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INSTITUTION Advanced Technology, Inc., Reston, VA.
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ABSTRACT

The development of the error prone model (EPM) for the 1984-1985 student financial aid validation criteria for Pell Grant recipient selection is discussed, based on a comparison of the 1983-1984 EPM criteria and a newly estimated EPM. Procedures/assumptions on which the new EPM was based include: a sample of 1982-1983 Pell Grant recipients originally selected for the Pell Grant Quality Control Study was used for estimation; cases assumed to have met the Pre-Established Criteria were excluded from the estimation database; and the model was based on an exploratory data analysis approach embedded in the Automatic Interaction Detector (AID) software package. To develop the new EPM, error was defined as the potential change in the Student Aid Index resulting from validation on four application items: household size, U.S. taxes, and adjusted gross income of dependent parents or independent students, and student/spouse net income for dependent students. The 41 applications items that were considered as possible variables for predicting errors are identified. Information is also provided on the 18 final groups that emerged from the AID sequential search estimating procedure. Appended are descriptions of the 28 validation criteria for 1984-1985. (SW)

DEVELOPMENT OF THE 1984-85 VALIDATION SELECTION CRITERIA: THE ECLECTIC ERROR PRONE MODEL

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12001 Sunrise Valley Drive
Reston, Virginia 22901

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Development of the error prone model (EPM) for the 1984-85 Validation criteria was based on a comparison of the 1983-84 EPM criteria and a newly estimated EPM. In addition, three separate data bases were used in the development:

- The 1982-83 Quality Control Study Data Base
- 1983-84 Validation Tables produced by the Central Processor
- A random sample of applicants from the 1982-83 processing year.

The development was sequential. First the new EPM was estimated using the 1982-83 Quality Control Data Base and then evaluated using the random sample from the 1982-83 processor file. Second, the existing (1983-84) EPM was evaluated using the 1982-83 processor file and the 1983-84 Validation Tables. From the above two evaluations, the 10 best EPM groups were selected: five from the 1983-84 model and five from the new EPM. Thirty-six new groups were formed by combining the five groups (plus a residual group) from each of the two sources.

From these 36 groups, the "best" seven were selected as the 1984-85 EPM validation criteria.

In this paper we discuss the development of the new EPM, the comparison of this new model to the existing model, and the development of the final 1984-85 EPM criteria.

1.0 DEVELOPMENT OF THE NEW EPM

The development of the new EPM was based on the following procedures and assumptions:

- A sample of 1982-83 Pell Grant Recipients originally selected for the Pell Grant Quality Control Study (Excludes eligible non-recipients) was used for estimation
- Cases assumed to have met the Pre-Established Criteria (PEC) were excluded from the estimation data base
- The model is based on an "exploratory" data analysis approach embedded in the Automatic Interaction Detector (AID) software package
- Values for variables considered for creating splits were taken from the first eligible transaction
- Sample cases with dependency status error were excluded
- Dependency status was used as a forced split.

The error definition used to develop the new EPM fully exploited the richness of the Quality Control Study data base. Error was defined as the potential change in the Student Aid Index (SAI) resulting from validation of the following application items:

- Adjusted Gross Income of dependent parents or independent students
- U.S. Taxes Paid by dependent parents or independent students
- Household Size of dependent parents or independent students
- Student/Spouse Net Income for dependent students.

This SAI change is measured as the difference between SAI on the first eligible transaction and the SAI based on best values for AGI, Taxes Paid, Household Size, and Student/Spouse Net Income. One assumption embedded in this definition is that validation at the institution would be as effective in uncovering and removing SAI error as the multi-faceted field work used in the Quality Control Study. Furthermore, the best value SAI was capped at 1,600 points in order to restrict the measure to effective SAI changes.

Forty-one application items were considered as possible variables for predicting errors. These variables are presented in Table 1. The variables identify characteristics of the case and family, dependency status of the student, and of the income, wealth, and expense status of the students and parents.

TABLE 1

Application Items Considered as Possible Splitting Variables

Case Characteristics

- Number of Transactions
- Income Data from Filed or Estimated Return
- Whether Case had Corrections
- Number of Comments
- Application MDE Source
- SAI Value

Family Characteristics

- Parents' Marital Status
- Household Size
- Number in College

Dependency Status

- Lived with Parents, 1982
- Claimed by Parents, 1982
- Assisted by Parents, 1982
- Lived with Parents, 1983
- Claimed by Parents, 1983
- Assisted by Parents, 1983
- Dependency Status
- Number of Positive Responses to Dependency Questions

TABLE 1.
(Con't)

Student Characteristics

- Age of Student
- Type of Citizenship Status
- Whether Student Income was Prospective or Retrospective
- Marital Status

Income Characteristics

- Adjusted Gross Income
- Father/Student Portion
- Mother/Spouse Portion
- Change in AGI field
- Parents' Social Security
- Aid to Families with Dependent Children
- Other Non-Taxable Income
- Student/Spouse Income
- Student/Spouse Estimated Income
- Father/Student Portion as Percentage of AGI

Wealth Characteristics

- Student/Spouse Net Assets
- Cash and Savings
- Net Home Value
- Net Investment Value
- Net Business/Farm Value

TABLE 1
(Con't)

Expense Characteristics

- Number of Exemptions
- Itemized Deductions
- Unreimbursed Tuition
- Taxes as a percentage of AGI
- Medical Expenses as a percentage of AGI

Figure 1 provides information on the eighteen final groups which emerged from the AID sequential search estimating procedure. These groups are defined by 13 of the application items enumerated in Table 1. The groups defined in Figure 1 are ordered by mean group error. For example, group 33 has the highest group error, 259 SAI points, and is thus listed first in the figure.

The average net error, cumulative net error, number of cases, and cumulative percent of cases for the 18 final groups are presentd in Table 2. The entries in columns 3 and 5 are used to create the Lorenze curve in Figure 2. Overall, the model appears to be quite effective in that it identifies the 15 percent of the cases which account for over 50 percent of the cumulative net error.

2.0 Evaluation of the New EPM

The average errors and group sizes shown in Table 2 are based on the 1982-83 Quality Control Study sample of Pell Grant recipients. In order to evaluate the potential of the new EPM, its effectiveness was simulated by running the model against a random sample of eligible applicants from the 1982-83 processor file. Table 3 presents the results of this simulation as well as the prediction from the QC data base.

Review of Table 3 supports the following comments or conclusions:

- While there are differences in the percentage of cases falling into specific groups, overall the predicted selections are reasonably close to simulated selections.
- The columns headed "SAI Error" and "SAI Change" are not directly comparable:
  - SAI Error is measured for four items between values on first transaction to "Best" values.
  - SAI Change is measured for all items from first to last transaction.
- SAI Change is considerably below SAI Error for most error-prone groups:
  - "Validation" and "QC Field Work" are not comparable treatments.
  - SAI change being below SAI error indicates existence of remaining error.
- SAI change does not agree with the best conceptual criteria, i.e., the change in the final SAI induced by validation.

Applicant Data	33	5	23	13	29	11
Status Taxes Divided by AGI Itemized Deductions Household Size Exemptions Minus Household Size Medical Expenses Divided by AGI Portions Divided by AGI SAI Father or Student Portion Number in College AGI Number of Comments Other Non-Taxable Income	Dependent .15 and under Over $0 Under 0 (not missing) Under 0, .51-.95, over 1.05.	Dependent Over .15.	Dependent .15 and under Over $0 Missing, 0 and over $0 or less	Independent Missing*	Dependent .15 and under $0 or less 5 1,000 or less $0, over $5,000 Under 9 $0 or less	Dependent .15 and under $0 or less 1,000 or less 9 or over
Mean Group Error	259	258	193	182	137	133

Applicant Data	35	31	32	28	22	30
Status Taxes Divided by AGI Itemized Deductions Household Size Exemptions Minus Household Size Medical Expenses Divided by AGI Portions Divided by AGI SAI Father or Student Portion Number in College AGI Number of Comments Other Non-Taxable Income	Independent 4 Non-missing 2 or over $5,001-$15,000	Dependent .15 and under $0 or less 4 or under 1-500 4	Dependent .15 and under Over $0 Under 0 (not missing .01-.5, .95-1.05	Dependent .15 and under $0 or less Over 5 1,000 or less $0, Over $5,000 Under 9 $0 or less	Dependent .15 and under Over $0 Missing, 0 and over Over 0	Dependent .15 and under $0 or less 4 or under 1-500 5-9
Mean Group Error	125	122	119	80	58	37

*Missings are treated as the lowest category except where otherwise stated.

FIGURE 1

Definitions of the Final Groups for the New EPM

Applicant Data	26	24	20	16	34	8
Status	Dependent	Dependent	Dependent	Independent	Independent	Dependent
Taxes Divided by AGI	.15 and under	.15 and under	.15 and under			.15 and under
Itemized Deductions	$0 or less	$0 or less	$0 or less			$0 or less
Household Size	Over 5	Over 5	4 or under			
Exemptions Minus Household Size						
Medical Expenses Divided by AGI						
Portions Divided by AGI	1,000 or less	1,000 or less	0, 501-1,000	Non-missing	Non-missing	Over 1,000
SAI				1 or less	2 or more	
Father or Student Portion		Missing, $1-$5,000			$5,000 and under,	
Number in College					Over $15,000	
AGI	Under 9	Under 9	Under 9			
Number of Comments	Over $0					
Other Non-Taxable Income						
Mean Group Error	22	20	15	13	1	-4

FIGURE 1

(Continued)

TABLE 2

Error and Size Characteristics of the Final Groups for the New EPM

Group Number	Average Net Error	Cumulative Net Error %	Number of Cases	Cumulative Percent of Cases
33	259	7.6	43	1.5
5	258	19.5	68	4.0
23	193	27.5	61	6.2
13	182	33.2	46	7.8
29	137	42.8	103	11.5
11	133	47.7	54	13.4
35	125	52.4	55	15.4
31	122	57.1	56	17.4
32	119	60.9	47	19.1
28	80	69.0	149	24.4
1	58	82.2	334	36.4
30	37	86.5	172	42.5
26	22	87.3	49	44.3
24	20	89.0	123	48.7
20	15	92.3	327	60.4
16	13	100.4	913	93.1
34	1	100.4	64	95.4
8	-4	100.0	130	100.0

REMOVABLE ERROR BY PERCENT OF RECIPIENTS

ERROR PRONE MODEL

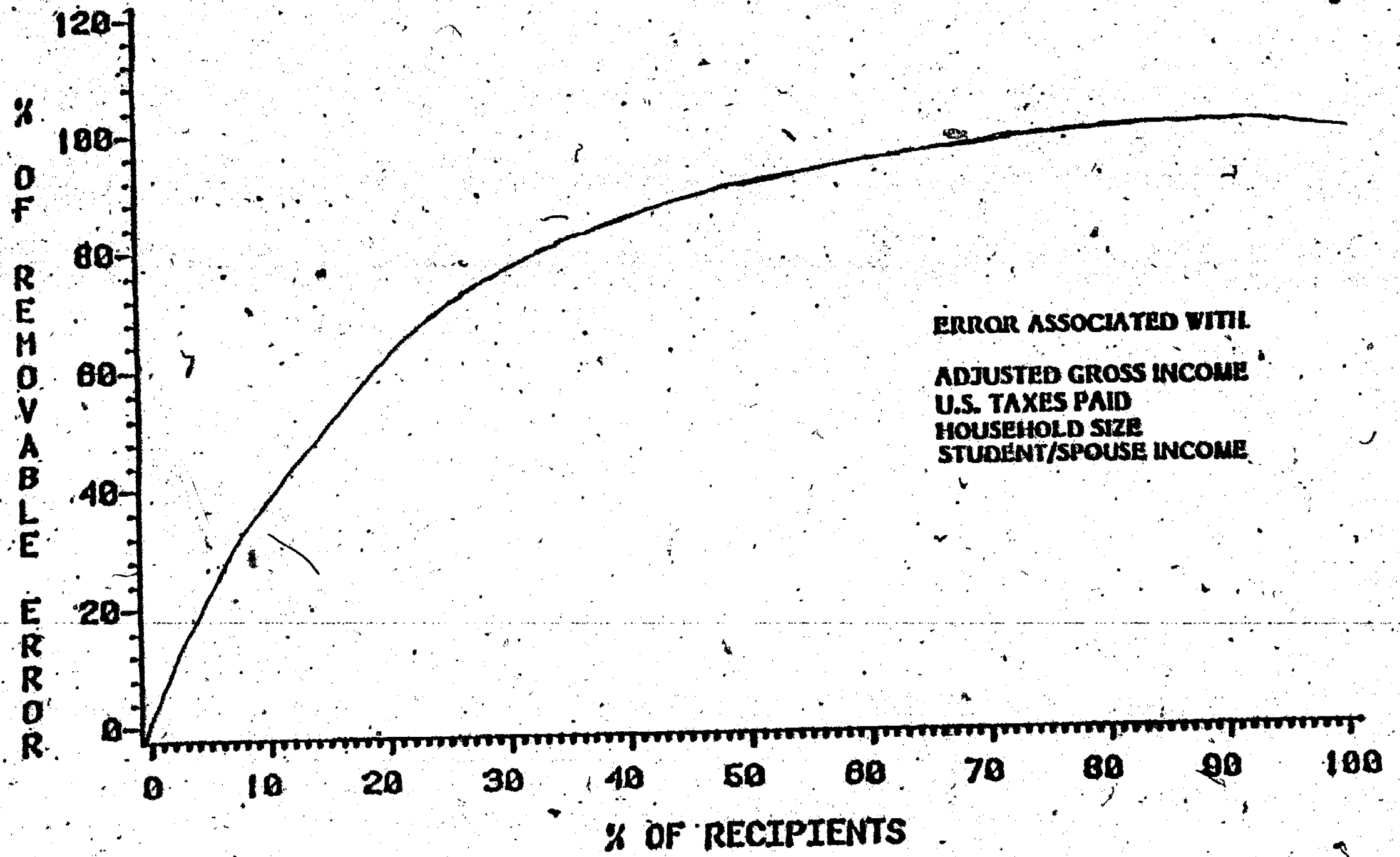

FIGURE 2

Lorenz Curve for the New EPM

TABLE 3

COMPARISON OF PREDICTED AND SIMULATED OUTCOMES: EVALUATION OF NEW EPM

	PREDICTED		SIMULATED	
GROUP NUMBER	PERCENTAGE OF CASES	SAI ERROR	PERCENTAGE OF CASES	SAI CHANGE
33	1.5	259	0.8	114
5	2.4	258	2.6	148
23	2.2	193	1.7	51
13	1.6	182	1.9	25
29	3.7	137	4.1	25
11	1.9	133	1.8	86
35	2.0	125	2.3	29
31	2.0	122		
32	1.7	119	1.7	27
28	5.3	80	5.3	27
22	12.0	58	12.7	28
30	6.2	37	7.1	23
26	1.8	22	1.5	11
24	4.4	20	3.7	10
20	11.7	15	11.3	22
16	32.7	13	34.0	19
34	2.3	1	1.7	25
8	4.7	-4	6.1	12

3.0 Evaluation of Existing (1983-84) Error Prone Model

Before changing from the existing to the new EPM, it was necessary to evaluate the effectiveness of the existing EPM. Table 4 presents the results of using the existing model against the random sample from the 1982-83 processor file. The final column of Table 4 presents the 1983-84 validation results for the first eight groups. It is these eight groups which represent the EPM validation criteria for 1983-84. SAI changes shown in the last column are only for cases submitting corrections.

The first group, 15, did quite well, having an average SAI change of 75 for 1982-83 and an average SAI change of 123 for 1983-84, the most error prone groups remain the first listed groups in the Table. Similarly, the 1983-84 validation tables, as indicated in the last column, also support the continued effectiveness of the existing EPM.

4.0 Development of the 1984-85 EPM Validation Criteria

The Validation Working Group met to review the materials presented up to this point. The purpose of their deliberations was to arrive at the best possible EPM criteria for 1984-85 given the dual constraints of data availability and time. It was decided to select the best groups from each model.

In terms of the New EPM, best was defined as having high average SAI changes based on the simulated results. A review of the final column of Table 3 identified groups 33, 5, 23, 11 and 22 as the best from the new EPM.

The choice was more difficult with respect to the selection of the best groups for the existing EPM since there are two separate effectiveness measures reported in Table 4. Groups 15, 21, and 25 are high on both criteria and were chosen as 3 of the 5 best groups. Group 39 was highest on the 1982-83 measure of SAI change while group 45 had the fourth highest 1983-84 SAI change falling just after the three groups already selected.

These two sets of 5-best groups allow for the possible construction of 36 unique groups. Thus, the next task was to evaluate these 36 groups with respect to average SAI error. Table 5 presents the results of crossing the 5 best, plus residual groups for

TABLE 4

SIMULATION OF EXISTING ERROR PRONE MODEL

GROUP NUMBER	1982-83 PROCESSOR FILE % OF CASES	1982-83 PROCESSOR FILE SAI CHANGE	SAI CHANGE FOR CASES WITH CORRECTIONS 1983-84
15	1.6	75	-123
21	1.7	81	68
25	0.4	21	69
31	2.9	31	14
41	1.3	14	37
45	1.7	29	49
39	2.3	88	42
13	0.7	30	22
35	1.4	12	
33	2.3	18	
43	4.4	29	
19	8.7	20	
38	10.5	40	
24	3.3	37	
29	26.0	20	
40	1.9	17	
22	19.2	11	
42	4.3	33	
37	0.8	57	
44	0.9	28	
28	1.8	58	
16	0.3	50	
36	1.3	9	

TABLE 5

CELL SIZES AND AVERAGE SAI CHANGES;
BEST NEW GROUPS BY BEST EXISTING GROUPS

NEW GROUPS	OLD GROUPS					TOTALS
	15	21	25	39	45	OTHER	
5	--	4,042 193	--	6,484 358	5,255 53	55,866 129	71,648 148
11	--	2,526 31	--	1,283 134	842 416	45,677 82	50,308 86
22	--	8,870 131	--	20,800 29	9,263 5	316,337 25	355,311 28
23	--	1,600 85	--	3,368 89	337 -66	42,308 47	47,613 51
33	--	1,853 410	--	1,516 481	--	18,021 53	21,390 114
OTHER	45,626 75	29,592 34	10,139 21	31,748 51	32,169 23	2,104,455 18	2,253,729 20
TOTALS	45,626 75	48,484 81	10,139 21	65,180 88	47,866 29	2,582,705 23	

-- = empty set
1st line = n weighted to total 2.8 million eligible applicants after screening out cases PEC or randomly validated
2nd line = mean SAI change from 1st eligible to last transaction. Mean includes zero SAI change for applicants with one eligible transaction

each model. The table entries are the number of cases likely to be selected and average SAI change for selected cases. Table 6 rearranges, by average error, 25 of the 36 groups which are not empty. Table 7 contains over-and underaward averages for these 25 groups.

Examination of Tables 5, 6, and 7 resulted in the following decisions:

- All cases satisfying the definition for new group 5 should be selected
- All cases satisfying the definition for new group 33 should be selected
- All cases satisfying the definition for new group 11* should be selected
- Cases satisfying the old group 15 definition, but not satisfying definitions for new group 5, 11, 22, 23, or 33, should be selected
- Cases satisfying old group 21, but not new groups 5, 11, or 23, should be selected
- Cases satisfying the new group 23 definition, but not the definitions for old groups 15, 21, 25, 39, or 45, should be selected
- Cases satisfying the old group 39 definition, but not definitions for new groups 5, 11, or 33, should be selected.

Tables 8 and 9 document the expected number of selections and resulting SAI changes for these eclectic groups. The definitions for these eclectic groups are enumerated in the "1984-85 Validation Criteria" which is included as Appendix A.

*Given changes in the processing system, group 11 had to be somewhat redefined. This change is reflected in Appendix A.

TABLE 6

AVERAGE AND CUMULATIVE ERROR AND CASES FOR GROUPS FORMED BY BEST NEW GROUPS AND BEST EXISTING GROUPS.

NEW GROUP	OLD GROUP	MEAN SAI CHANGE	CUMULATIVE NET SAI CHANGE %	CUMULATIVE NUMBER OF CASES	% OF TOTAL CASES
35	39	481	0.98	1,516	0.05
11	45	416	1.44	2,358	0.08
33	21	410	2.46	4,211	0.15
5	39	358	5.56	10,695	0.38
5	21	193	6.60	14,737	0.53
11	39	134	6.83	16,000	0.57
22	21	131	8.38	24,870	0.89
5	Other	129	18.04	80,736	2.98
23	39	89	18.44	84,104	3.00
23	21	85	18.62	85,704	3.06
11	Other	82	23.62	131,381	4.69
Other	15	75	28.20	177,007	6.32
5	45	53	28.57	182,202	6.51
33	Other	53	29.84	200,283	7.15
Other	39	51	32.62	232,031	8.29
23	Other	47	34.68	274,339	9.80
Other	21	34	36.04	303,981	10.85
11	21	31	36.15	306,457	10.94
22	39	29	36.96	327,257	11.69
22	Other	25	47.63	643,634	22.99
Other	45	23	48.64	675,803	24.14
Other	25	21	48.92	685,942	25.50
Other	Other	18	99.97	2,790,397	99.57
22	45	5	100.03	2,799,660	99.88
23	45	-66	100.00	2,799,997	100.00
TOTAL		27			

TABLE 7

OVERAWARDS AND UNDERAWARDS FOR GROUPS FORMED BY BEST NEW GROUPS AND BEST EXISTING GROUPS

NEW GROUP	OLD GROUP	TOTAL		UNDERAWARDS		OVERAWARDS		NO ERROR
		N	Mean	%	Mean	%	Mean	%
33	39	1,516	481	--	--	100	481	--
11	45	842	416	--	--	100	416	--
33	21	1,853	410	--	--	100	410	--
5	39	6,484	358	4	-316	96	385	--
5	21	4,042	193	--	--	60	320	40
11	39	1,263	134	--	--	60	223	40
22	21	8,870	131	18	-26	50	270	31
5	Other	55,866	129	2	-39	46	281	52
23	39	3,368	89	15	-50	25	387	60
23	21	1,600	85	--	--	37	230	63
11	Other	45,677	82	6	-46	19	453	76
Other	15	45,626	75	2	-34	20	377	78
5	45	5,255	53	--	--	36	148	64
33	Other	18,021	53	3	-311	14	452	84
Other	39	31,748	51	3	-72	29	185	68
23	Other	42,308	47	4	-41	15	324	81
Other	21	29,592	34	5	-39	20	182	75
11	21	2,526	31	--	--	67	46	33
22	39	20,800	29	2	-55	17	179	81
22	Other	316,377	25	4	-41	20	137	76
Other	45	32,169	23	--	--	15	151	85
Other	25	10,139	21	--	--	5	416	95
Other	Other	2,104,455	18	2	-53	8	250	90
22	45	9,203	5	--	--	11	43	89
23	45	337	-66	100	-66	--	--	--
TOTAL		2,800,000	27	2	-52	11	242	86

TABLE 8

SAI CHANGE, CUMULATIVE CASES: COMBINED GROUPINGS

ECLECTIC GROUP	NEW	OLD	MEAN SAI CHANGE	CUMULATIVE NET SAI CHANGE (%)	CUMULATIVE % OF CASES	CUMULATIVE NO. OF CASES
1	5	All	148	14.0	2.56	71,648
2	33	All	114	17.2	3.32	93,038
3	11*	All	85	21.4	4.65	129,704
4	Other	15	75	26.0	6.26	175,330
5	(22;23;oth)	21	58	29.2	7.74	216,706
6	23	Other	50	32.3	9.37	262,383
7	(22;23;oth)	39	43	35.3	11.23	314,510
8	--Remaining Cases--		19	100.0	100.0	2,800,000
TOTAL			27			2,800,000

*As modified

TABLE 9

SAI CHANGE, DECREASES, AND INCREASES:
ECLECTIC GROUPINGS

Eclectic Group	N	Mean SAI Change	SAI Decreases %	SAI Decreases Mean	SAI Increases %	SAI Increases Mean	No Change %
1	71,647	148	2	-94	51	295	47
2	21,390	114	2	-311	27	446	70
3	36,666	85	7	-[illegible]	29	309	64
4	45,626	75	2	-34	20	377	78
5	41,376	58	8	-32	30	200	62
6	45,677	50	4	-43	16	331	80
7	52,127	43	2	-70	24	188	74
Remaining Cases	2,485,491	19	2	-50	9	222	89
Total	2,800,000	27	2	-52	11	242	86

APPENDIX A

1984-85 VALIDATION CRITERIA

CRITERIA	DESCRIPTION
Random 1	Every eligible tax filer.
Random 2	Every eligible non-tax filer.
PEC A1	Any previous transaction rejected for the sum of portions being greater than 120% of AGI, and business/farm value and debt are any combination of blanks, negatives, and zeros (reject A), AGI (D24) and portions (D28a and b) have been verified, and tax return status is "completed."
PEC A2	Any previous transaction rejected for the sum of portions being greater than 120% of AGI, and business/farm value and debt are any combination of blanks, negatives, and zeros (reject A), AGI (D24) and portions (28a and b) have been verified, tax return status is "estimated," and applicant is dependent.
PEC A3	Any previous transaction rejected for zero AGI and the sum of portions is greater than zero (reject C), AGI (D24) and portions (D28a and b) have been verified, business/farm value and debt are any combination of blanks and zeros, and applicant is dependent.
PEC A4	Any previous transaction rejected for reported tax exceeding computed tax by $300 or more (reject E), AGI (D24) and taxes paid (D25a) have been verified, applicant is dependent, and tax return status is "completed."
PEC A5	Any previous transaction rejected for reported tax exceeding computed tax by $300 or more (reject E), AGI (D24) and taxes paid (D25a) have been verified, applicant is dependent, and tax return status is "estimated."
PEC A6	Any previous transaction rejected for reported tax exceeding computed tax by $300 or more (reject E), AGI (D24) and taxes paid (D25a) have been verified, applicant is independent, and tax return status is "completed."
PEC A7	Any previous transaction rejected for reported tax exceeding computed tax by $300 or more (reject E), AGI (D24) and taxes paid (D25a) have been verified, applicant is independent, and tax return status is "estimated."

CRITERIA	DESCRIPTION
PEC A8	Any previous transaction rejected for Social Security match and SAI calculated using reported SS is less than the SAI calculated using the SS file amount by more than 50 points or, if SAI cannot be calculated, the amount on the SS file exceeds the reported SS amount by $500 (D) or $100 (I) (reject F or G), and Social Security amount (D29a) has been verified.
PEC A9	Any previous transaction rejected for Social Security match and SAI calculated using reported SS is less than SAI calculated using SS file amount by 50 points (reject F or G), and reported SS amount (D29a) has been corrected and new reported amount is less than the file amount by $500 (D) or $100 (I). OR: Any previous transaction rejected for Social Security match and SAI was not calculated and the reported SS amount is less than the SS file amount by $500 (D) or $100 (I) (reject F or G), and reported SS amount (D29a) has been corrected and now SAI calculated using reported SS amount is less than SAI calculated with SS file amount by more than 50 points.
PEC B	Any previous transaction has an SAI of greater than 1600 and current transaction has an SAI of less than 1500.
PEC C	The result of subtracting the current eligible SAI from the highest eligible SAI of all previous transactions is greater than 99 points.
PEC G	Students released from the validation hold file automatically selected for validation for the current year.
EPM 1	Dependent student with taxes paid greater than 15% of AGI.
EPM 2	Dependent student with taxes paid less than or equal to 15% of AGI, itemized deductions greater than zero, household size greater than number of exemptions, and sum of portions divided by AGI is negative, greater than or equal to 0.51 and less than or equal to 0.95, or greater than 1.05.
EPM 3	Dependent student with taxes paid less than or equal to 15% of AGI, itemized deductions are zero or less, SAI is 1000 or less, parents' marital status is married, household size is 7 or more, and AGI is $15,000 or more.
EPM 4	Independent student whose portion is greater than 78% of AGI, AGI is greater than $4000, and tax return status is "estimated."

CRITERIA	DESCRIPTION
EPM 5	Dependent student who did not live with parents in 1983 and tax return status is "estimated."
EPM 6	Dependent student with taxes paid less than or equal to 15% of AGI, itemized deductions greater than zero, number of exemptions blank or greater than or equal to household size, and medical/dental expenses are zero or less. (Excludes dependent students who did not live with parents in 1983, tax return status is "completed," and taxes paid is greater than $500.)
EPM 7	Dependent student who lived with parents in 1983, parents' marital status is not divorced, student was not supported by parent in 1983, taxes paid is greater than $1000, and student's assets are equal to zero.
CY 1	The same dependency status in both years and 70-90% decrease in taxes paid.
CY 2	The same dependency status in both years and the same nonzero AGI in both years.
CY 3	Independent status in both years and a 80-100% decrease in other nontaxable income.
CY 4	The same dependency status in both years and household size decreases by 3 or more or increases by 2 or more.
QAS 1	Tax return status is "will not file" and tax filing status is tax filer.
QAS 2	Tax return status is blank, AGI is equal to zero, and tax filing status is tax filer.
QAS 3	Every eligible with citizenship status of "eligible non-citizen."