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Identifying disadvantage: some antecedents of academic performance among first year arts students at the University of the Witwatersrand in 1982

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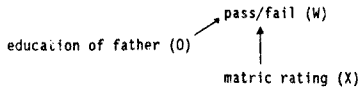
fit of the model. The accepted model (WX,WO) may be presented as:



Note how (as with repetition of a standard) this structure differs from the models for pre-matric and std. 9 marks. In this case the antecedent variable, father's education impacts directly on university performance, not via the matric score. Presented graphically, it is most vivid:

Fig. 6.5 Percentage Pass vs. Matric Rating for Father's Level of Education

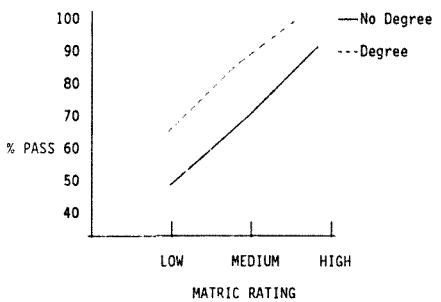
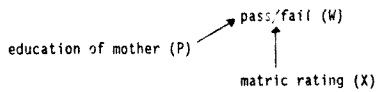


Table 6.17 Observed Values of Mother's Level of Education (P) * Pass/Fail (W) * Matric Rating (X)

EDUCATION	MAT. RAT.	PASS			TOTAL
		Fail N	Pass N	% Pass	
Degree	Low	11	20	65	31
	Medium(q)	8	42	84	50
	High	4	61	94	65
	TOTAL	23	123	84	146
No Degree	Low	73	78	52	151
	Medium(q)	50	113	69	163
	High	16	185	92	201
	TOTAL	139	376	73	515

MODEL	D.F.	CHI SQUARE	PROBABILITY
P,WX	5	10.42	0.06
WP,WX	4	2.08	0.72
WX,WP,XP	2	0.67	0.72

The change in the chi square likelihood ratio is 1.4 for 2 degrees of freedom, so p is approximately 0.5. Adding the term XP does not significantly improve the fit of the model. The accepted model WP,WX may be presented as:



Graphically this variable presents the exactly the same picture as father's education.

So, in both the mother's and father's case, the level of education of a respondent's parents may be termed a "delayed effect" variable. The variables do not have a significant effect on matric rating but subsequently do have an influence on pass/fail rates. Indeed the higher the education level of parents the more likely it is that a respondent will pass first-year B.A.

The main use made of log-linear analysis in this chapter was to check associations between variables in relation to a third variable. At cross-tabulation stage and during CHAID analysis we found variables significantly related to pass/fail only, or to matric rating only, or to both. The actual variables that came up remained stable in spite of the two forms of analysis. CHAID was used to re-categorize all of these variables into significantly different categories. These variables were then individually entered into log-linear models containing the variables pass/fail and matric rating. This allowed us to see whether the variable considered had impact on pass/fail at all; and if so whether this was direct or via matric rating, or both. In a couple of instances, for example respondent's sex, we uncovered not only three-way linkages but situations in which a saturated model was required: indicating that the

nature and strength of the association between matric and pass/fail was being affected by the particular variable.

We try and relate these findings to the literature in the Conclusion.

8. CONCLUSION

There is scant South African literature dealing with the selection for university study of students whose low matric marks are not a reflection of low academic ability. Some trends found in the American literature have, however, been shown in this study to be transferable to the situation at the University of the Witwatersrand (and to comparable institutions in South Africa).

The overall finding of this study is that, when one is calculating along the entire matric-score range and aggregates across all the groupings of students in the sample, matric marks, and indeed school record in general, are reasonably accurate predictors of university performance at first year level. There are, however, certain identifiable groups of students whose matric marks are clustered at the low end of the matric rating scale for whom this finding is not true. There are also a number of factors which, when present in the individual's life, affect pass rates but do not affect matric rating significantly. The converse also applies, that there are variables which affect matric performance negatively, but are not important in determining whether the student passes or fails.

The best predictor of pass/fail was matric rating. To achieve its predictive force, however, matric rating was combined using CHAID analysis into categories which were significantly different with respect to pass/fail. The three categories of matric rating were (0-28), (29-38), (38 and over). Going by our 1982 data, if there are to be specified points above which students are to be guaranteed entry, or below which they are to be wait-listed these points should be at around 28 or 38. There is no statistical justification for setting this exclusion point arbitrarily, at 32 for example.

We saw that the the year in which the matric exam was written by the student as well as the particular matric exam written (e.g., JMB, TED, etc.) affected the matric rating of respondents significantly. We would speculate that this is because the actual distribution of matric marks changes from year to year. A study comparing distributions of matric marks to end year performance over a number of years should uncover any trends and give rise to a method for calculating statistically defensible admission levels. The results of this study indicate that the point will probably be higher than any currently in force, and more students would be wait-listed. This would be acceptable since we identify

further criteria to discriminate between "good" and "bad" academic risks among wait-listed people.

The most important further criterion found in our study was race. As Classen and Orkin (1983) indicate (the finding was presented in the literature review) Blacks in 1982 performed better than Whites within comparable matric rating categories, and as well as Whites overall, in spite of being clustered at the "low" end of the matric rating scale. This was also demonstrated in the log-linear chapter, where both "race" and "type of matric exam written" affected the matric rating of respondents but were not necessary for an explanation of pass/fail. This trend bears out speculation in the the literature that race is the variable which best embodies all aspects associated with "disadvantage". Shochet (1987) concurs, believing that race is a sufficient indicator of disadvantage to be used as the sole means of selecting students for academic support.

As already mentioned, although we agree that race is a powerful indicator of disadvantage, other factors should be taken into account as well. As shown by File (1986), disadvantage has a class aspect as well as a race aspect.

Race thus provides the starting point for attempting to distinguish among people at the lower end of the matric rating scale. The pre-matric marks of Black respondents were not significantly different from those of Whites. So a careful examination of pre-matric marks and indeed of the potential students entire school record should be undertaken. Pre-matric marks as well as all variables on school record in standard nine were in fact significantly related to pass/fail.

Thus, if one had an applicant with matric marks lower than pre-matric marks, combined with a good standard nine school record, one could with some justification surmise that the student is a person who for some reason simply "flopped" in the final matric exam.

Across the whole sample, however, although all variables relating to school record, e.g., standard nine maths and standard nine English, were significantly related to pass/fail when viewed in a two-way table, none of these variables when entered into a log-linear model jointly with pass/fail and matric rating exhibited the required direct connection to pass/fail. In other words, their effect on pass/fail usually worked via the intervening variable matric rating.

We turn now to the more difficult task, that of discriminating potential pass from potential fail students whose pre-matric marks are consonant with their matric marks. The first variable we will review is financial hardship. In America the gross disposable income of the household head was strongly related to the final level of education of offspring. The situation is paralleled in South Africa, where people who are enduring some form of financial hardship pass at a significantly lower rate than students who report they are adequately funded. This applies across all three matric rating categories. Interestingly it is only at university, which is much more expensive than state schooling, that the crunch comes. For we find that in the final log-linear model the linkage of financial hardship to matric rating was not strong enough to need to be included. (Following the literature we should mention that simply providing such students with money is probably not a solution. Allied with financial hardship may be cultural characteristics, e.g., deference, which are not conducive to academic success. So some form of academic support as well as financial assistance would be required.)

The situation is paralleled for three other variables: repetition of a standard at school, father's education, and

mother's education. They are what we have termed "delayed effect" variables. The effects of these variables also only become significant at university. Their association with matric rating is not strong enough to be necessary in their respective final models.

The opposite is true for two other variables: index of study and parents divorced or separated. These variables affect matric rating but not pass/fail.

In summary, what we have finally achieved are empirically-based distinctions among a set of variables exhibiting various possible configurations in relation to matric rating and first year university success. At the most simple level of technical sophistication we presented some variables only as two way cross-tabulations. For example difficulty in studying at place of residence was related to pass/fail but was not re-categorised using CHAID because it had too many categories for the sample size, and could possibly be explained by students having poor access to library facilities

At a second level, some variables were then inserted into a CHAID analysis, in order to further clarify their relationships to pass/fail and matric rating. These

variables were divided into three groups: those significantly related to matric rating only, those significantly related to pass/fail only and those significantly related to both.

At the third level, a number of variables, with their categories organized by CHAID, were entered into three-way log-linear models in order to check whether the variable was actually related to pass/fail rather than matric rating, or vice-versa. We found that all variables in this final assessment did relate either to matric rating or to pass/fail; but some of them, e.g., mother's education, which had seemed to be related to both pass/fail and matric rating when one used two-way tables were, when entered into a three way log-linear model, only actually related to one or the other, or to one via the other.

Our overall policy recommendation is that the matric rating cut-off point for admission to the Faculty of Arts be increased to around thirty eight, in line with the split produced by CHAID in Chapter 5, and that all students below this limit be wait-listed. When selecting among students who are wait-listed and who have equal matric ratings, an in-depth interview (as recommended by Vilakazi and Tema, (1986)) could be carried out.

Such an interview should be in the language the applicant is most comfortable with and should be administered (in the light of Vilakazi and Tema's findings) by someone with the same cultural (language/race) background as the applicant. The interview should be structured to provide extensive information on the applicant's school record, family background (education of parents, financial position, stability of home environment, how studies are to be financed, attitude to study, etc.).

Using information taken from the interview, cognizance must be taken of variables we considered such as race, and divorce or separation of parents, which depress a student's matric rating (and so jeopardize the student's chance of admission if only matric rating is considered), but which actually do not correspondingly affect the students chances of passing first-year. By the same token variables such as father's education which affect pass/fail positively but do not show up in respect of matric rating should also be borne in mind.

Shochet (1987) found that the best predictor of academic success among the disadvantaged at the University of the Witwatersrand was participation in the Academic Support

Program (Shochet, 1987:334). This finding, taken in conjunction with our analysis, has a number of implications for a policy on the academically disadvantaged. Obviously all students who were wait-listed and subsequently accepted on the basis of biographical criteria obtained by means of an in-depth interview must be offered academic support. This support will have to be tailored to the needs of the individual, e.g., not everybody will need language skills.

Secondly, bearing in mind the theoretical base developed in Chapter 2 we would like to speculate on one particular *reason why academic support might* be working. As mentioned in the literature review, for a conflict-orientated approach inequality is ideally coped with by re-constituting the society. This is usually not immediately or comprehensively possible and the next best alternative is use overt measures aimed at levelling the inequality as much as possible. This is what academic support is doing: enabling the disadvantaged to compete as equally as possible.

We would also like to take up an aspect of academic support programs which tends not to be made explicit. Should the participants be told about the origin and process of their educational disadvantage, in order to facilitate their consciously addressing it? For Habermas (1971), the goal of

social intervention on a theoretical level is making people aware of the constraints imposed on them by their social position. "For the solution demands precisely that one attempt to achieve the unrestrained communication, about the goals of life activity and conduct, against which advanced capitalism, structurally dependent on a depolitized public realm, puts up a string resistance" (Habermas, 1971:120).

In other words, apart from directing the appropriate skills towards correctly selected students, this is what academic support should covertly do: provide participants with a clear understanding of, and strategies to cope with, the problems they are going to encounter as they attempt to compete in a society which has been inherently biased against them. Academic support programs (at least at English-medium universities) may well have been doing this anyway, implicitly if not explicitly. However, it should become an articulated aspect of the support curriculm if its recipients - who are by their own experience, particularly qualified for the task - are themselves to contribute effectively to the overcoming of the features of social inequality whose impact we have empirically detected through the various stages of our enquiry.

APPENDIX A

The Questionnaire

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

1922 1982

Enquiries

Telephone (011) Our ref

Date Your ref

FACULTY OF ARTS

FIRST YEAR STUDENT QUESTIONNAIRE

At this university we are concerned with providing each first year student with guidance and if appropriate, tutorial assistance. We need to establish which students might experience problems with their courses. To achieve this aim we have set up a research project. This questionnaire is a part of this project and general findings from it will be used as a guide to selection in future years. It is being sent to every first year student in the Faculty.

Please fill in the details in this questionnaire accurately, and return it as soon as possible in the reply-paid envelope provided. It should take you only about fifteen minutes to complete. The information received will, of course, be treated as confidential.

Thank you

PROFESSOR BD CHEADLE

Dean : Faculty of Arts

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Johannesburg
2001 South Africa

(011) 716-1111
Telegrams Univerts
Telex 4-22480 SA

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FIRST YEAR STUDENT QUESTIONNAIRE

Please give us the following particulars:

Student No: ☐☐☐☐☐☐☐ Surname: _____ First Name/s: _____

Age: _____ Sex: _____ Race: _____ Degree for which you have been accepted (eg BA, BA (Ed), BA (Social Work), etc): _____

First year subjects you have chosen: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____

Please read the questions carefully and fill in the relevant information

EXAMPLE

At which university are you presently registered? Tick off (✓) the relevant university.

CAPE TOWN	WITWATERSRAND✓	NATAL	R.A.U.

YOUR HIGH SCHOOL EDUCATION

1. Please provide your matric subjects and results in the table below.

NB (i) In the case of English and Afrikaans, please indicate with a tick whether you wrote the first or second language paper.

(ii) If you are from Zimbabwe, or have some other form of school leaving qualification, please provide your details as fully as possible.

SUBJECT	GRADE (HIGHER OR STANDARD)	SYMBOL
1. ENGLISH ☐ FIRST LANG ☐ SECOND LANG		
2. AFRIKAANS ☐ FIRST LANG ☐ SECOND LANG		
3.		
4.		
5.		
6.		
7.		

2. Which matric exam did you write (eg Transvaal Senior Certificate, National Senior Certificate, etc) _____

3. What AGGREGATE did you obtain for the following examinations? (Tick off each examination)

MATRIC	PRE-MATRIC MARKS **	FORM IV/STD 9	FORM III/STD 8
80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐
70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐
60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐
50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐
49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐

4. What MATHS percentage did you obtain for the following examinations? (Tick off each examination or enter N/A (not applicable) for any levels at which you did not do maths.

MATRIC	PRE-MATRIC MARKS **	FORM IV/STD 9	FORM III/STD 8
80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐
70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐
60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐
50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐
49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐

5. What ENGLISH percentage did you obtain for the following examinations? (Tick off each examination)

MATRIC	PRE-MATRIC MARKS **	FORM IV/STD 9	FORM III/STD 8
80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐	80% & Over = A ☐
70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐	70 - 79% = B ☐
60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐	60 - 69% = C ☐
50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐	50 - 59% = D ☐
49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐	49% & Less = E ☐

** Principal's estimate or exam

6. What was your overall position in class in the following Forms/Standards?

PRE-MATRIC **	
1st - 5th	
6th - 12th	
13th or below	

FORM IV/ STD 9	
1st - 5th	
6th - 12th	
13th or below	

FORM III/STD 8	
1st - 5th	
6th - 12th	
13th or below	

7. How many students were there in your matric class?

8. Which high schools did you attend. Please fill in all the details below.

NAME OF SCHOOL	TOWN (OR NEAREST TOWN)	FORM/S OR STANDARD/S

9. Did you have a teacher at all times for all the subjects that you took in your last three years at high school?

YES	NO

If "NO" please give details

SUBJECT	FORM/S OR STANDARD/S	LENGTH OF TIME WITHOUT A TEACHER (MONTHS)

10. Below is a list of teaching methods and aids that may have been used at your high school. We are interested in knowing if any of these were used to teach you in Forms IV or V (Standard 9 and 10).

ACTIVITY	YES	NO
OUTINGS AND VISITS		
PROJECTS eg unassisted assignments, organised reading activities, research & reference work etc.		
VERBAL INTERACTIONS: eg group discussions, drama activities, team teaching, etc		
EDUCATIONAL AIDS: eg closed circuit television, slide presentations, audio aids, overhead projector		

11. How old were you when you first entered school? | 5 years old or less | 6 years | 7 yea | - older

12. How often have you repeated a standard at school? | Never | Once | -

13. In what year did you matriculate?

Before 1976	1976	1977	1978	1979	1980	1981	1982

14. What, in general, did you feel about attending school?

15. Compared to other pupils in your matric class, do you think you studied

MUCH HARDER	HARDER	THE SAME	LESS	MUCH LESS

16. Have you completed military service? | Not Applicable | YES | NO

If "YES" please tick the year in which you completed it

Before 1976	1976	1977	1978	1979	1980	1981	1982

17. Did you begin your university classes late? | YES | NO

If "YES" please explain

18. Why did you choose the degree for which you have registered?

19. Was this degree your first choice? | YES | NO

20. Do you intend to study further after your first degree? | YES | NO

If "YES" what degree or course do you intend to do?

What occupation do you plan to pursue?

B YOUR FAMILY AND YOURSELF

Remember that all responses are treated as strictly confidential

1. Who is the main income earner in your family?

2. Are your parents divorced or separated? | YES | NO

3. Please indicate whether your mother or your father is deceased

FATHER	YES	NO
MOTHER	YES	NO

4. Please fill in the following information about your parents

	HIGHEST EDUCATIONAL LEVEL ATTAINED	USUAL OCCUPATION - PLEASE BE AS SPECIFIC AS POSSIBLE
FATHER		
MOTHER		

5. Was there someone who particularly encouraged your choice of degree? YES | NO

If "YES" please explain who encouraged you and how

_____

_____

_____

6. What do your parents think of your choice of degree?

FATHER _____

MOTHER _____

7. How are your studies being financed? Indicate which category most applies to you.

YOU FINANCE YOUR OWN STUDIES	
YOUR PARENTS FINANCE YOUR STUDIES	
FAMILY MEMBERS FINANCE YOUR STUDIES	
YOU ARE TOTALLY DEPENDENT ON A BURSARY, SCHOLARSHIP, OR LOAN	
YOU ARE PARTIALLY DEPENDENT ON A BURSARY, SCHOLARSHIP OR LOAN AND PROVIDE THE REST YOURSELF	
YOU ARE PARTIALLY DEPENDANT ON A BURSARY, SCHOLARSHIP OR LOAN AND YOUR PARENTS PROVIDE THE REST	

8. Did you apply for a bursary, scholarship or loan? YES | NO

9. Has your coming to university caused anyone financial hardship? YES | NO

If "YES" please explain _____

_____

10. What language do you mainly speak at home? _____

11. What language do you mainly speak to friends? _____

12. What language did you speak to your teachers at school? _____

13. Do you read books which are not prescribed for your academic courses? (either your own or from a library)
YES | NO

If "YES" how many non-prescribed books per month, on average, do you read _____

14. How many daily newspapers do you read regularly NONE | ONE | MORE THAN ONE

15. Which of the following applied to you whilst at school?

MEMBER OF SCHOOL SPORTS TEAM | PARTICIPATED IN SCHOOL CLUB OR SOCIETY | PREFECT AT SCHOOL | MEMBER OF CLUB OR ASSOCIATION OUTSIDE SCHOOL | NONE

16. Which of the following are you doing while at university?

PARTICIPATING IN SPORTS ACTIVITIES | PARTICIPATING IN STUDENTS CLUBS OR SOCIETIES | MEMBER OF CLUB OR ASSOCIATION OUTSIDE UNIVERSITY | NONE

17. Where are you staying while you are at university? (Please be as specific as possible)

_____

_____

18. How do you feel about staying there? _____

19. Is there any reason why you might find it difficult to study there? | YES | NO |

If YES please explain _____

20. How long, on average, does it take you to travel to Wits from where you are staying? MINUTES _____

21. In your matric year, with how many people did you share a bedroom at home? (If you were in boarding school or lodgings please say so).

_____

22. Is there anything you wish to bring to our attention concerning your courses at University in 1982, or any needs you think you may have for extra tuition?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

THANK YOU FOR YOUR CO-OPERATION IN FILLING IN THIS QUESTIONNAIRE

APPENDIX B

S.A.S. Programme

```
CMS FILEDEF WORK DISK DUMMY DUMMY 0;
CMS FILEDEF 01 DISK MA2 DATA 0;
  DATA MA1;
INFILE 01;

          INPUT          ID1 1 ID2 2-4          CN1 5 AGE 6-7 SEX 8 RACE 9
                         DEG1 10 S1 11-12 S2 13-14  S3 15-16 S4 17-18
                         S5 19-20 E 21 EHS 22 ES 23 AFR 24 AFRHS 25
                         AFRS 26 MS1 27-28 MC1 29-30 MS2 31-32 MC2 33-34
                       MS3 35-36 MC3 37-38 MS4 39-40 MC4 41-42 MS5 43-44
                       MC5 45-46 MEX 47-48 MAG 49 PMAG 50 AGG9 51 AGG8 52
                         MPM 53 MPPM 54 MP9 55 MP8 56 ME 57 PME 58
                         E9 59 E8 60 PCM 61 PC9 62 PC8 63 NOM 64-65
                         NOSC 66 TAAT 67 NOSW 68 W1 69-70 W2 71-72 W3 73-74
                         W4 75-76 W5 77-78 SW. 79 SW2 80 #2          CN2 5
                         SW3 6 SW4 7 SW5 8 LT1 9-10 LT2 11-12 LT3 13-14
                         LT4 15-16 LT5 17-18 EXTRA1 19 EXTRA2 20 EXTRA3 21
                         EXTRA4 22 SA 23 REP 24 YRM 25 SH 26 MIC 27 WMIC 28
                         LATE 29 DEGC 30 FUS 31 INC 32-33 DIV 34 DEC 35 DEGE 44
              FIN 45 APP 46 HARD 47 LANG1 48-49 LANG2 50-51 LANG3 52-53
                         NONAC 54 NNONAC 55-56 NEWS 57 ACTIV1 58 ACTIV2 59
                         ACTIV3 60 ACTIV4 61 ACTIV5 62 ACTIVU1 63 ACTIVU2 64
                         ACTIVU3 65 ACTIVU4 66 RES 67-68 DIFF 69 TIME 70-71
                         NOR 72 #3 ID3 1-4 CN3 5 MRAT 22-23 NAME $ 6-21
                         SUB1 26-27 P1 28-29 SUB2 30-31 P2 32-33 SUB3 34-35
                         P3 36-37 SUB4 38-39 P4 40-41 SUB5 42-43 P5 44-45
                         FSA 46-47 WLATE 48 WHYD 49-50 WHATD 51-52
                         FOCCS 53-54 EDF 55 EDM 56 OCCF 57-59 OCCM 60-62
                         WHO 63-64 HOW 65-66 FTH 67-68 MTH 69-70
               WHYFH 71-72 FST 73-74 DIFFS 75-76 COMMA 77-78 COMB 79-80;
              * ID;
              * CN1;
                   LABEL CN1= CN1-CARD NO. ONE;
              *AGE;
                   NAGE = AGE;
                   NAGE = (01 LT NAGE LE 18)*1+(NAGE GE 19)*2;
                   IF NAGE=0 THEN NAGE =.;
                   IF NAGE = 9 THEN NAGE =.;
                   LABEL NAGE=--R--AGE;
              *SEX;
                   NSEX = SEX;
                   IF NSEX =0THEN NSEX =.;
                   LABEL NSEX = --R--SEX;
              *RACE;
              OB=RACE;
              OB=(1 LE OB LE 4)*2+(OB EQ 5)*1;
              IF RACE =. THEN OB =.;
                   LABEL OB=BLACK OTHER;
              BW=RACE;
              BW=(2 LE BW LE 4)*0+(OB EQ 1)*1+
                                  (OB EQ 5)*2;
               LABEL BW=BLACK WHITE;

              *DEG1     DEGREE RG FOR ;
                   IF DEG1 =0 THEN DEG1=.;
                   NDEG1=DEG1;
          NDEG1=(NDEG1 EQ 1)*1+(NDEG1 EQ 3)*3+(NDEG1 EQ 7)*3+(NDEG1 EQ 8)
                        *3+(NDEG1 EQ 9)*3+(NDEG1 EQ 4)*4+(NDEG1 EQ 5)*5+
                         (NDEG1 EQ 2)*2;
```

```
     IF NDEG1=0 THEN NDEG1=.;
          LABEL NDEG1 = --R--DEGREE REQ. FOR;


*S1 TO S5 ALL FIRST YR SUB;
          LABEL S1 = SUBJECT REQ FOR;
          LABEL S1 = SUBJECT REQ FOR;
          LABEL S2 = SUBJECT REQ FOR;
          LABEL S3 = SUBJECT REQ FOR;
          LABEL S4 = SUBJECT REQ FOR;
          LABEL S5 = SUBJECT REQ FOR;
     IF S1=0 THEN S1=.;
     IF S2=0 THEN S2=.;
     IF S3=0 THEN S3=.;
     IF S4=0 THEN S4=.;
     IF S5=0 THEN S5=.;
     IF S1=99 THEN S1=.;
     IF S2=99 THEN S2=.;
     IF S3=99 THEN S3=.;
     IF S4=99 THEN S4=.;
     IF S5=99 THEN S5=.;
*E ENG FIRST 2ND LANG;
     NE = E;
     IF NE=9 OR NE=0 THEN NE=.;
          LABEL E = E    ENG 1ST OR 2ND.;
          LABEL NE =--R-- ENG. 1ST OR 2ND;
*EHS ENGLISH HIGHER STD;
     NEHS = EHS;
     IF NEHS=0 OR NEHS=9 THEN NEHS = .;
          LABEL NEHS =--R--ENG H.OR STD.;
*ES      ENG SYMBOL;
    IF EHS = 2 THEN ES=ES+2;
     NES = ES;
    NES=(NES EQ 1)*1+(NES EQ 2)*1+(NES EQ 3)*2+
        (NES EQ 4)*3+(NES EQ 5)*4+
        (NES EQ 6)*4+(NES EQ 7)*4+
        (NES EQ 8)*4;
     IF NES =9 OR NES=0 THEN NES =.;
          LABEL NES =--R--ENG SYMBOL;
*AFR      FIRST LANG 2ND LANG;
     NAFR = AFR;
     IF NAFR =9 OR NAFR=0 THEN NAFR =.;
          LABEL NAFR =--R--AFG. 1ST. OR 2ND.;
*AFRHS    AFR. HIGHER STD.;
     RHS = AFRHS;
     IF    RHS = 0 OR    RHS=9 THEN    RHS =.;
          LABEL RHS =--R--AFR H. OR STD.;
*AFRS      SYMBOL FOR AFR.;
    IF AFRHS = 2 THEN AFRS=AFRS+2;
     NAS = AFRS;
    NAS=(NAS EQ 1)*1+(NAS EQ 2)*1+(NAS EQ 3)*2+
        (NAS EQ 4)*3+(NAS EQ 5)*4+
        (NAS EQ 6)*4+(NAS EQ 7)*4+
        (NAS EQ 8)*4;
     IF NAS=0 OR NAS=9 THEN NAS = .;
          LABEL NAS =--R--SYMBOL AFR.;
*
*MS1 TO MC5     MATRIC SUB. AND MARK OBTAINED SSS FIX MISSING SSS
*
```

```
*MEX   MATRIC EXAM  SSS FIX ALTERNATESSS;
     NMEX=MEX;
     NMEX = (01 GE NMEX LE 04)*1+(NMEX EQ 8)*1+(NMEX EQ 7)*4
          +(NMEX EQ 6)*1+(NMEX EQ 5)*2;
     IF NMEX=00 OR NMEX=09 THEN NMEX =.;
          LABEL NMEX =--R--MATRIC EXAM;
*
*MAG   MATRIC AGG.;
     NMAG = MAG;
     IF NMAG=0 OR NMAG=9 THEN NMAG=.;
          LABEL NMAG=--R MATRIC AGG.;
*
* PMAG   PRE MATRIC AGG.;
     NPMAG=PMAG;
     IF NPMAG=0 OR NPMAG=9 THEN NPMAG =.;
          LABEL NPMAG=--R PRE MATRIC AGG.;
*



*AGG9   AGG. STD. 9;
     NAGG9=AGG9;
     IF NAGG9=9 OR NAGG9=0 THEN NAGG9=.;
          LABEL NAGG9=---R AGG. 9;
*
*AGG8;
     NAGG8=AGG8;
     IF NAGG8=9 OR NAGG8=0 THEN  AGG8=.;
          LABEL NAGG8=---R AGG. 8;
*
*MPM   MATHS MATRIC;
     NMPM=MPM;
     IF NMPM=0 OR NMPM=9 THEN NMPM=.;
          LABEL NMPM=---R MATRIC MATHS;
*
*MPPM   MATHS PRE MATRIC;
     NMPPM=MPPM;
     IF NMPPM=0 OR NMPPM=9 THEN NMPPM =.;
          LABEL NMPPM=---R PRE MATRIC MATHS;
*
*MP9   MATHS STD. 9;
     NMP9=MP9;
     IF NMP9=9 OR NMP9=0 THEN NMP9=.;
          LABEL NMP9=---R MATHS 9;
*
*MP8   MATHS 8;
     NMP8=MP8;
     IF NMP8=0 OR NMP8=9 THEN NMP8=.;
          LABEL NMP8=---R MATHS 8;
*
*ME   MATRIC ENG.;
     NME = ME;
     IF NME=0 OR NME=9 THEN NME = .;
          LABEL NME=---R MATRIC ENG.;
*
*PME   PRE MATRIC ENG.;
     NPME=PME;
     IF NPME=0 OR NPME=9 THEN NPME =.;
          LABEL NPME=---R PRE MATRIC ENG.;
```

```
*
*E9   STD 9 ENG;
      NE9=E9;
   IF NE9=9 OR NE=0 THEN NE9 = .;
         LABEL NE9=---R STD. 9 ENG.;
*
*E8   ENG 8;
      NE8 = E8;
   IF NE8=9 OR NE8=0 THEN NE8=.;
         LABEL NE8=---R STD8 ENG.;
*
*PCM   POS. CLASS MAT.;
      IF PCM=0 THEN PCM=.;
         LABEL PCM=  POS. CLASS MAT.;
*
*PC9   POS. CLASS 9;
      IF PC9 = 0 THEN PC9=.;
         LABEL PC9=  POS. CLASS 9;
*


*PC8   POS CLASS 8;
      IF PC8 = 0 THEN PC8 = .;
         LABEL PC8=  POS. CLASS 8;
*
*NOM   NO. STUD.MAT.;
      NNOM=NOM;
NNOM=(0 LT NNOM LE 23)*1+(24 LE NNOM LE 28)*2+(29 LE NNOM LE 32)
            *3+(33 LE NNOM LE 45)*4+(NNOM GE 46)*5;
      IF NNOM=00 THEN NNOM=.;
         LABEL NNOM=---R NO. STUD. MATRIC;
*
*NOSC   NO. SCHOOL CHANGE;
      NNOSC=NOSC;
      NNOSC = (1 LE NNOSC LE 8)*3+(NNOSC EQ 1)*1+(NNOSC EQ 2)*2;
       IF NNOSC=(0) THEN NNOSC= (.);
         LABEL NNOSC=---R NO. SCHOOLS CHANGE.;
*
*TAAT   TEACHER AT ALL TIMES;
      NTAAT=TAAT;
       IF NTAAT = 0 THEN NTAAT = .;
         LABEL NTAAT=---R TEACHER AT ALL TIMES;
*
*NOSW   NO. OF SUB. WITHOUT;
      NNOSW=NOSW;
      NNNOSW = (NNNOSW GE 3)*2+(NNNOSW EQ 2)*2+(NNNOSW EQ 1)*1;
       IF NNNOSW = 0 THEN NNNOSW = .;
         LABEL NNNOSW=---R NO. OF SUB. WITHOUT;
*
*W1 TO W5   SUBJECT WITH OUT A TEACHER $$$ FIX MISSING $$$;
*SW1 SW5   FORMS WITHOUT;
            LABEL SW1=STD. WITHOUT TEACHER;
            LABEL SW2=STD. WITHOUT TEACHER;
            LABEL SW3=STD. WITHOUT TEACHER;
            LABEL SW4=STD. WITHOUT TEACHER;
            LABEL SW5=STD. WITHOUT TEACHER;
*LT1 TO LT5   LENGTH OF TIME WITHOUT TEACHER;
  NLT=LT1+LT2+LT3+LT4+LT5;
 NNLT=(NLT EQ 1)*1+(NLT EQ 2)*2+(NLT EQ 3)*3+(NLT GE 4)*4;
```

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```
      IF NNLT=0 THEN NNLT=.;
          LABEL NNLT=--R--TIME WITHOUT TEACHER;

     *
     *EXTRA1 TO EXTRA4   OUTINGS ETC.;
          NEXTRA1=EXTRA1;NEXTRA2=EXTRA2;NEXTRA3=EXTRA3;NEXTRA4=   EXTRA4;
          IF NEXTRA1=2 THEN NEXTRA1=0;
          IF NEXTRA2=2 THEN NEXTRA2=0;
          IF NEXTRA3=2 THEN NEXTRA3=0;
          IF NEXTRA4=2 THEN NEXTRA4=0;
          NTOTEXRA = NEXTRA1+NEXTRA2+NEXTRA3+NEXTRA4;
          IF NTOTEXRA =0 THEN NTOTEXRA=.;
              LABEL NTOTEXRA=--R-- EXTRA CIRC. SCHOOL;
     *
     *SA    AGE ENTERED SCHOOL;
          IF SA =0 THEN SA =.;
              LABEL SA=--R--AGE ENTERED SCHOOL;
     *
     *REP   REPEAT STD. SCHOOL;
          IF REP=0 THEN REP=.;
              LABEL REP=REPEAT STD. AT SCHOOL;
     *
     *YRM   YEAR MATRICULATED;
          NYRM = YRM;
NYRM=(1 LE NYRM LE 5)*1+(NYRM EQ 6)*2+(NYRM EQ 7)*3+(NYRM EQ 8)*3;
          IF NYRM=0 THEN NYRM=.;
              LABEL NYRM=--R--YEAR MATRICULATED;
     *
     *SH    RELATIVE WORK;
              LABEL SH=RELATIVE WORK MATRIC;

          NSH=SH;
          NSH=(NSH EQ 1)*1+(NSH EQ 2)*1+(NSH EQ 3)*2+(NSH EQ 4)*3+
              (NSH EQ 5)*1;
          IF NSH =0 THEN NSH =.;
              LABEL NSH=--R--RELATIVE WORK MATRIC.;
     *MIC WMIC;
          IF MIC=0 OR MIC=9 THEN MIC=.;
          IF WMIC=9 OR WMIC=0 THEN WMIC=.;
              LABEL MIC=MILITARY SERVICE;
              LABEL WMIC=WHEN MILITARY SERVICE;
     *
     *LATE   UNIVERSITY CLASSES LATE;
          IF LATE=0 OR LATE=9 THEN LATE =.;
              LABEL LATE=UNIVERSITY CLASSES LATE;
     *
     *DEGC   1ST 2ND CHOICE;
          IF DEGC=0 THEN DEGC=.;
              LABEL DEGC=1ST 2ND CHOICE;
     *
     *FUS    INTENT TO STUDY ON;
          IF FUS = 0 THEN FUS=.;
              LABEL FUS=INTENT TO STUDY ON;
     *
     *INC    MAIN INCOME EARNER;
          NINC=INC;
          NINC=(NINC EQ 1)*1+(NINC EQ 2)*1+(3 LE NINC LE 10)*2+
              (11 LE NINC LE 13)*1;
          IF NINC=0 THEN NINC=.;
```

```
            LABEL NINC=--R--MAIN INCOME EARNER;
            LABEL INC=MAIN INCOME EARNER;
        NIN=INC;
        NIN=(NIN EQ 1)*1+(NIN EQ 2)*1+(3 LE NIN LE 10)*2+
            (11 LE NIN LE 13)*2;
        IF NIN=0 THEN NIN=.;
            LABEL NIN=--R--INCOME F/M OTHER;
*
    *DIV   PARENTS DIVORCED;
        IF DIV=0 THEN DIV=.;
            LABEL DIV=DIVORCED---SEPARATED;
*
    *DEC   PARENTS DECEASED;
        IF DEC=0 THEN DEC=.;
            LABEL DEC=PARENT/S DECEASED;
*
    *DEGE;
            LABEL DEGE=ENCOURAGEMENT;
        IF DEGE=0 THEN DEGE=.;
*
    *FIN   WHO FINANCES;
        IF FIN=0 THEN FIN=.;
            LABEL FIN=WHO FINANCES;
*
    *APP   APPLICATION B/S/L;
        IF APP=0 THEN APP=.;
            LABEL APP=APPLICATION B/S/L;
*
    *HARD   ARE YOU EDURING FINANCIAL HARD;
        IF HARD=0 THEN HARD=.;
            LABEL HARD=FINANCIAL HARD;
*
    *LANG1   LANG HOME;
        NLANG1=LANG1;
NLANG1=(NLANG1 EQ 01)*1+(NLANG1 EQ 02)*2+(03 LE NLANG1 LE 13)*2;
        IF NLANG1=0 THEN NLANG1 =.;
            LABEL NLANG1=--/--HOME LANG;
*


    *LANG2   LANG FRIENDS;
        NLANG2=LANG2;
NLANG2=(NLANG2 EQ 01)*1+(NLANG2 EQ 02)*2+(03 LE NLANG2 LE 13)*2,
        IF NLANG2=0 THEN NLANG2 =.;
            LABEL NLANG2=--R--FRIEND LANG;
*
    *LANG3   LANG SCHOOL;
        NLANG3=LANG3;
NLANG3=(NLANG3 EQ 01)*1+(NLANG3 EQ 02)*2+(03 LE NLANG3 LE 13)*2;
        IF NLANG3=0 THEN NLANG3 =.;
            LABEL NLANG3=--R--SCHOOL LANG;
*
    *NONAC   NON ACAD BOOKS;
            LABEL NONAC=NON ACAD. BOOKS;
*
    *NNONAC   NUMBER;
        NNNONAC=NNONAC;
    NNNONAC=(NNNONAC EQ 01)*1+(NNNONAC EQ 02)*2+(NNNONAC EQ 03)*3+
            (NNNONAC EQ 4)*4+(05 LE NNNONAC LE 99)*4;
```

```
      IF NNNONAC = 0 THEN NNNONAC=.;
           LABEL NNNONAC=--R--NUMBER OF NON PRESCRIBED BOOKS READ;
*
*NEWS   NO NEWSPAPERS;
      IF NEWS=0 THEN NEWS=.;
           LABEL NEWS=NO OF NEWSPAPERS;
*
*ACTIV1 TO ACTIVU3;
      IF ACTIV1 = 1 THEN ACTIV1 =1;
      IF ACTIV2 = 2 THEN ACTIV2 =1;
      IF ACTIV3 = 3 THEN ACTIV3 =1;
      IF ACTIV4 = 4 THEN ACTIV4 =1;
      IF ACTIVU1= 6 THEN ACTIVU1=1;
      IF ACTIVU2 = 7 THEN ACTIVU2 =1;
      IF ACTIVU3= 8 THEN ACTIVU3 =1;
IDEXATV =ACTIV1+ACTIV2+ACTIV3+ACTIV4+ACTIVU1+ACTIVU2+ACTIVU3;
      XATV=IDEXATV;
      XATV=(0 LE XATV LE 2)*1+(3 LE XATV LE 4)*2+(XATV GE 5)*3;
         IF XATV=. THEN XATV=1;
           LABEL IDEXATV=TOTAL ACTIVITY SCHOOL UNIVERSIT;
           LABEL XATV=INDEX OF TOTAL ACTIVITY SCHOOL AND UNIV.;
*
*RES   RESEDENCE;
      NRES=RES;
      NRES=(NRES EQ 01)*1+(NRES EQ 02)*2+(03 LE NRES LE 08)*3;
      IF NRES = 0 THEN NRES =.;
           LABEL NRES=--R--RESEDENCE;
*
*DIFF   DIFFICULT STUDY RES.;
      IF DIFF=0 THEN DIFF=.;
           LABEL DIFF=DIFFICULT STUDY RES;
*
*TIME   TRAVELLIG TIME TO WITS;
      NTIME=TIME;
      NTIME=(01 LE NTIME LE 06)*1+(07 LE NTIME LE 12)*2+
            (13 LE NTIME LE 18)*3+(19 LE NTIME LE 99)*4;
      IF NTIME=0 THEN NTIME=.;
           LABEL NTIME=--R--TIME TO WITS.;
*
*NOR   NO. PEOPLE IN ROOM MATRIC;

      NNOR=NOR;
      NNOR=(NNOR EQ 8)*1+(NNOR EQ 1)*1+(4 LE NNOR LE 7)*2+
           (NNOR EQ 9)*2+(NNOR EQ 2)*2+(NNOR EQ 3)*2;
      IF NNOR=0 THEN NNOR=.;
           LABEL NNOR=--R--NO. PEOPLE ROOM MATRIC;
*
*MAT RAT MATRIC RATING;
      IF MRAT=0 THEN MRAT=.;
           LABEL MRAT=MATRIC RATING;
   NMRAT=MRAT;
   NMRAT=(0 LE NMRAT LE 23)*1+(24 LE NMRAT LE 26)*1+
      (27 LE NMRAT LE 31)*2+(32 LE NMRAT LE 35)*2+
      (36 LE NMRAT LE 40)*3+
      (NMRAT GE 41)*3;
IF MRAT=. THEN NMRAT=.;
   NMRT=MRAT;
   NMRT=(0 LE NMRT LE 15)*1+(16 LE NMRT LE 20)*1+
      (21 LE NMRT LE 22)*1+(23 LE NMRT LE 24)*1+
```

```
            (25 LE NMRT LE 26)*1+(27 LE NMRT LE 28)*1+
            (29 LE NMRT LE 30)*2+(31 LE NMRT LE 32)*2+
            (33 LE NMRT LE 34)*2+
            (35 LE NMRT LE 36)*3+(37 LE NMRT LE 38)*3+
              (39 LE NMRT LE 40)*3+(41 LE NMRT LE 45)*3+
            (NMRT GE 46)*3;
      IF NMRT=0 THEN NMRT=.;
    *NMRA CREATED FOR DATA SET LOW COMBINED 2 CAT;
        NMRA=NMAT;
        NMRA=(0 LE NMRA LE 23)*1+(24 LE NMRA LE 27)*1+
           (28 LE NMRAT LE 31)*3+(32 LE NMRA LE 35)*4+
           (36 LE NMRA LE 40)*5+
           (41 LE NMRA LE 47)*6+(NMRA GE 48)*7;
        IF NMRA =0 THEN NMRA=.;
                LABEL NMRA=--R--MATRIC RATING;
      *
          TO P5 END OF YEAR SUBJECT AND PERCENTAGE;
          NP1=P1;NP2=P2;NP3=P3;NP4=P4;NP5=P5;
          NP1=(00 GE NP1 LE 49)*0+(NP1 GE 50)*1;
            NNP1=NP1;
            IF P1 =. THEN NNP1=.;
          NP2=(00 GE NP2 LE 49)*0+(NP2 GE 50)*1;
            NNP2=NP2;
            IF P2 =. THEN NNP2=.;
          NP3=(00 GE NP3 LE 49)*0+(NP3 GE 50)*1;
            NNP3=NP3;
            IF P3 =. THEN NNP3=.;
          NP4=(00 GE NP4 LE 49)*0+(NP4 GE 50)*1;
            NNP4=NP4;
            IF P4 =. THEN NNP4=.;
          NP5=(00 GE NP5 LE 49)*0+(NP5 GE 50)*1;
            NNP5=NP5;
            IF P5 =. THEN NNP5=.;
          CPASS=NNP1+NNP2+NNP3+NNP4+NNP5;
          PASS=CPASS;
          PASS=(PASS EQ 0)*1+(PASS EQ 1)*1+(2 LE PASS LE 5)*2;
               LABEL CPASS=NUMBER OF SUBJECTS PASSED;
               IF CPASS=. THEN PASS=.;
               LABEL PASS=PASS OR FAIL;
        CCPASS=CPASS;
        CCPASS=(CPASS EQ 1)*0+(CCPASS EQ 2)*1+(CCPASS EQ 3)*1+
        (CCPASS EQ 4)*2+(CCPASS EQ 5)*2+(CCPASS EQ 0)*0;

      *
      *FSA    FEELINGS ATTENDING SCHOOL;
           NFSA=FSA;
NFSA=(01 LE NFSA LE 03)*1+(04 LE NFSA LE 06)*2+(07 LE NFSA LE 16
           1*1+(NFSA EQ 17)*2+(NFSA EQ 18)*1;
        IF NFSA=0 THEN NFSA=.;
      *
      *WLATE   WHY REG. LATE;
        IF WLATE=0 OR WLATE=9 THEN WLATE=.;
                LABEL WLATE=WHY REG. LATE;
      *
      *WHYD    WHY REG. DEG.;
           WWHYD=WHYD;
           WWHYD=(01 LE WWHYD LE 10)*1+(WWHYD EQ 11)*2+(WWHYD EQ 12)*3+
                 (WWHYD EQ 13)*1;
```

```
            IF NWHYD=0 THEN NWHYD=.;
                LABEL NWHYD=--R--WHY REG. DEG.;
        *
         *WHATD   FUTHER STUDY DIRECTION;
DATA BA1;
SET  A1;
        *
         *FOCCS   PLANNED OCCUPATION;
           NFO=FOCCS;
           NFO=(NFO EQ 1)*1+(NFO EQ 2)*7+(NFO EQ 3)*7+(NFO EQ 4)*2+
           NFO=(NFO EQ 5)*5+(NFO EQ 6)*3+(NFO EQ 7)*7+(NFO EQ 8)*7+
       NFO=(NFO EQ 9)*6+(NFO EQ 10)*3+(NFO EQ 11)*6+(NFO EQ 12)*1+
       NFO=(NFO EQ 13)*7+(NFO EQ 14)*5+(NFO EQ 15)*7+(NFO EQ 16)*4+
       NFO=(NFO EQ 17)*7+(NFO EQ 18)*5+(NFO EQ 19)*7+(NFO EQ 20)*7+
       NFO=(NFO EQ 21)*7+(NFO EQ 22)*7+(NFO EQ 23)*7+(NFO EQ 24)*1+
       NFO=(NFO EQ 25)*5+(NFO EQ 26)*7+(NFO EQ 27)*7+(NFO EQ 28)*7;
      IF NFO=0 THEN NFO=.;
        *
         *EDM    EDUCATION MOTHER;
              NEDM=EDM;
              NEDM=(1 LE NEDM LE 3)*1+(NEDM EQ 4)*2+(NEDM EQ 5)*3+
                   (6 LE NEDM LE 8)*4;
              IF NEDM=0 THEN NEDM=.;
                   LABEL NEDM=EDUCATION MATHER;
        *
         *EDF    EDUCATION FATHER;
              NEDF=EDF;
              NEDF=(1 LE NEDF LE 3)*1+(NEDF EQ 4)*2+(NEDF EQ 5)*3+
                   (6 LE NEDF LE 8)*4;
              IF NEDF=0 THEN NEDF=.;
                   LABEL NEDF=EDUCATION FATHER;
         *OCCF   OCCUPATION FATHER;


              F=OCCF;
              F=(F EQ 001)*1+(F EQ 002)*11+(F EQ 003)*3+(F EQ 004)*3+
                (F EQ 005)*2+(F EQ 006)*2-(F EQ 007)*4+(F EQ 008)*5+
                (F EQ 009)*4+(F EQ 010)*5+(F EQ 011)*7+(F EQ 012)*5+
          (F EQ 013)*1+(F EQ 014)*1+(F EQ 015)*6+(F EQ 016)*2+(F EQ 17)
                *2+(F EQ 018)*5+(F EQ 019)*5+(F EQ 020)*1+(F EQ 021)*8+
                (F EQ 022)*8+(F EQ 023)*7+(F EQ 024)*3+(F EQ 025)*4+
                (F EQ 026)*3+(F EQ 027)*2+(F EQ 028)*11+(F EQ 029)*4+
                (F EQ 030)*6+(F EQ 031)*6+(F EQ 032)*3+(F EQ 034)*3+
       (F EQ 35)*3+(F EQ 036)*2+(F EQ 037)*3+(F EQ 038)*2+(F EQ 039)*2+
                (F EQ 040)*2+(F EQ 041)*6+(F EQ 042)*6+(F EQ 043)*1+
                (F EQ 044)*1+(F EQ 045)*3+(F EQ 046)*11+(F EQ 47)*11+
                (F EQ 048)*7+(F EQ 049)*1+(F EQ 050)*3+(F EQ 051)*2+
                (F EQ 052)*2+(F EQ 053)*3+(F EQ 054)*3+(F EQ 055)*6+
                (F EQ 056)*3+(F EQ 057)*1+(F EQ 058)*5+(F EQ 059)*2+
                (F EQ 060)*1+(F EQ 061)*1+(F EQ 062)*0+(F EQ 063)*2+
               (F EQ 064)*6+(F EQ 065)*3+(F EQ 066)*2+(F EQ 067)*5+
       (F EQ 68)*3+(F EQ 069)*5+(F EQ 070)*6+(F EQ 071)*1+(F EQ 072)*5+
                (F EQ 073)*6+(F EQ 074)*3+(F EQ 075)*5+(F EQ 076)*3+
                (F EQ 077)*5+(F EQ 078)*4+(F EQ 079)*3+(F EQ 080)*3+
                (F EQ 081)*3+(F EQ 082)*3+(F EQ 083)*3+(F EQ 084)*5+
                (F EQ 085)*7+(F EQ 086)*3+(F EQ 087)*1+(F EQ 088)*2+
                (F EQ 089)*1+(F EQ 142)*7+(F EQ 143)*4+(F EQ 144)*9+
                (F EQ 145)*2+(F EQ 146)*5+(F EQ 147)*6+(F EQ 148)*5+
                (F EQ 149)*4+(F EQ 90)*7+(F EQ 91)*7+(F EQ 92)*7+
```

```
(F EQ 093)*1+(F EQ 094)*3+(F EQ 095)*5+(F EQ 096)*2+
(F EQ 097)*2+(F EQ 098)*5+(F EQ 099)*0+(F EQ 100)*2+
(F EQ 101)*1+(F EQ 102)*3+(F EQ 103)*1+(F EQ 104)*9+
(F EQ 105)*6+(F EQ 106)*8+(F EQ 107)*8+(F EQ 108)*0+
(F EQ 109)*0+(F EQ 110)*6+(F EQ 111)*8+(F EQ 112)*3+
(F EQ 113)*1+(F EQ 114)*3+(F EQ 115)*5+(F EQ 116)*5+
(F EQ 117)*5+(F EQ 118)*2+(F EQ 119)*2+(F EQ 120)*3+
(F EQ 121)*2+(F EQ 122)*5+(F EQ 123)*2+(F EQ 124)*0+
(F EQ 125)*5+(F EQ 126)*2+(F EQ 127)*5+(F EQ 128)*2+
(F EQ 129)*2+(F EQ 130)*3+(F EQ 131)*2+(F EQ 132)*3+
(F EQ 133)*7+(F EQ 134)*3+(F EQ 135)*3+(F EQ 136)*2+
(F EQ 137)*1+(F EQ 138)*1+(F EQ 139)*2+(F EQ 140)*5+
(F EQ 141)*3+(F EQ 150)*2+(F EQ 151)*3+(F EQ 152)*5+
(F EQ 153)*;+(F EQ 154)*3+(F EQ 155)*2+(F EQ 156)*5+
(F EQ 157)*5+(F EQ 158)*6+(F EQ 159)*2+(F EQ 160)*6;
 Z=F;
 Z=(Z EQ 1)*1+(Z EQ 2)*2+(Z EQ 3)*3+(Z EQ 4)*4+
   (Z EQ 5)*5+(Z EQ 6)*6+(Z EQ 7)*7+(Z EQ 8)*7+
   (Z EQ 9)*7;
IF F=0 THEN Z=.;
    LABEL Z=--R--FATHERS OCCUPATION;


.TA BA1;
SET BA1;

     *OCCM   OCCUPATION MATHER;


     M=OCCM;
     M=(M EQ 001)*1+(M EQ 002)*11+(M EQ 003)*3+(M EQ 004)*3+
       (M EQ 005)*2+(M EQ 006)*2+(M EQ 007)*2+(M EQ 008)*5+
       (M EQ 009)*4+(M EQ 010)*5+(M EQ 011)*7+(M EQ 012)*5+
  (M EQ 013)*1+(M EQ 014)*1+(M EQ 015)*6+(M EQ 016)*2+(M EQ 17)
       *2+(M EQ 018)*5+(M EQ 019)*5+(M EQ 020)*1+(M EQ 021)*8+
       (M EQ 022)*8+(M EQ 023)*7+(M EQ 024)*3+(M EQ 025)*4+
       (M EQ 026)*1+(M EQ 027)*2+(M EQ 028)*11+(M EQ 029)*4+
       (M EQ 030)*6+(M EQ 031)*6+(M EQ 032)*3+(M EQ 034)*3+
 (M EQ 35)*3+(M EQ 036)*2+(M EQ 037)*3+(M EQ 038)*2+(M EQ 039)*2+
       (M EQ 040)*2+(M EQ 041)*6+(M EQ 042)*6+(M EQ 043)*1+
       (M EQ 044)*1+(M EQ 045)*3+(M EQ 046)*11+(M EQ 47)*11+
       (M EQ 048)*7+(M EQ 049)*1+(M EQ 050)*3+(M EQ 051)*2+
       (M EQ 052)*2+(M EQ 053)*3+(M EQ 054)*3+(M EQ 055)*6+
       (M EQ 056)*3+(M EQ 057)*1+(M EQ 058)*5+(M EQ 059)*2+
       (M EQ 060)*1+(M EQ 061)*1+(M EQ 062)*0+(M EQ 063)*2+
      (M EQ 064)*6+(M EQ 065)*3+(M EQ 066)*2+(M EQ 067)*5+
 (M EQ 68)*3+(M EQ 069)*5+(M EQ 070)*6+(M EQ 071)*1+(M EQ 072)*5+
       (M EQ 073)*6+(M EQ 074)*3+(M EQ 075)*5+(M EQ 076)*3+
       (M EQ 077)*5+(M EQ 078)*4+(M EQ 079)*3+(M EQ 080)*3+
       (M EQ 081)*3+(M EQ 082)*3+(M EQ 083)*3+(M EQ 084)*5+
       (M EQ 085)*7+(M EQ 086)*3+(M EQ 087)*1+(M EQ 088)*2+
       (M EQ 089)*1+(M EQ 142)*7+(M EQ 143)*4+(M EQ 144)*9+
       (M EQ 145)*2+(M EQ 146)*5+(M EQ 147)*6+(M EQ 148)*5+
       (M EQ 149)*4+(M EQ 90)*7+(M EQ 91)*7+(M EQ 92)*5+
       (M EQ 093)*1+(M EQ 094)*3+(M EQ 095)*5+(M EQ 096)*2+
       (M EQ 097)*2+(M EQ 098)*5+(M EQ 099)*0+(M EQ 100)*2+
       (M EQ 101)*1+(M EQ 102)*3+(M EQ 103)*1+(M EQ 104)*9+
       (M EQ 105)*6+(M EQ 106)*8+(M EQ 107)*8+(M EQ 108)*0+
       (M EQ 109)*0+(M EQ 110)*6+(M EQ 111)*4+(M EQ 112)*3+
```

```
      (M EQ 113)*1+(M EQ 114)*3+(M EQ 115)*5+(M EQ 116)*5+
      (M EQ 117)*5+(M EQ 118)*2+(M EQ 119)*2+(M EQ 120)*3+
      (M EQ 121)*2+(M EQ 122)*5+(M EQ 123)*2+(M EQ 124)*0+
      (M EQ 125)*5+(M EQ 126)*2+(M EQ 127)*5+(M EQ 128)*2+
      (M EQ 129)*2+(M EQ 130)*3+(M EQ 131)*2+(M EQ 132)*3+
      (M EQ 133)*7+(M EQ 134)*3+(M EQ 135)*3+(M EQ 136)*2+
      (M EQ 137)*1+(M EQ 138)*1+(M EQ 139)*2+(M EQ 140)*5+
      (M EQ 141)*3+(M EQ 150)*2+(M EQ 151)*3+(M EQ 152)*5+
      (M EQ 153)*7+(M EQ 154)*3+(M EQ 155)*2+(M EQ 156)*5+
      (M EQ 157)*5+(M EQ 158)*6+(M EQ 159)*2+(M EQ 160)*6;

       Y=M;
       Y=(Y EQ 1)*1+(Y EQ 2)*2+(Y EQ 3)*3+(Y EQ 4)*4+
         (Y EQ 5)*5+(Y EQ 6)*6+(Y EQ 7)*7+(Y EQ 8)*7+
         (Y EQ 9)*7;
     IF M=0 THEN Y=.;
         LABEL Y=--R--MOTHERS OCCUPATION;

*
*WHO  WHO ENCOURAGED;
         LABEL WHO= WHO ENCOURAGED DEG. CHOICE;
*
*HOW;
*
*FTH   FATHER THOUGHTS DEG. CHOICE;
     NFTH=FTH;
     NFTH=(01 LE NFTH LE 04)*1+(NFTH EQ 05)*2+(NFTH EQ 06)*1+
    (NFTH EQ 07)*2+(NFTH EQ 08)*1+(NFTH EQ 09)*1+(NFTH EQ 10)
          *2+(NFTH EQ 11)*2+(NFTH EQ 12)*1+(NFTH EQ 13)*2+
          (14 LE NFTH LE 17)*1+(NFTH EQ 18)*2+(NFTH EQ 19)*1+
          (20 LE NFTH LE 23)*2;
     IF NFTH =0 THEN NFTH=.;
         LABEL NFTH=--R--FATHERS THGTS.DEG.C.;

*
*MTH   MOTHER THOUGHTS DEG. CHOICE;
     NMTH=MTH;
     NMTH=(01 LE NMTH LE 04)*1+(NMTH EQ 05)*2+(NMTH EQ 06)*1+
    (NMTH EQ 07)*2+(NMTH EQ 08)*1+(NMTH EQ 09)*1+(NMTH EQ 10)
          *2+(NMTH EQ 11)*2+(NMTH EQ 12)*1+(NMTH EQ 13)*2+
          (14 LE NMTH LE 17)*1+(NMTH EQ 18)*2+(NMTH EQ 19)*1+
          (20 LE NMTH LE 23)*2;
     IF NMTH =0 THEN NMTH=.;
         LABEL NMTH=--R--MOTHERS THGTS.DEG.C.;
*
*WHYFH   REASONS FINANCIAL HARD.;
     NW=WHYFH;
 NW=(NW EQ 01)*3+(02 LE NW LE 04)*1+(NW EQ 05)*3+(NW EQ 06)*1+
 (07 LE NW LE 09)*3+(10 LE NW LE 12)*2+(NW EQ 13)*3+(NW EQ 14)
       *3+(NW EQ 15)*1+(16 LE NW LE 20)*3+(21 LE NW LE 23)*2;
     IF NW =0 THEN NW =.;
         LABEL NW=--R--REASONS FINANCIAL HARD.;
*
*FST   FEELINGS STAYING;
     NFST=FST;
NFST=(NFST EQ 01)*1+(NFST EQ 02)*3+(NFST EQ 03)*1+(NFST EQ 04)
       *2+(NFST EQ 05)*3+(NFST EQ 06)*1+(NFST EQ 07)*2+
     (NFST EQ 08)*1+(NFST EQ 09)*3+(NFST EQ 10)*3+(NFST EQ 11)
       *1+(NFST EQ 12)*3+(NFST EQ 13)*1+(NFST EQ 14)*1+
```

```
  (NFST EQ 15)*2+(NFST EQ 16)*3+(NFST EQ 17)*3+(NFST EQ 18)
          *1+(NFST EQ 19)*2+(NFST EQ 20)*3+(NFST EQ 21)*1+
 (NFST EQ 22)*1+(NFST EQ 23)*2+(NFST EQ 24)*1+(NFST EQ 25)
          *0+(NFST EQ 26)*3+(NFST EQ 27)*3;
     IF NFST =0 THEN NFST=.;
          LABEL NFST=--R--FEELINGS STAYING;
*
*DIFFS   WHY STUDY DIFFICULTY;
*
*COMMA COMMB   COMMENTS;
*
*COMBINATION EDUCATION AND OCCUPATION;
     *  A   OCCPATION;
NF=F;
NF=(NF EQ 1)*1+(NF EQ 2)*1+(NF EQ 3)*1+(NF EQ 4)*1+
     (NF EQ 6)*2+(NF EQ 5)*2+(7 LE NF LE 10)*3;
     NM=M;
     IF NM=11 THEN NM=NF;
NM=(NM EQ 1)*1+(NM EQ 2)*1+(NM EQ 3)*1+(NM EQ 4)*1+
     (NM EQ 6)*2+(NM EQ 5)*2+(7 LE NM LE 10)*3;
     IF NF=1 AND NM=1 THEN CC=1;
     IF NF=1 AND NM=2 THEN CC=2;
     IF NF=2 AND NM=1 THEN CC=2;
     IF NF=2 AND NM=2 THEN CC=3;
     IF NF=1 AND NM=2 THEN CC=4;
     IF NF=2 AND NM=3 THEN CC=4;
     IF NF=3 AND NM=3 THEN CC=5;
     *  B    EDUCATION:
     FED=EDF;
     FED=(1 LE FED LE 3)*1+(FED EQ 4)*2+(5 LE FED LE 6)*3+
          (7 LE FED LE 8)*4;
     MED=EDM;
     MED=(1 LE MED LE 3)*1+(MED EQ 4)*2+(5 LE MED LE 6)*3+
          (7 LE MED LE 8)*4;
     IF MED =1 AND FED =1 THEN ED =1;
     IF MED =1 AND FED =2 THEN ED =2;
     IF MED =1 AND FED =3 THEN ED =3;
     IF MED =1 AND FED =4 THEN ED =3;
     IF MED =2 AND FED =1 THEN ED =2;
     IF MED =2 AND FED =2 THEN ED =2;
     IF MED =2 AND FED =3 THEN ED =3;
     IF MED =2 AND FED =4 THEN ED =3;
     IF MED =3 AND FED =1 THEN ED =3;
     IF MED =3 AND FED =2 THEN ED =3;
     IF MED =3 AND FED =3 THEN ED =3;
     IF MED =3 AND FED =4 THEN ED =4;


     IF MED =4 AND FED =1 THEN ED =3;
     IF MED =4 AND FED =2 THEN ED =3;
     IF MED =4 AND FED =3 THEN ED =4;
     IF MED =4 AND FED =4 THEN ED =4;
*COMBINATION;
     IF ED=4 AND CC=1 THEN STAT=1;
     IF ED=3 AND CC=1 THEN STAT=1;
     IF ED=2 AND CC=1 THEN STAT=2;
     IF ED=1 AND CC=1 THEN STAT=2;
     IF ED=4 AND CC=2 THEN STAT=2;
```

```
    IF ED=3 AND CC=2 THEN STAT=2;
    IF ED=2 AND CC=2 THEN STAT=3;
    IF ED=1 AND CC=2 THEN STAT=3;
    IF ED=4 AND CC=3 THEN STAT=3;
    IF ED=3 AND CC=3 THEN STAT=3;
    IF ED=2 AND CC=3 THEN STAT=4;
    IF ED=1 AND CC=3 THEN STAT=4;
    IF ED=4 AND CC=4 THEN STAT=4;
    IF ED=3 AND CC=4 THEN STAT=4;
    IF ED=2 AND CC=4 THEN STAT=5;
    IF ED=1 AND CC=4 THEN STAT=5;
    IF ED=4 AND CC=5 THEN STAT=5;
    IF ED=3 AND CC=5 THEN STAT=5;
    IF ED=2 AND CC=5 THEN STAT=6;
    IF ED=1 AND CC=5 THEN STAT=6;
    NSTAT=STAT;
    NSTAT=(NSTAT EQ 1)*1+(NSTAT EQ 2)*2+(3 LE NSTAT
          LE 6)*3;
      IF NSTAT=0 THEN NSTAT=.;
         LABEL CC=--C--COMBINATION PARENTS OCC.;
         LABEL ED=--C--PARENTS EDUCATION;
         LABEL STAT=--C--TOTAL STATUS;
         LABEL NSTAT=--R--C--TOTAL STATUS;
    NSTA=NSTAT;
    NSTA=(NSTA EQ 1)*1+(NSTA EQ 2)*1+(3 LE NSTA
          LE 6)*2;
      IF NSTA=0 THEN NSTA=.;
*
*CORRECTION OR ORIGINAL MISSING VALUES 0 TO .;
IF AGE   =0 THEN AGE    =.;
IF SEX   =0 THEN SEX    =.;
IF E     =0 THEN E      =.;
IF EHS   =0 THEN EHS    =.;
IF ES    =0 THEN ES     =.;
IF AFR   =0 THEN AFR    =.;
IF AGG8=0 THEN AGG8 =.;
IF AFRHS =0 THEN AFRHS  =.;
IF AFRS  =0 THEN AFRS   =.;
IF MEX   =0 THEN MEX    =.;
IF MAG =0 THEN MAG   =.;
IF PMAG  =0 THEN PMAG   =.;
IF AGG9 =0 THEN AGG9  =.;
IF MPM   =0 THEN MPM    =.;
IF MPPM=0 THEN MPPM =.;
IF MP9   =0 THEN MP9    =.;
IF MP8   =0 THEN MP8    =.;
IF ME=0 THEN ME    =.;
IF PME   =0 THEN PME    =.;
IF E9    =0 THEN E9     =.;
IF E8    =0 THEN E8     =.;
IF NOSC=0 THEN NOSC =.;
IF TAAT  =0 THEN TAAT   =.;
IF W1    =0 THEN W1     =.;
IF W2    =0 THEN W2     =.;
IF W3  =0 THEN W3    =.;
IF MIC =0 THEN MIC =.;
IF MIC =3 THEN MIC=.;
IF W4    =0 THEN W4     =.;
IF W5  =0 THEN W5    =.;
```

```
IF SW1    =0 THEN SW1    =.;
IF SW2    =0 THEN SW2    =.;
IF SW3    =0 THEN SW3    =.;
IF SW4    =0 THEN SW4    =.;
IF SW5    =0 THEN SW5    =.;
IF LT1 =0 THEN LT1  =.;
IF LT2    =0 THEN LT2    =.;
IF LT3    =0 THEN LT3    =.;
IF LT4    =0 THEN LT4    =.;
IF LT5 =0 THEN LT5  =.;
IF YRM    =0 THEN YRM    =.;
IF INC  =0 THEN INC    =.;
IF DEGE   =0 THEN DEGE   =.;
IF LANG1=0 THEN LANG1=.;
IF LANG2 =0 THEN LANG2  =.;
IF LANG3=0 THEN LANG3=.;
IF NNONAC=0 THEN NNONAC =.;
IF TIME   =0 THEN TIME   =.;
IF MRAT   =0 THEN MRAT   =.;
IF SUB1   =0 THEN SUB1   =.;
IF P1     =0 THEN P1     =.;
IF SUB2   =0 THEN SUB2   =.;
IF P2     =0 THEN P2     =.;
IF SUB3   =0 THEN SUB3   =.;
IF P3     =0 THEN P3     =.;
IF SUB4   =0 THEN SUB4   =.;
IF P4     =0 THEN P4     =.;
IF SUB5   =0 THEN SUB5   =.;
IF P5     =0 THEN P5     =.;
IF FSA =0 THEN FSA  =.;
IF WHYD   =0 THEN WHYD   =.;
IF WHATD=0 THEN WHATD =.;
IF FOCCS =0 THEN FOCCS  =.;
IF EDF =0 THEN EDF  =.;
IF EDM    =0 THEN EDM    =.;
IF OCCF   =0 THEN OCCF   =.;
IF OCCM   =0 THEN OCCM   =.;
IF WHO    =0 THEN WHO    =.;
IF HOW    =0 THEN HOW    =.;
IF FTH    =0 THEN FTH    =.;
IF MTH    =0 THEN MTH    =.;
IF WHYFH=0 THEN WHYFH=.;
IF FST    =0 THEN FST    =.;
IF DIFFS=0 THEN DIFFS =.;
IF COMMA =0 THEN COMMA  =.;
IF COMB=0 THEN COMB =.;
        LABEL PASS=PASS OR FAIL;
*AGGREGATE PERCENTAGE;
ZP1=P1;ZP2=P2;ZP3=P3;ZP4=P4;ZP5=P5;
IF P1=. THEN ZP1=0;
IF P2=. THEN ZP2=0;
IF P3=. THEN ZP3=0;
IF P4=. THEN ZP4=0;
IF P5=. THEN ZP5=0;
AVP=ZP1+ZP2+ZP3+ZP4+ZP5;
NS1=S1;NS2=S2;NS3=S3;NS4=S4;NS5=S5;
NS1=(NS1 EQ 0)*0+(NS1 GT 0)*1;
NS2=(NS2 EQ 0)*0+(NS2 GT 0)*1;
NS3=(NS3 EQ 0)*0+(NS3 GT 0)*1;
```

```
NS4=(NS4 EQ 0)*0+(NS4 GT 0)*1;
NS5=(NS5 EQ 0)*0+(NS5 GT 0)*1;
IF S1=. THEN NS1=0;
IF S2=. THEN NS2=0;
IF S3=. THEN NS3=0;
IF S4=. THEN NS4=0;
IF S5=. THEN NS5=0;
DDIV=NS1+NS2+NS3+NS4+NS5;
NAVP=ROUND(AVP/DDIV);
IF NAVP=0 THEN NAVP=.;
IF NAVP=109 THEN NAVP=.;
IF NAVP=117 THEN NAVP=.;
IF NAVP=139 THEN NAVP=.;
IF NAVP=143 THEN NAVP=.;
     LABEL AVP=TOTOAL PERCENTAGE EXAM;
     LABEL NAVP=AGGREGATE PERCENTAGE EXAM;

* RECONSTRUCTION FOR BMDP;
      BSEX = SEX;
      IF BSEX =0 OR BSEX=. THEN BSEX =2;

 BB=RACE;
 BB=(1 LE BB LE 4)*2+(BB EQ 5)*1;
 IF RACE =. OR RACE=0 THEN BB =2;

      BMEX=MEX;
 BMEX = (01 GE BMEX LE 08)*1+(                    +(BMEX EQ 7)*3
                +(BMEX EQ 0)*
      IF BMEX=0 OR BMEX=9 [illegible]

      BAGG9=AGG9;
   BAGG9=(1 LE BAGG9 LE 3)*1+(                    2+(BAGG9 EQ 5)*2;
      IF BAGG9=9 OR BAGG9=0 THEN [illegible]

      BAGG8=AGG8;
   BAGG8=(1 LE BAGG8 LE 3)*1+(BAGG8 EQ 4)*2+(BAGG8 EQ 5)*2;
      IF BAGG8=9 OR BAGG8=0 THEN BAGG8=2;


    BMPPM=NMPPM;
   BMPPM=(1 LE BMPPM LE 3)*1+(BMPPM EQ 4)*2+(BMPPM EQ 5)*2;
      IF BMPPM=9 OR BMPPM=0 THEN BMPPM=2;

    BMP9=NMP9;
   BMP9=(1 LE BMP9 LE 3)*1+(BMP9 EQ 4)*2+(BMP9 EQ 5)*2;
      IF BMP9=9 OR BMP9=0 THEN BMP9=2;

    BPME=NPME;
   BPME=(1 LE BPME LE 3)*1+(BPME EQ 4)*2+(BPME EQ 5)*2;
      IF BPME=9 OR BPME=0 THEN BPME=2;

    BE9=NE9;
   BE9=(1 LE BE9 LE 3)*1+(BE9 EQ 4)*2+(BE9 EQ 5)*2;
      IF BE9=9 OR BE9=0 THEN BE9=2;

    BTOT=NTOTEXRA;
   BTOT=(BTOT EQ 1)*1+(BTOT GE 2)*2;
    IF BTOT=. OR BTOT=0 THEN BTOT=1;
```

```
                BSA=SA;
          BSA=(BSA EQ 1)*1+(BSA EQ 2)*1+(BSA EQ 3)*2+(BSA EQ 4)*2;
                IF BSA =0 OR BSA=. THEN BSA=1;
          BREP=REP;
          BREP=(BREP EQ 1)*1+(BREP EQ 2)*2+(BREP EQ 3)*2;
                IF BREP=0 OR BREP=. THEN BREP=1;

BYRM=NYRM;
       BYRM=(BYRM EQ 1)*1+(BYRM EQ 2)*1+(BYRM EQ 3)*2;
       IF BYRM=0 OR BYRM=. THEN BYRM=1;
                BSH=SH;
                BSH=(BSH EQ 1)*1+(BSH EQ 2)*1+(BSH EQ 3)*;+(BSH EQ 4)*2+
                    (BSH EQ 5)*2;
                IF BSH =0 OR BSH=. THEN BSH =1;

                BINC=INC;
                BINC=(BINC EQ 1)*1+(BINC EQ 2)*1+(3 LE BINC LE 10)*2+
                     (11 LE BINC LE 13)*1;
                IF BINC=0 OR BINC=. THEN BINC=1;

                BDIV=DIV;
                IF DIV=0 OR DIV=. THEN BDIV=1;

                BDEC=DEC;
                BDEC=(BDEC EQ 1)*1+(2 LE BDEC LE 4)*2;
                IF DEC=0 OR DEC=. THEN BDEC=1;

                BHARD=HARD;
                IF BHARD=0 OR BHARD=. THEN BHARD=1;

                BLANG=NLANG1;
                IF NLANG1=0 OR NLANG1=.THEN BLANG =2;

                BNOR=NNOR;
                IF BNOR=0 OR BNOR=. THEN BNOR=1;

                BEDF=EDF;
                BEDF=(1 LE BEDF LE 3)*1+(BEDF EQ 4)*1+(BEDF EQ 5)*1+
                     (6 LE EEDF LE 8)*2;
                IF BEDF=0 OR BEDF=. THEN BEDF=2;

                BEDM=EDM;
                BEDM=(1 LE BEDM LE 3)*1+(BEDM EQ 4)*1+(BEDM EQ 5)*1+
                     (6 LE BEDM LE 8)*2;
                IF BE   0 OR BEDM=. THEN BEDM=2;

              *PASS=PASS;

              BMRT=NMRT;
              IF NMRT =. OR NMRT = 0 THEN BMRT=2;


* MAKE A DATA SET OUT;

        *ID ALL 1 S IN COL 1;
IF ID1=0 THEN ID1=1;
```

```
        * SEX;
MSEX=SEX;
MSEX=(MSEX EQ 1)*2+(MSEX EQ 2)*1;
IF MSEX=0 THEN MSEX=.;

        *RACE;
MRACE=RACE;
IF MRACE=0 THEN MRACE=.;

        *DEGREE REGISTERED FOR;
MDEG=DEG1;
MDEG=(MDEG EQ 1)*1+(MDEG EQ 2)*2+(MDEG EQ 3)*4+(MDEG EQ 4)*6+
     (MDEG EQ 5)*7+(MDEG EQ 6)*1+(MDEG EQ 7)*3+(MDEG EQ 8)*5+
     (MDEG EQ 9)*4;
IF MDEG=0 THEN MDEG=.;

        *NUMBER OF SUBJECTS PASSED;
MSPASS=CPASS;

        *NUMBER OF SUBJECTS FAILED;

 MP1=P1;MP2=P2;MP3=P3;MP4=P4;MP5=P5;
 MP1=(00 GE MP1 LE 49)*1+(MP1 GE 50)*0;
 MMP1=MP1;
 IF P1=. THEN MP1=.;
 MP2=(00 GE MP2 LE 49)*1+(MP2 GE 50)*0;
 MMP2=MP2;
 IF P2=0 THEN MP2=.;
 MP3=(00 GE MP3 LE 49)*1+(MP3 GE 50)*0;
  MP3=MP3;
 IF P3=. THEN MP3=.;
 MP4=(00 GE MP4 LE 49)*1+(MP4 GE 50)*0;
 MMP4=MP4;
 IF P4=. THEN MP4=.;
 MP5=(00 GE MP5 LE 49)*1+(MP5 GE 50)*0;
 MMP5=MP5;
 IF P5=. THEN MP5=.;

*MSFAIL=NMISS(MP1,MP2,MP3,MP4,MP5);
 MSSFAIL=MP1+MP2+MP3+MP4+MP5;
        *MATRIC NSC VS OTHER AND MISSING;

MNSC=MEX;
MNSC = (01 GE MNSC LE 04)*2+(MNSC EQ 8)*2+(MNSC EQ 7)*2
       +(MNSC EQ 6)*1+(MNSC EQ 5)*2;
                IF MNSC=00 OR MNSC=09 THEN MNSC =.;

        *MATRIC ALL CODES;

MMEX=MEX;
MMEX=(MMEX EQ 1)*1+(MMEX EQ 2)*2+(MMEX EQ 3)*4+(MMEX EQ 4)*6+
     (MMEX EQ 5)*7+(MMEX EQ 6)*1+(MMEX EQ 7)*3+(MMEX EQ 8)*5+
     (MMEX EQ 9)*4;

        *AGGRGATE MATRIC SYMBOL ONE MISSING COL. VAR MEANINGLESS;

MMAG=NMAG;

        *SYMBOL FOR ENGLISH;
```

```
MES=ES;

      *LEVEL FOR ENGLISH;

MNE=NE;

      *MATHEMATICS SYMBOL AND LEVEL;

IF MS1=22 OR MS1=23 THEN DONG=MC1;
IF MS2=22 OR MS2=23 THEN DONG=MC2;
IF MS3=22 OR MS3=23 THEN DONG=MC3;
IF MS4=22 OR MS4=23 THEN DONG=MC4;
IF MS5=22 OR MS5=23 THEN DONG=MC5;

      *SYMBOL;
IF DONG=01 OR DONG=08 OR DONG=16 THEN MMS=1;
IF DONG=02 OR DONG=09 OR DONG=17 THEN MMS=2;
IF DONG=03 OR DONG=10 OR DONG=18 THEN MMS=3;
IF DONG=04 OR DONG=11 OR DONG=19 THEN MMS=4;
IF DONG=05 OR DONG=12 OR DONG=20 THEN MMS=5;
IF DONG=06 OR DONG=13 OR DONG=21 THEN MMS=6;
IF DONG=14 OR DONG=22 THEN MMS=7;
IF DONG=15 OR DONG=23 THEN MMS=8;
IF DONG=0 OR DONG=98 OR DONG=99 THEN MMS=.;

      *LEVEL;
MML=DONG;
MML=(01 LE DONG LE 07)*1+(08 LE DONG LE 13)*2+
    (14 LE DONG LE 23)*3;
IF MML=0 OR MML=98 OR MML=99 THEN MML=.;

      *MATRIC RATING;

MMRAT=MRAT;
MMMT=MRAT;
            MMMT=(0 LE MMMT LE 23)*1+(24 LE MMMT LE 27)*2+
                 (28 LE MMMT LE 31)*3+(32 LE MMMT LE 35)*4+
                 (36 LE MMMT LE 40)*5+(41 L  MMMT LE 47)*6+
                 (MMMT GE 48)*7;
LABEL MMMT=PAPER MKT;
*ILE PRINT NOTITLES;
*           PUT ID1 1 ID2 2-4 MSEX 5 MRACE 6 MDEG 7 MSPASS 9 MSFAIL 10
*           MNSC 11 MMEX 12 MMAG 13 MES 14 MNE 15 MMS 17 MML 18
*           MMRAT 19-20;
PROC FREQ;
TABLES (AGE--SW2)*NMRT/CHISQ;
TABLES (SW3--NOR)*NMRT/CHISQ;
TABLES (SUB1--COMB)*NMRT/CHISQ;
TABLES (MSEX--MMMT)*NMRT/CHISQ;
*ABLES MSEX*DEGC/CHISQ;
*ABLES HARD*APP/CHISQ;
*ABLES MIC*PASS/CHISQ;
*ABLES (MMAG MPMAG MAGG9 MAGG8)*(NMAG MPMAG MAGG9 MAGG8)/CHISQ;
```

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