICTORS 82-84, 87-88, 150-152, 155-156
 STEP NUMBER 10

MULTIPLE RSQ		STO	ERR	MEAN	SQ.	REG	CONST	ANALYSIS OF VARIANCE		DF	SUM OF SQ.	MEAN SQ.	F-RATIO	PROBABILITY
-0.98673														
VAR = 151 F0725														
PREDICTOR SYSTEM:														
VARIABLE		MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL								
82 F0249	5.490358	1.785584	-0.01117	-0.076315										
84 F0250	5.770517	1.461734	-0.019621	-0.052558										
87 F0241	5.695347	1.627552	-0.01276	-0.06777										
88 F0245	4.685162	1.801884	-0.01811	-0.06495										
150 F0725	-0.00281	0.01358	-0.00281	-0.00281										
151 F0725	-0.07681	0.07194	-0.02552	-0.030587										
152 F0725	-0.07680	0.07194	-0.02552	-0.030587										
153 F0725	-0.05837	0.06119	-0.004028	-0.055253										
156 F0730	-0.13884	0.116924	-0.004764	-0.042578										

REGRESSION PROBLEM 5 ANALYSIS 5 DEPENDENT 222 FOR02 V840 STOP = 20
 NUMBER OF PREDICTORS 10 TOL = .00100000
 FORCED PREDICTORS 24, 26, 32-33, 35, 38, 40, 53, 67
 STEP NUMBER 10

MULTIPLE R59 STD. ERR. EST. ERR. MEAN 50+ REG. CONST. OF SUM OF SQ. ANALYSIS OF VARIANCE F-RATIO PROBABILITY
 .793499 .008592 .238722 -4.017255 REGRESSION 10 1888.5703 188.85703 791.11728 .00000000
 RESIDUAL 2730 651.71083 .23872191

PREDICTOR SYSTEM: STANDARD DEVIATION STANDARD WEIGHT REGRESSION WEIGHT STD. DEV. OF REG. WT. SQ. PARTIAL CORRELATION SQ. CORRELATION INDEPENDENT CONTRIBUTION
 VARIABLE MEAN

24	FOR01	5.041226	1.508614	.067184	-.042880	.008459	.008321	.523091	.002153
25	FOR02	5.047045	1.542758	.112360	-.071045	.007225	.034208	.280230	.009087
26	FOR03	5.858081	1.414657	.189431	-.128930	.008920	.071093	.452825	.014635
32	FOR09	5.188252	1.452246	-.029048	-.019273	.008234	.002003	.390731	.000515
33	FOR10	5.656330	1.424269	.142426	.096155	.009135	.039004	.485281	.010413
35	FOR12	4.524624	1.559557	.009576	-.005777	.008145	.000184	.484356	.000047
38	FOR15	5.198103	1.709620	.272132	.153266	.009114	.093869	.641125	.024577
40	FOR17	5.498999	1.342067	.180744	.127770	.008024	.084969	.270564	.023829
53	FOR30	5.267421	1.470734	.054559	-.037028	.007704	.008387	.321457	.002170
67	FOR44	4.767238	1.778036	.201114	.108910	.008481	.054510	.634317	.014791

REGRESSION PROBLEM 6 ANALYSIS 6 DEPENDENT 223 FOR03 V841 STOP = 18
 NUMBER OF PREDICTORS 9 TOL = .00100000
 FORCED PREDICTORS 42, 45-48, 52, 54-55, 58
 STEP NUMBER 9

MULTIPLE R59 STD. ERR. EST. ERR. MEAN 50+ REG. CONST. OF SUM OF SQ. ANALYSIS OF VARIANCE F-RATIO PROBABILITY
 .893055 .338716 .114729 -2.739159 REGRESSION 9 2365.9183 262.07981 2291.3157 .00000000
 RESIDUAL 2731 313.32424 .11472879

PREDICTOR SYSTEM: STANDARD DEVIATION STANDARD WEIGHT REGRESSION WEIGHT STD. DEV. OF REG. WT. SQ. PARTIAL CORRELATION SQ. CORRELATION INDEPENDENT CONTRIBUTION
 VARIABLE MEAN

42	FOR19	2.943882	1.537728	.163201	.104948	.004631	.164172	.137581	.022970
45	FOR22	3.551623	2.015430	.230501	.211329	.003487	.256854	.241874	.040430
46	FOR23	2.450201	1.412975	.209278	.216444	.005743	.342150	.364122	.060824
47	FOR24	3.448552	1.629419	.361990	.219682	.005791	.345123	.529870	.061630
48	FOR25	4.112348	1.640793	.239321	.144230	.004842	.243493	.342090	.037481
52	FOR29	4.008756	1.591770	.041795	.040962	.004825	.025709	.191841	.003086
54	FOR31	4.039766	1.564217	-.026308	-.016631	.005004	.004028	.316427	.000473
55	FOR32	4.074879	1.389858	.052126	.040644	.005359	.020425	.245330	.002463
58	FOR35	4.142284	1.451335	-.036430	-.021815	.004587	.008212	.270356	.000468

REGRESSION PROBLEM 7 ANALYSIS 7 DEPENDENT 224 ORIGIN 1842
 NUMBER OF PREDICTORS 4
 FORCED PREDICTORS 27, 36- 37, 71
 STOP = 0
 TOL = .00100000

MULTIPLE RSQ		STD ERR EST	ERR MEAN SQ.	REG CONST	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL	DF	SUM OF SQ.	ANALYSIS OF VARIANCE MEAN SQ.	F-RATIO	PROBABILITY
.778316		.457597	.209395	-2.062384					4	2011.4229	502.85571	2401.4723	.00000000
VAR = 71 F0248									2736	572.70403	24023975		
PREDICTOR SYSTEM:		MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	50. PARTIAL CORRELATION	50. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION				
27	F0204	4.021160	1.884160	.445477	.229418	.004530	.311292	.435088	.100200				
36	F0213	4.118205	1.675809	.445206	.258299	.007285	.274627	.432332	.083278				
37	F0214	4.281499	1.691072	.209546	.120342	.007454	.082867	.432835	.020230				
71	F0248	4.852409	1.700312	-.154787	-.088410	.004844	.057490	.435420	.013522				

1 (FINAL)

REGRESSION PROBLEM 8 ANALYSIS 8 DEPENDENT 225 FROM 1843
 NUMBER OF PREDICTORS 4
 FORCED PREDICTORS 57, 62- 64
 STOP = 0
 TOL = .00100000

MULTIPLE RSQ		STD ERR EST	ERR MEAN SQ.	REG CONST	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	REGRESSION RESIDUAL	DF	SUM OF SQ.	ANALYSIS OF VARIANCE MEAN SQ.	F-RATIO	PROBABILITY
.764054		.494862	.244889	-2.814960					4	2169.4874	542.42184	2214.9716	.00000000
VAR = 64 F0241									2736	670.01590	24488885		
PREDICTOR SYSTEM:		MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	50. PARTIAL CORRELATION	50. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION				
57	F0234	5.188252	1.607491	.223243	.141381	.004792	.136704	.250304	.037363				
62	F0239	4.194455	1.684624	.450766	.274583	.007033	.322942	.332264	.153379				
63	F0240	4.585918	1.716818	.253620	.150390	.004947	.145539	.375211	.040188				
64	F0241	4.017512	1.716404	.140800	.083511	.004623	.054916	.308430	.013710				

1 (FINAL)

REGRESSION PROBLEM 9 ANALYSIS 9 DEPENDENT 224 FOR06 V894 STOP = 14
 NUMBER OF PREDICTORS 7 FORCED PREDICTORS 24-25, 29, 35, 41, 51, 53 TOL = .00100000
 STEP NUMBER 7

MULTIPLE R² STD ERR EST ERR MEAN SB REG CONST
 .766751 .979008 .228947 -2.129092
 VAR = 53 FOR230

PREDICTOR SYSTEM:	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION	PROBABILITY
24 FOR201	5.041226	1.508419	.112784	.072895	.008592	.026651	.498761	.006414	.00000000
25 FOR202	5.097055	1.522792	.127463	.111295	.008663	.082772	.233364	.072537	.00000000
29 FOR204	3.461211	1.735548	.367636	.209376	.005413	.353748	.051286	.128274	.00000000
35 FOR212	4.524626	1.525497	.127072	.078700	.007915	.034912	.475205	.008474	.00000000
41 FOR216	3.659613	1.481414	.405555	.270595	.006774	.348612	.148520	.126758	.00000000
51 FOR228	4.578949	1.288926	-.271258	-.209018	.007607	.214816	.127017	.049068	.00000000
53 FOR230	5.267421	1.470734	.018827	.012653	.007315	.001094	.276543	.000256	.00000000

REGRESSION PROBLEM 10 ANALYSIS 10 DEPENDENT 227 FOR07 V895 STOP = 4
 NUMBER OF PREDICTORS 2 FORCED PREDICTORS 44-50 TOL = .00100000
 STEP NUMBER 2

MULTIPLE R² STD ERR EST ERR MEAN SB REG CONST
 .835444 .299214 .159453 -2.174594
 VAR = 30 FOR227

PREDICTOR SYSTEM:	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION	PROBABILITY
44 FOR224	4.990144	1.544034	.591378	.340518	.006912	.547896	.320040	.199357	.00000000
50 FOR227	5.722381	1.537334	.491229	.315038	.006029	.449157	.320040	.164073	.00000000

REGRESSION PROBLEM 11 ANALYSIS 11									
DEPENDENT 228 F0809 V846									
STOP = 10									
TOL = .00100000									
NUMBER OF PREDICTORS 5									
FORCED PREDICTORS 73- 77									
STEP NUMBER 5									

MULTIPLE RSQ STD ERR EST ERR MEAN SQ. REG CONST									
.920476 .271544 .072736 -3.800341									
VAR = 74 F0251									

PREDICTOR SYSTEM:									
VARIABLE MEAN STANDARD DEVIATION STANDARD WEIGHT REGRESSION WEIGHT STD. DEV. OF REG WT. 50. PARTIAL CORRELATION 50. CORRELATION VARIABLE VS REST F-RATIO INDEPENDENT CONTRIBUTION									
73 F0250	5.748997	1.488996	.212807	.137403	.004038	.159214	.667476	.015889	.015889
74 F0251	5.540015	1.422511	.185508	.107347	.005455	.111974	.708300	.016028	.016028
75 F0252	5.718351	1.457977	.249152	.164402	.004612	.175569	.727161	.016796	.016796
76 F0253	5.545421	1.471551	.277613	.181493	.005831	.201592	.834970	.025171	.025171
77 F0254	5.483400	1.715483	.165682	.092914	.004983	.112795	.631690	.010110	.010110

STEP NUMBER 5 (FINAL)									

REGRESSION PROBLEM 12 ANALYSIS 12									
DEPENDENT 229 F0809 V847									
STOP = 32									
TOL = .00100000									
NUMBER OF PREDICTORS 16									
FORCED PREDICTORS 90- 91, 96-100, 102, 158-159, 164-168, 170									
STEP NUMBER 14									

MULTIPLE RSQ STD ERR EST ERR MEAN SQ. REG CONST									
.733772 .521056 .271499 -2.959947									
VAR = 159 F0733									

PREDICTOR SYSTEM:									
VARIABLE MEAN STANDARD DEVIATION STANDARD WEIGHT REGRESSION WEIGHT STD. DEV. OF REG WT. 50. PARTIAL CORRELATION 50. CORRELATION VARIABLE VS REST F-RATIO INDEPENDENT CONTRIBUTION									
90 F0404	4.981394	1.747394	.172418	.096228	.010482	.030104	.722019	.082264	.082264
91 F0405	5.409704	1.611339	.151140	.074457	.002395	.028780	.567433	.055279	.055279
94 F0410	5.209048	1.715542	.054005	.031697	.009412	.009146	.619943	.001108	.001108
97 F0411	5.020046	1.923380	.132310	.070490	.008457	.023740	.634693	.004479	.004479
98 F0412	4.955491	1.759378	.091543	.052390	.011605	.007427	.742294	.001992	.001992
99 F0413	5.071507	1.749655	.146794	.094904	.009742	.033523	.667974	.009237	.009237
100 F0414	4.993798	1.786777	.070342	.039651	.009958	.005787	.684978	.001860	.001860
102 F0416	5.206494	1.752724	.180118	.103188	.009116	.053927	.613065	.012824	.012824
158 F0732	.002189	.046737	.004053	.130412	.258443	.000093	.320940	.000026	.000026
159 F0733	.001482	.042673	.000954	.022500	.274852	.000002	.300201	.000001	.000001
164 F0738	.003283	.057208	.023442	.012585	.192093	.001491	.175507	.000481	.000481
165 F0739	.004013	.043223	.002757	.043902	.204083	.000016	.427470	.000004	.000004
166 F0740	.004202	.078509	.022201	.284732	.170780	.000014	.498814	.000004	.000004
167 F0741	.005108	.071284	.022802	.395518	.182010	.001731	.511500	.000023	.000023
168 F0742	.009484	.094931	.020808	.214145	.131845	.000945	.393601	.000243	.000243
170 F0744	.001459	.038175	.013588	.358387	.294448	.000536	.224307	.000143	.000143

STEP NUMBER 14 (FINAL)									

REGRESSION PROBLEM 13 ANALYSIS 13 DEPENDENT 230 FORBIO V898											
NUMBER OF PREDICTORS 8											
FORCED PREDICTORS 119,121,123,125,107,109,191,194											
STEP NUMBER 8											
STOP = 14											
TOL = .00100000											
MULTIPLE R2 STD ERR EST FOR MEAN SQ. REG CONST											
.878361 .575160 .323880 -2.331088											
VAR = 191 FORBIO											
PREDICTION SYSTEM:											
VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION			
119 FORBIO	4.770886	1.972904	.097516	.051859	.018970	.002642	.715689	.002704			
121 FORBIO	5.536301	1.121233	.221228	.128022	.029478	.079332	.620031	.026289			
123 FORBIO	4.422605	1.838950	.203310	.127748	.001992	.095548	.640041	.033115			
125 FORBIO	5.523187	1.830772	.223381	.127748	.001231	.094210	.718519	.015368			
107 FORBIO	.001824	.026723	-.024573	.004333	.273021	.001420	.113607	.005527			
109 FORBIO	.002681	.071493	-.024573	.004333	.153794	.001931	.133544	.000465			
191 FORBIO	.013864	.114925	-.009797	.004843	.115117	.000001	.292345	.000000			
194 FORBIO	.002318	.100212	-.033180	.128392	.222180	.002925	.329522	.002982			

REGRESSION PROBLEM 14 ANALYSIS 14 DEPENDENT 231 FORBIO V899											
NUMBER OF PREDICTORS 8											
FORCED PREDICTORS 101,103,105,107,169,171,173,175											
STEP NUMBER 8											
STOP = 14											
TOL = .00100000											
MULTIPLE R2 STD ERR EST FOR MEAN SQ. REG CONST											
.897825 .599321 .180917 -3.211989											
VAR = 175 FORBIO											
PREDICTION SYSTEM:											
VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION			
101 FORBIO	4.462997	1.589131	.270182	.219945	.005105	.404545	.104790	.103598			
103 FORBIO	3.882831	1.801550	.228073	.158225	.004430	.272932	.182508	.057250			
105 FORBIO	3.968829	1.785789	.189293	.209589	.003087	.382240	.240072	.084744			
107 FORBIO	3.138217	1.827272	.212208	.227227	.004689	.468242	.208831	.134262			
169 FORBIO	.003498	.040292	-.010492	.178236	.139787	.000595	.175748	.000091			
171 FORBIO	.002189	.096227	.002498	.077951	.181609	.000071	.187292	.000011			
173 FORBIO	.028173	.184651	.015537	.101587	.053388	.001324	.162948	.000202			
175 FORBIO	.008188	.071286	.001194	.110849	.110849	.000009	.057525	.000001			

45

[illegible]

REGRESSION PROBLEM 4 ANALYSIS 20 DEPENDENT 221 FUR01 V0J3 STOP = 44
 NUMBER OF PREDICTIONS 22 TOL = .00100000
 FREE PREDICTIONS 27, 33, 37, 40- 45, 50- 51, 53- 55, 61- 62, 64- 65, 67, 73, 77, 81

MULTIPLE MSV STD ERR EST FMR MEAN SQ. REG CONST OF SUM OF SQ. ANALYSIS OF VARIANCE F-RATIO PROBABILITY
 .425478 .795227 .432386 -3.351658 22 1272.9221 57.8600% 91.494850 .00000000
 .425478 .795227 .432386 -3.351658 2718 1716.8262 .63238636

PREDICTOR SYSTEM: VAP = 44 F0221

PREDICTOR VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEVI. OF REG. NT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST	INDEPENDENT CONTRIBUTION
27 F0204	4.021160	1.684160	.053851	.029865	.010035	.003248	.354430	.001872
33 F0210	5.656330	1.424269	.074037	.057253	.012857	.007243	.311698	.004192
37 F0214	4.281649	1.691072	-.045204	-.015577	.012233	.000596	.460687	.000343
40 F0217	5.496899	1.362067	.035366	.027132	.015111	.001186	.455198	.000481
41 F0218	3.659613	1.481414	-.024000	-.018348	.011262	.000975	.170842	.000561
42 F0219	2.963887	1.537724	-.024142	-.019938	.010764	.001463	.156361	.000724
43 F0220	4.460700	1.425767	.091044	.066725	.015683	.006616	.538363	.003427
44 F0221	4.824152	1.418230	-.026117	-.019243	.014896	.000614	.482884	.000353
45 F0222	3.551623	1.534434	.055095	.030120	.008401	.004708	.194839	.000374
51 F0228	4.476468	1.288926	-.027007	-.021894	.010509	.001280	.112493	.000736
53 F0230	5.267421	1.470734	.116891	.083049	.013228	.001007	.206061	.000579
54 F0231	4.039764	1.564217	.035890	.023975	.012577	.001435	.325499	.000924
55 F0232	5.226195	1.369448	.046664	.035087	.012132	.001435	.359142	.000825
61 F0238	4.076974	1.294577	.046664	.0279159	.012776	.002767	.267986	.001594
62 F0239	4.194455	1.664674	.046664	.035654	.014224	.001435	.319313	.001420
64 F0241	4.017512	1.718404	-.043398	-.018234	.010368	.001137	.243179	.000459
65 F0242	5.332725	1.403663	.047952	.027277	.011625	.002022	.420257	.001149
67 F0244	4.767238	1.778036	.067952	.050586	.012966	.005569	.303232	.003274
73 F0250	5.748997	1.469946	.046901	.051071	.012167	.004440	.506855	.000813
77 F0254	5.483400	1.715483	-.040031	-.028074	.014313	.001413	.492571	.000813
81 F0258	3.046333	1.557776	.065344	.039802	.012093	.003970	.443712	.002290
			.031641	.021225	.010220	.001584	.089273	.000912

STEP NUMRPM 22 (FINAL)

REGRESSION PROBLEM 5 ANALYSIS 21 DEPENDENT 218 F0798 V630									
NUMBER OF PREDICTORS 32									
FREE PREDICTORS 80- 93, 95- 97, 99,103-105,112,114-116,119-123,125-126,128-129,158,161-162,184,191,194									
STOP = 64									
TOL = .00100000									
STEP NUMBER 32									
MULTIPLE RSQ									
STD ERR EST									
ENR MEAN SQ									
REG CONST									
-1.682122									
VAR = 112 F0424									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
SUM OF SQ. MEAN SQ.									
32 1147.3384 35.854326 60.159314 .00000000									
2708 1613.9399 .5959891									
PREDICTOR SYSTEM:									
MEAN									
STANDARD DEVIATION									
STANDARD WEIGHT									
REGRESSION WEIGHT									
STD. DLY. OF REG. WT									
SQ. PARTIAL CORRELATION									
SUM. CORRELATION VARIABLE VS. REG. WT									
INDEPENDENT CONTRIBUTION									
F-RATIO									
PROBABILITY									
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ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
PREDICTION SYSTEM:									
VARIABLE									
VAP = 194 F0768									
SUM OF SQ.									
ANALYSIS OF VARIANCE									
MEAN SQ.									
F-RATIO									
PROBABILITY									
CONTRIBUTION									
CORRELATION									
VS REST									
STEP NUMBER 37 (FINAL)									
P									

REGRESSION PROBLEM 7 ANALYSIS 23 DEPENDENT 220 F0800 V032 STOP = 72
 NUMBER OF PREDICTORS 36 TOL = .00100000
 FREE PREDICTORS 89, 91- 94, 96, 99-100, 103-105, 107, 109-111, 113, 115-116, 120-124, 126, 129, 157, 174, 179-180, 182, 190-194

STEP NUMBER 36									
MULTIPLE R50		STD ERR EST	ENR MEAN SQ.	REG CONST	ANALYSIS OF VARIANCE		F-RATIO	PROBABILITY	
-245274		.92524	.851051	-1.079345	DF	SUM OF SQ.	MEAN SQ.		
VAR = 111 F0425					36	830.86816	23.079671	27.119035	
PREDICTOR SYSTEM:					2704	2301.2409	.85105062	.19925482-03	
VARIABLE	MEAN	STANDARD DEVIATION	STANDARD WEIGHT	REGRESSION WEIGHT	STD. DEV. OF REG. WT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS. REST	INDEPENDENT CONTRIBUTION	
89 F0903	4.727107	1.632637	-.050814	-.029645	.012094	.002217	.367767	.001432	
91 F0805	5.405704	1.611349	-.042043	-.042600	.016309	.002517	.550228	.001854	
92 F0906	4.387450	2.029556	.055987	-.029494	.013215	.001839	.568183	.001354	
93 F0307	4.507303	1.974477	.047955	-.027352	.014418	.001025	.672040	.000754	
94 F0908	4.624954	1.666380	.043118	-.024674	.014850	.001020	.596518	.000750	
95 F0310	5.202038	1.715542	-.043804	-.027299	.016976	.000955	.633788	.000703	
96 F0913	5.071507	1.749451	-.054651	-.032139	.016501	.001489	.635735	.001094	
100 F0914	4.993778	1.786777	.047595	-.028479	.016849	.001056	.657280	.000774	
103 F0917	4.503631	1.601450	.060373	-.035832	.013913	.000913	.208106	.002886	
104 F0918	4.953447	1.766883	.127721	-.072786	.016621	.000933	.639856	.005875	
105 F0919	3.445524	1.755789	-.098464	-.059958	.011470	.000752	.345111	.007425	
107 F0321	3.135717	1.637772	-.073188	-.042578	.018314	.001235	.689107	.003508	
109 F0923	4.888661	1.725898	.054069	-.033494	.018314	.001235	.689107	.003508	
110 F0924	5.472820	1.623842	.061145	-.040018	.019681	.000687	.699520	.001123	
111 F0925	5.075885	1.738898	-.041183	-.027166	.019924	.000687	.741292	.000565	
113 F0927	5.110908	1.731758	.060701	-.037476	.019245	.001400	.720353	.001030	
115 F0929	4.494710	1.820586	.154451	-.090704	.019282	.001188	.747943	.004013	
116 F0330	4.978866	1.614360	.099668	-.060008	.016784	.005686	.577005	.004202	
118 F0932	5.128785	1.716233	-.037449	-.021330	.015219	.000687	.547066	.000839	
120 F0934	5.401313	1.644922	-.061889	-.040226	.012202	.004003	.228992	.002953	
121 F0935	4.536301	1.717944	-.077739	-.048381	.018730	.002461	.700001	.001813	
122 F0936	4.708865	1.860671	-.083608	-.048042	.015744	.003422	.639080	.002523	
123 F0937	4.442605	1.838950	.084517	-.050301	.017064	.003202	.684657	.002360	
124 F0338	5.005202	1.737502	-.077567	-.047731	.019851	.002134	.738911	.001571	
126 F0940	5.048887	1.608397	-.115574	-.068331	.019432	.004552	.748469	.003360	
129 F0943	5.068588	1.682047	-.202395	-.128648	.017113	.002473	.625116	.001357	
157 F0331	.003283	.057208	-.027479	-.513554	.325330	.000921	.103321	.000677	
174 F0948	.016971	.136423	.047508	.372326	.138576	.002663	.130931	.001942	
179 F0953	.009013	.063223	-.046707	-.789859	.335424	.002077	.309335	.001507	
180 F0754	.005937	.074179	-.036537	-.512785	.268852	.001344	.259540	.000988	
190 F0244	.029551	.169345	-.050246	-.241995	.162398	.000821	.160327	.000603	
191 F0765	.013864	.116925	-.091067	-.317226	.139897	.001898	.446601	.001397	
192 F0766	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
193 F0767	.019701	.138970	-.043809	-.122664	.548406	.001848	.291325	.001360	
194 F0768	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
195 F0769	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
196 F0770	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
197 F0771	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
198 F0772	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
199 F0773	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
200 F0774	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
201 F0775	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
202 F0776	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
203 F0777	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
204 F0778	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
205 F0779	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
206 F0780	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
207 F0781	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
208 F0782	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
209 F0783	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
210 F0784	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
211 F0785	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
212 F0786	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
213 F0787	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
214 F0788	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
215 F0789	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
216 F0790	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
217 F0791	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
218 F0792	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
219 F0793	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
220 F0794	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
221 F0795	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
222 F0796	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
223 F0797	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
224 F0798	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
225 F0799	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	
226 F0800	.001459	.038175	.043809	.375790	.179290	.001622	.293227	.001194	

REGRESSION PROBLEM 8 ANALYSIS 24 DEPENDENT 221 F0801 9833 STOP = 44
 NUMBER OF PREDICTORS 32 TOL = .00100000
 FREE PREDICTORS 91-93, 96-97, 101, 103, 107-108, 112, 114-117, 119-121, 124, 126, 129, 158, 161, 164, 171-173, 177, 179-180, 182, 193-194

----- STEP NUMBER 32 -----												
MULTIPLE RSQ		STD ERR EST	ENR MEAN SQ	REG CONST	OF		SUM OF SQ.		ANALYSIS OF VARIANCE		F-RATIO	PROBABILITY
.300435		.879128	.772866	-2.346504	32		898.82405		28.088314		36.343040	.00000000
VAR = 158 F0732					2708		2092.9222		.77286640			
PHEDILTON SYSTEM:				STANDARD	STANDARD	REGRESSION	STD. DEV.	SQ. PARTIAL		SQ. CORRELATION		INDEPENDENT
VARIABLE				DEVIATION	WEIGHT	WEIGHT	OF REG WT	CORRELATION		VARIABLE VS REST		CONTRIBUTION
91	F0405	5.409704	1.611349	.192504	.124835	.015317	.023942	.536993		.017140		
92	F0406	4.387450	2.029456	.059450	.030408	.012573	.02184	.566836		.001531		
93	F0407	4.509303	1.674477	.093881	.052334	.014819	.003563	.716219		.002501		
96	F0410	5.209048	1.715562	.123452	.025437	.014848	.007525	.654195		.005304		
97	F0411	5.020066	1.902380	-.047751	-.049742	.014015	.001036	.603192		.00725		
101	F0415	4.642897	1.584131	.075411	.049743	.012312	.005992	.258510		.005213		
103	F0417	4.553831	1.801450	.032705	.018970	.010583	.001185	.223949		.000830		
107	F0421	3.115717	1.837272	-.056204	-.031957	.010930	.00147	.309780		.002208		
108	F0422	5.723075	1.557912	.041326	.027218	.015683	.001152	.527480		.000942		
112	F0426	4.949719	1.785901	.060844	.035288	.015285	.001173	.738436		.000942		
114	F0428	4.623130	1.835403	.060444	.034426	.016470	.001611	.491323		.001129		
115	F0429	4.484710	1.820586	.040152	.023095	.018811	.000553	.760006		.000387		
116	F0430	4.986866	1.614360	.075837	.049687	.016357	.003315	.595462		.002337		
117	F0431	4.391846	1.702267	-.038467	-.023736	.015058	.000728	.652637		.000510		
119	F0433	4.770866	1.492404	-.046018	-.035410	.011404	.001050	.196432		.000734		
120	F0434	5.401313	1.644922	.077704	.049361	.011404	.000871	.577975		.001429		
121	F0435	4.536301	1.717944	-.066616	-.040519	.017228	.002039	.742347		.000911		
124	F0436	5.036202	1.737502	-.059456	-.035757	.019043	.001200	.725436		.001975		
126	F0440	5.048887	1.808347	-.084607	-.049004	.017224	.002815	.423293		.010422		
129	F0443	5.048584	1.682047	.166328	.103327	.016268	.014679	.423293		.010422		
158	F0732	.002189	.046737	-.020800	-.045053	.072635	.000357	.421919		.000260		
161	F0735	.015688	.124265	.061086	.513661	.160311	.003777	.289229		.003452		
164	F0738	.003283	.057208	.057274	1.054328	.330985	.003777	.213287		.003452		
171	F0745	.002189	.046737	.032730	.731763	.456109	.000950	.379270		.000455		
172	F0746	.002189	.046737	.032730	.731763	.456109	.000950	.379270		.000455		
173	F0747	.002189	.046737	.032730	.731763	.456109	.000950	.379270		.000455		
177	F0751	.006932	.082964	.046755	.115847	.115847	.002094	.143520		.001407		
179	F0753	.006932	.082964	.046755	.115847	.115847	.002094	.143520		.001407		
180	F0754	.006932	.082964	.046755	.115847	.115847	.002094	.143520		.001407		
182	F0756	.014228	.118431	.076582	.276782	.169582	.000752	.365592		.001007		
193	F0767	.019701	.138470	.042562	.320030	.125919	.002379	.079144		.001407		
194	F0768	.001459	.036175	.053267	1.458045	.608978	.002112	.478087		.001407		

[illegible]

REGRESSION PROBLEM 12 ANALYSIS 28 DEPENDENT 221 FORU1 V833 STOP = 72
 NUMBER OF PREDICTORS 36
 FREE PREDICTORS 24, 27, 33, 37, 41-43, 45, 50, 53-55, 61-62, 65, 67, 73, 77, 91, 95-97, 100-101, 105, 108, 116-117, TOL = .00100000
 120, 124, 129, 164, 173, 179-180, 197

STEP NUMBER 36									
MULTIPLE MSQ		STD ERR EST	EMM MEAN SQA	REG CONST	DF	SUM OF SQ.	ANALYSIS OF VARIANCE	F-RATIO	PROBABILITY
+469150		+766382	+567394	-3.9490169	36	1403.5784	38.998300	66.391054	+00000000
NMAN = 37		F0214		REGRESSION	2704	1584.1695	+50739077		
PREDICTOR SYSTEM:				RESIDUAL					
VARIABLE		MEAN	STANDARD DEVIATION	STANDARD WEIGHT	STD. DEV. UP REPT	SQ. PARTIAL CORRELATION	SQ. CORRELATION VARIABLE VS REST		INDEPENDENT CONTRIBUTION
24	F0201	5.041226	1.508414	0.12600	0.07338			0.01237	+000658
27	F0204	4.021116	1.594160	0.01975	+009777			+00550	+002426
33	F0210	5.656330	1.494769	-0.079504	+058329			+003371	+000436
37	F0214	4.281849	1.497679	-0.079504	+012580			+003242	+003271
41	F0218	3.659843	1.491072	-0.0316	+017469			+00541	+005466
42	F0219	2.943804	1.489118	-0.074734	+017450			+001010	+000537
43	F0220	4.800700	1.527129	-0.049425	+027470			+005575	+001371
45	F0222	3.551623	1.425767	+052978	+038460			+002499	+001065
46	F0223	4.722741	1.433953	-0.06685	+027369			+004002	+002561
50	F0227	5.247947	1.524794	-0.032445	+022267			+004002	+000987
54	F0231	4.039741	1.484717	-0.078485	+012910			+013657	+007457
54	F0231	4.039741	1.484717	-0.078485	+012910			+013657	+007457
55	F0232	4.072499	1.508418	-0.073328	+027328			+000892	+000474
62	F0238	5.226155	1.294577	0.07613	+012335			+001940	+001032
92	F0239	1.684674	1.684674	-0.03333	+020878			+009650	+056704
95	F0242	5.332732	1.403663	-0.06244	+009329			+001866	+020703
67	F0244	4.774266	1.778636	-0.04924	+012315			+005694	+003150
73	F0250	5.168947	1.444996	-0.04924	+022265			+005694	+001444
73	F0250	5.168947	1.444996	-0.04924	+022265			+005694	+001444
73	F0250	5.168947	1.444996	-0.04924	+022265			+005694	+001444
91	F0254	5.407004	1.715843	-0.06245	+011899			+001277	+000679
94	F0255	5.407004	1.715843	-0.06245	+011899			+001277	+000679
94	F0255	5.407004	1.715843	-0.06245	+011899			+001277	+000679
96	F0256	5.230068	1.774448	-0.04786	+027260			+002623	+001076
97	F0257	5.230068	1.774448	-0.04786	+027260			+002623	+001076
97	F0257	5.230068	1.774448	-0.04786	+027260			+002623	+001076
101	F0261	4.949779	1.686177	0.04971	+007094			+008139	+000356
101	F0261	4.949779	1.686177	0.04971	+007094			+008139	+000356
101	F0261	4.949779	1.686177	0.04971	+007094			+008139	+000356
101	F0261	4.949779	1.686177	0.04971	+007094			+008139	+000356
105	F0265	3.945554	1.655799	0.03194	+012025			+001121	+000596
106	F0222	5.273305	1.557512	-0.04944	+012025			+001121	+000596
116	F0230	4.946866	1.618360	-0.04944	+007094			+003820	+000316
117	F0231	4.946866	1.618360	-0.04944	+007094			+003820	+000316
120	F0234	5.403313	1.664422	-0.07746	+012175			+000813	+000432
124	F0238	5.006267	1.673754	-0.07746	+012175			+000813	+000432
129	F0243	5.006267	1.673754	-0.07746	+012175			+000813	+000432
149	F0238	5.006267	1.673754	-0.07746	+012175			+000813	+000432
164	F0238	5.006267	1.673754	-0.07746	+012175			+000813	+000432
173	F0247	4.251513	1.66611	-0.04944	+012175			+000813	+000432
179	F0253	4.05013	1.63223	-0.04944	+012175			+000813	+000432
180	F0254	4.05013	1.63223	-0.04944	+012175			+000813	+000432
197	F0271	4.05013	1.63223	-0.04944	+012175			+000813	+000432