/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

THIS CODE BUILDS THE STEPWISE , FORWARD & BACKWARD MODELS ON BOTH LINEAR AND LOGISTIC METHODOLOGIES FOR DIFFERENT RAW & TRANSFORMED VARIABLES POST APPLYING

THE RELEVANT FILTERS OF VIF VALUES , P VALUES AND SIGN CHECKS

The code also summarizes the results in terms of fits , summary , coefficient and variable contribution.

Developped By : Kinsuk Ghatak

Last Updated on : 13-05-2020

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data MFA\_Qual;

set MFA\_Qual;

where IND\_RSK\_FLG ne 'BLANK';

run;

%let separator= %str( );

%let dummy\_list= %str();

%macro create\_dummy(variable\_list);

%do n=1 %to %sysfunc(countw(&variable\_list.));

%let variable\_raw=%scan(&variable\_list.,&n.);

proc sql;

select distinct &variable\_raw. into:var\_raw\_dist separated by ' ' from MFA\_qual;

quit;

%do p=1 %to %sysfunc(countw(&var\_raw\_dist))-1;

%let prefix=%scan(&var\_raw\_dist,&p.);

data MFA\_qual;

set MFA\_qual;

if &variable\_raw.= &prefix. then &variable\_raw.\_&prefix.=1;

else &variable\_raw.\_&prefix.=0 ;

run;

%let dummy\_list = &dummy\_list.&separator.&variable\_raw.\_&prefix.;

%put &dummy\_list.;

%end;

%end;

%mend;

options symbolgen mprint mlogic;

%create\_dummy(IND\_RSK\_FLG);

%let Ind\_vars=

IND\_RSK\_FLG\_0

IND\_RSK\_FLG\_1

;

%let vars\_raw =

AVAIL135

BARRI026

BUSIN452

CAPIT050

COMPE618

ENVIR960

FISCA988

INDUS038

INDUS404

INDUS712

INDUS844

INFLA869

LABOU080

PRODU265

REGUL789

TECHN323

GENER\_Combo

ACCES\_Combo

REFIN\_Combo

;

%let vars\_woe =

AVAIL135\_woe

BARRI026\_woe

BUSIN452\_woe

CAPIT050\_woe

COMPE618\_woe

ENVIR960\_woe

FISCA988\_woe

INDUS038\_woe

INDUS404\_woe

INDUS712\_woe

INDUS844\_woe

INFLA869\_woe

LABOU080\_woe

PRODU265\_woe

REGUL789\_woe

TECHN323\_woe

GENER\_Combo\_woe

ACCES\_Combo\_woe

REFIN\_Combo\_woe

;

data var\_list\_sign;

length Effect $100.;

input Effect$ Exp\_Sign;

datalines;

AVAIL135 1

BARRI026 -1

BUSIN452 -1

CAPIT050 1

COMPE618 1

ENVIR960 -1

FISCA988 -1

INDUS038 1

INDUS404 -1

INDUS712 -1

INDUS844 1

INFLA869 1

LABOU080 1

PRODU265 -1

REGUL789 1

TECHN323 -1

GENER\_Combo -1

REFIN\_Combo 1

ACCES\_Combo -1

;

proc print data=var\_list\_sign;

title2'Expected\_Signs';

run;

%let separator= %str( );

%let dummy\_list= %str();

%macro create\_dummy2(variable\_list);

%do n=1 %to %sysfunc(countw(&variable\_list.));

%let variable\_raw=%scan(&variable\_list.,&n.);

proc sql;

select distinct &variable\_raw. into:var\_raw\_dist separated by ' ' from MFA\_qual;

quit;

%do p=1 %to %sysfunc(countw(&var\_raw\_dist));

%let prefix=%scan(&var\_raw\_dist,&p.);

data MFA\_qual;

set MFA\_qual;

if &variable\_raw.= &prefix. then &variable\_raw.\_&prefix.=1;

else &variable\_raw.\_&prefix.=0 ;

run;

%let dummy\_list = &dummy\_list.&separator.&variable\_raw.\_&prefix.;

%put &dummy\_list.;

%end;

%end;

%mend;

options symbolgen mprint mlogic;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

CODE AND MACRO TO CALCULATE ACCURACY RATIO FOR EACH QUALITATIVE FACTORS AT EACH LEVEL IN STEPWISE

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

data AR\_all;

Length variable $50.;

set \_null\_;

run;

data AIC\_Logistic\_all;

Length variable $50.;

set \_null\_;

run;

%let temp= %str();

%let separator= %str( );

%let temp\_raw= %str();

%let total\_qual\_list= %str();

options symbolgen mlogic mprint;

%macro AR\_stepwise(VARS,SLENTRY,SLSTAY,SELECTION,stop\_criterion);

data AR\_all;

Length variable $50.;

set \_null\_;

run;

data AIC\_Logistic\_all;

Length variable $50.;

set \_null\_;

run;

%let temp= %str();

%let separator= %str( );

%let temp\_raw= %str();

%let var\_AR= %str();

%let temp\_vars=%str();

%let dummy\_list= %str();

%let temp\_ind = %str();

%let temp\_logistic = %str();

%let p\_val\_thres=0.05;

%let vif\_thres =4;

%let var\_flag =%str();

%let final\_vars\_set\_filtd=%str();

ods output SelectionSummary=Stepwise\_Summary;

ods output ParameterEstimates=Coefficients\_final;

ods output FitStatistics=Fit\_Model;

PROC GLMSELECT data=MFA\_Qual;

class &vars\_raw. /order=data;

model log\_pd=&vars. &Ind\_vars.

/selection = &SELECTION. select=SL SLE=&SLENTRY. SLS=&SLSTAY. choose=&stop\_criterion. showpvalues orderselect stats=all STB;

output out=qual\_PD\_PROP predicted=p residual=res;

quit;

ODS TRACE OFF;

data Stepwise\_Summary;

set Stepwise\_Summary;

rename EffectRemoved=Eff\_Ent\_Rem;

rename EffectEntered=Eff\_Ent\_Rem;

run;

data qual\_pd\_est;

set qual\_pd\_prop (keep= PD Log\_PD Log\_odds Intodef P);

est\_pd = exp(P);

if P NE ' ' then

output;

run;

ods trace on;

ods output association=Somers\_AR;

proc logistic data=qual\_pd\_est;

model intodef(event='1')=est\_pd/STB;

run;

ods trace off;

proc sql;

create table somers\_final\_linear as select Label2 as SomerD, nValue2 as AR\_Value\_Linear

from somers\_AR where Label2 like '%Somers%';

quit;

proc sql;

select AR\_Value\_Linear into :AR\_Linear\_Model from somers\_final\_linear;

quit;

proc sql;

select distinct Effect into : var\_AR separated by ' ' from Coefficients\_Final where Effect ne 'Intercept';

quit;

data coefficients\_final1;

set coefficients\_final;

where Estimate ne 0 & Effect ne 'Intercept' & Effect ne 'IND\_RSK\_FLG\_0' & Effect ne 'IND\_RSK\_FLG\_1';

run;

data coefficients\_final2;

set coefficients\_final1;

Var=scan(Parameter,1);

level=scan(Parameter,2);

actual\_sign=sign(Estimate);

Var\_Level=catx('\_',Var,level);

run;

data coefficients\_final3;

set coefficients\_final;

Var=scan(Parameter,1);

level=scan(Parameter,2);

actual\_sign=sign(Estimate);

Var\_Level=catx('\_',Var,level);

run;

proc sql;

select distinct Var\_Level into:Var\_Level\_Raw separated by ' ' from coefficients\_final2;

quit;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*changes and addtiions stsart \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

%do p=1 %to %sysfunc(countw(&var\_AR.));

%let var=%scan(&var\_AR.,&p.);

%let find\_woe=%index(&var.,woe);

%let find\_ind=%index(&var.,IND\_RSK);

%if %eval(&find\_woe.)= 0 & %eval(&find\_ind.)= 0 %then

%do;

%let temp\_raw=&temp\_raw.&separator.&var.;

%end;

%if %eval(&find\_ind.) ne 0 %then

%do;

%let temp\_ind=&temp\_ind.&separator.&var.;

%end;

%end;

%if &temp\_raw. ne " " %then

%do;

%create\_dummy2(&temp\_raw.);

%let temp\_vars=&Var\_Level\_Raw.&separator.&temp\_ind.;

%end;

%else

%do;

%let temp\_vars=&var\_AR.;

%end;

ods output ParameterEstimates=Coefficients\_VIF;

proc reg data=MFA\_Qual;

model log\_pd=&temp\_vars./VIF;

run;

data VIF\_data;

set Coefficients\_VIF (keep= Variable VarianceInflation);

run;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Changes ending here \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

%do j=1 %to %sysfunc(countw(&var\_AR.));

%let variable=%scan(&var\_AR.,&j.);

%let temp\_logistic=&temp\_logistic.&separator.&variable.;

%let find\_woe\_logistic=%index(&variable.,woe);

%if %eval(&find\_woe\_logistic.)= 0 %then

%do;

%let temp\_raw=&temp\_raw.&separator.&variable.;

%end;

%end;

ods output association=somers;

ods output FitStatistics=AIC\_Table\_Logistic;

proc logistic data = MFA\_Qual;

CLASS &temp\_raw./PARAM = REF;

model INTODEF(event='1') = &temp\_logistic.;

run;

ods trace off;

proc sql;

select nValue2 into : AR\_Value

from somers where Label2 like '%Somers%';

quit;

proc sql;

select InterceptAndCovariates into : AIC\_Logistic\_Value

from AIC\_Table\_Logistic where Criterion like '%AIC%';

quit;

data Final\_AR\_Combined (keep= Step Eff\_Ent\_Rem RSquare AdjRSq AIC\_Main\_Model AIC\_Logistic\_Value AICC BIC PRESS FValue ProbF AR\_Logistic\_Val AR\_Linear\_Model);

rename AIC=AIC\_Main\_Model;

AR\_Linear\_Model = &AR\_Linear\_Model.;

AR\_Logistic\_Val= &AR\_Value.;

AIC\_Logistic\_Value= &AIC\_Logistic\_Value.;

set Stepwise\_Summary;

run;

data Coefficients\_final(keep=Effect Parameter Estimate StandardizedEst tValue Probt);

set Coefficients\_final;

run;

/\*\* Addiktiopn\*\*\*/

proc sql;

create table coefficient\_final4 as select a.\*,b.VarianceInflation as VIF from coefficients\_final3 a left join VIF\_data b

on a.Var\_Level=b.Variable;

quit;

proc sql;

create table coefficient\_final5 as select a.\*,b.Exp\_Sign from coefficient\_final4 a left join var\_list\_sign b

on a.Effect=b.Effect;

quit;

data coefficient\_final6(keep=Effect Parameter Var\_Level Estimate StandardizedEst abs\_st\_estimate StdErr tValue Probt actual\_sign Exp\_sign Sign\_Match VIF p\_thres vif\_thres);

set coefficient\_final5;

if Exp\_sign=actual\_sign then

Sign\_Match=1;

else Sign\_Match=0;

p\_thres=&p\_val\_thres.;

vif\_thres= &vif\_thres.;

abs\_st\_estimate=abs(StandardizedEst);

run;

proc sql;

create table coefficient\_final7 as select distinct Effect,Parameter,Var\_Level,Estimate,StandardizedEst,abs\_st\_estimate, Probt as pvalue ,

(abs\_st\_estimate/sum(abs\_st\_estimate)) as Percent\_Contribution,StdErr,VIF,actual\_sign,Exp\_sign,Sign\_Match,p\_thres,vif\_thres

from coefficient\_final6 where Effect NE "Intercept";

quit;

proc sql;

create table coefficient\_final8 as select distinct Effect as Effect,Var\_Level,Parameter,Estimate,StandardizedEst, pvalue, Percent\_Contribution,

sum(Percent\_Contribution) as Var\_total\_contri,StdErr,VIF,actual\_sign,Exp\_sign,Sign\_Match,p\_thres,vif\_thres

from coefficient\_final7 group by Effect;

proc sql;

select max(VIF) as max\_VIF into : max\_VIF from coefficient\_final6;

quit;

proc sql;

select max(Probt) as max\_p\_value into : max\_p\_value from coefficient\_final6;

quit;

proc sql;

select sum(case when Sign\_Match=1 then 1 else 0 end)/count(\*) into: Percnt\_Sign\_Match from coefficient\_final6;

quit;

data Final\_AR\_Combined;

set Final\_AR\_Combined;

max\_VIF=&max\_VIF.;

max\_p\_value= &max\_p\_value.;

Percnt\_Sign\_Match=&Percnt\_Sign\_Match.;

run;

/\*\*\*\*\*\*\*Check of the models begin \*\*\*\*\*\*\*\*/

%let vars\_nxt1= %str( );

%let vars\_nxt2= %str( );

%let final\_filtd\_vars =%str( );

%do %while(%sysevalf(&max\_p\_value.>= &p\_val\_thres.) and (&max\_VIF.>=&vif\_thres.));

proc sql;

select distinct quote(trim(Var\_Level),"'") into: vars\_nxt1 separated by ','

from coefficient\_final8

where pvalue <=&p\_val\_thres. & vif <= &vif\_thres.;

quit;

proc sql;

select distinct Var\_Level into: vars\_nxt11 separated by ' '

from coefficient\_final8

where pvalue <=&p\_val\_thres. & vif <= &vif\_thres.;

proc sql;

create table coefficient\_final9 as select Var\_Level,Percent\_Contribution,Sign\_Match from coefficient\_final8

where Var\_Level in (&vars\_nxt1.);

quit;

data coefficient\_final10;

set coefficient\_final9;

where Sign\_Match=1;

run;

%let sign\_match\_find\_woe = %index(&vars\_nxt11.,woe);

%if %eval(&sign\_match\_find\_woe.=0) %then %do;

data coefficient\_final11;

set coefficient\_final9;

where Sign\_Match=0;

run;

%end;

proc sql; select distinct Var\_Level into: vars\_1 separated by ' ' from coefficient\_final10 ;quit;

proc sql; select count(\*) into : count\_row\_coef\_final11\_2 from coefficient\_final11;quit;

%if %sysevalf(&count\_row\_coef\_final11\_2.>1) %then %do ;

proc sql;

select distinct Var\_Level into: vars\_2 separated by ' '

from coefficient\_final11

having Percent\_Contribution ne min(Percent\_Contribution);

quit;

%let vars\_nxt2 = &vars\_1. &vars\_2.;

%end;

%else %do;

%let vars\_nxt2 = &vars\_1.;

%end;

ods output ParameterEstimates=Coefficients\_reg;

ods output FitStatistics=Fitstatistics;

proc reg data=MFA\_Qual outest=Reg\_out;

model log\_pd=&vars\_nxt2./VIF STB AIC;

/\* output out=qual\_PD\_PROP2 predicted=p residual=res;\*/

run;

proc sql;

select max(Probt) into :max\_p\_value from Coefficients\_reg;

quit;

proc sql;

select max(VarianceInflation) into :max\_VIF from Coefficients\_reg;

quit;

data Coefficients\_reg;

set Coefficients\_reg;

rename Variable=Var\_Level;

max\_p= &max\_p\_value.;

max\_vif= &max\_VIF.;

actual\_sign=sign(Estimate);

abs\_st\_estimate=ABS(StandardizedEst);

run;

proc sql;

create table Coefficients\_reg1 as select a.\*,b.Exp\_Sign from Coefficients\_reg a left join var\_list\_sign b

on a.Var\_Level=b.Effect;

quit;

data Coefficients\_reg2;

set Coefficients\_reg1;

if Exp\_sign=actual\_sign then

Sign\_Match=1;

else Sign\_Match=0;

run;

proc sql;

create table coefficient\_final8 as select distinct Var\_Level,Estimate,StandardizedEst,abs\_st\_estimate, Probt as pvalue ,

(abs\_st\_estimate/sum(abs\_st\_estimate)) as Percent\_Contribution,VarianceInflation as VIF,actual\_sign,Exp\_sign,Sign\_Match

from Coefficients\_reg2 where Var\_Level NE "Intercept";

quit;

%end;

proc sql; select distinct Var\_Level into : final\_vars separated by ' ' from coefficient\_final8; quit;

%let find\_woe\_final=%index(&final\_vars.,woe);

%put &find\_woe\_final.;

%if %eval(&find\_woe\_final.) ne 0 %then

%do;

proc sql;

select distinct Var\_Level into : final\_filtd\_vars separated by ' ' from coefficient\_final8 where Sign\_Match=1 ;

quit;

%let var\_flag=woe;

%end;

%else %do;

proc sql;

select distinct Var\_Level into : final\_filtd\_vars separated by ' ' from coefficient\_final8;

quit;

%let var\_flag=raw;

%end;

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Changes ending here \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

ods output ParameterEstimates=Coefficients\_reg\_final\_chcek;

proc reg data=MFA\_Qual outest=Reg\_out;

model log\_pd=&final\_filtd\_vars./VIF STB AIC;

output out=qual\_PD\_PROP2 predicted=p residual=res;

run;

proc sql;

select distinct Variable into :final\_vars\_set separated by ' ' from Coefficients\_reg\_final\_chcek

where Probt <=&p\_val\_thres. and VarianceInflation<= &vif\_thres. and Variable ne 'Intercept';

quit;

data Coefficients\_reg\_final\_chcek;

set Coefficients\_reg\_final\_chcek;

actual\_sign=sign(estimate);

run;

proc sql ; create table Coefficients\_reg\_final\_chcek as select a.\* ,b.Exp\_Sign from Coefficients\_reg\_final\_chcek a left join var\_list\_sign b

on a.Variable=b.Effect;

quit;

data Coefficients\_reg\_final\_chcek;

set Coefficients\_reg\_final\_chcek;

if Exp\_sign=actual\_sign then

Sign\_Match=1;

else Sign\_Match=0;

run;

%let find\_woe\_sign\_check\_final=%index(&final\_vars\_set.,woe);

%if %sysevalf(&find\_woe\_sign\_check\_final. ne 0) %then %do;

proc sql;

select distinct Variable into :final\_vars\_set\_filtd separated by ' ' from Coefficients\_reg\_final\_chcek

where Probt <=&p\_val\_thres. and VarianceInflation<= &vif\_thres. and sign\_match=1 and Variable ne 'Intercept' ;

quit;

%end;

%else %do;

%let final\_vars\_set\_filtd=&final\_vars\_set.;

%end;

ods output ParameterEstimates=Coefficients\_reg\_final;

ods output FitStatistics=Fitstatistics\_final;

proc reg data=MFA\_Qual outest=Reg\_out;

model log\_pd=&final\_vars\_set\_filtd./VIF STB AIC;

output out=qual\_PD\_PROP2 predicted=p residual=res;

run;

proc sql; select nvalue2 into :final\_adjRSq from Fitstatistics\_final where Label2 like'%Adj R-Sq%';quit;

proc sql; select \_AIC\_ into :final\_AIC from reg\_out ;quit;

%let method\_final=%substr(&SELECTION.,1,4);

%let model\_id\_small=&method\_final.\_&stop\_criterion.\_&var\_flag.\_small;

data qual\_pd\_est2;

Rename P = Predicted\_LogPD;

set qual\_pd\_prop2 (keep= CARM\_INSTANCE RELN\_ID CUST\_ID APPROVAL\_DATE REP\_DATE INTODEF YR AUDITMETHOD Country\_Use CTRY\_RSK\_FLG IND\_RSK\_FLG PD Log\_PD Log\_odds Intodef P);

est\_pd2 = exp(P);

if P NE ' ' then

output;

run;

ods trace on;

ods output association=Somers\_AR2;

proc logistic data=qual\_pd\_est2;

model intodef(event='1')=est\_pd2/STB;

run;

ods trace off;

proc sql;

create table somers\_final\_linear2 as select Label2 as SomerD, nValue2 as AR\_Value\_Linear2

from somers\_AR2 where Label2 like '%Somers%';

quit;

proc sql;

select AR\_Value\_Linear2 into :AR\_Linear\_Model2 from somers\_final\_linear2;

quit;

data Coefficients\_reg\_final11;

length model\_id\_small $300.;

set Coefficients\_reg\_final;

rename Variable=Var\_Level;

Final\_adj\_R\_Sq= &final\_adjRSq.;

Final\_AIC = &final\_AIC.;

AR\_Linear\_Final=&AR\_Linear\_Model2.;

abs\_st\_estimate=abs(StandardizedEst);

model\_id\_small="&model\_id\_small.";

run;

data Coefficients\_reg\_final1;

set Coefficients\_reg\_final11;

Effect=scan(Var\_Level,1,"\_");

run;

proc sql;

create table Coefficients\_reg\_final2 as select distinct Effect,Var\_Level,Estimate,StandardizedEst,abs\_st\_estimate,StdErr,Probt as pvalue ,

(abs\_st\_estimate/sum(abs\_st\_estimate)) as Percent\_Contribution,VarianceInflation as VIF,Final\_adj\_R\_Sq,Final\_AIC,AR\_Linear\_Final,model\_id\_small

from Coefficients\_reg\_final1;

quit;

proc sql;

create table Coefficients\_reg\_final3 as select distinct Effect as Effect,Var\_Level,Estimate,StandardizedEst,abs\_st\_estimate, pvalue, Percent\_Contribution,

StdErr,VIF,Final\_adj\_R\_Sq,Final\_AIC,AR\_Linear\_Final,model\_id\_small, sum(Percent\_Contribution) as Var\_total\_contri

from Coefficients\_reg\_final2 group by Effect;

quit;

data Coefficients\_reg\_final3;

set Coefficients\_reg\_final3;

Actual\_Sign=sign(Estimate);

run;

proc sql;

create table Coefficients\_reg\_final4 as select a.\* , b.Exp\_Sign from Coefficients\_reg\_final3 a left join var\_list\_sign b

on a.Var\_Level=b.Effect;

quit;

data Coefficients\_reg\_final5;

set Coefficients\_reg\_final4;

if Exp\_sign=actual\_sign then

Sign\_Match=1;

else Sign\_Match=0;

run;

%mend;

options mlogic symbolgen mprint;

/\*\*/

/\*%AR\_stepwise(&vars\_raw.,0.05,0.05,stepwise,adjrsq);\*/

%let separator= %str(\_);

%let stop\_criterion=

ADJRSQ

AIC

;

%let methods=

STEPWISE

FORWARD

BACKWARD

;

%let final\_var\_list =

vars\_raw

vars\_woe

vars\_cwoe

;

%macro linear\_models\_final\_summary\_loop();

data summary\_all\_models\_final;

set \_null\_;

run;

data coef\_summary\_all\_final;

length Var\_Level $300.;

set \_NULL\_;

run;

data predicted\_val\_summary;

set \_NULL\_;

run;

%do a=1 %to %sysfunc(countw(&final\_var\_list.));

%let vars=%scan(&final\_var\_list.,&a.);

%let temp= %str();

%let separator= %str( );

%let temp\_raw= %str();

%let var\_AR= %str();

%let total\_qual\_list= %str();

%do k=1 %to %sysfunc(countw(&methods.));

%let method=%scan(&methods.,&k.);

%let method\_short=%substr(&method.,1,4);

%do s=1 %to %sysfunc(countw(&stop\_criterion.));

%let stop\_crit=%scan(&stop\_criterion.,&s.);

%do l=5 %to 5 %by 5;

%let SLENTRY= %sysevalf(&l./100);

%do m=5 %to 5 %by 5;

%let SLSTAY= %sysevalf(&m./100);

%let model\_id=&method\_short.\_&vars.\_&stop\_crit.;

%AR\_stepwise(&&&vars..,&SLENTRY.,&SLSTAY.,&method.,&stop\_crit.);

data coef\_&model\_id.;

length Var\_Level $300.;

set Coefficients\_reg\_final5;

model\_id\_main= "&model\_id.";

run;

data predicted\_&model\_id.;

set qual\_pd\_est2;

model\_id\_main= "&model\_id.";

run;

proc sql;

create table model\_sum\_&model\_id.

as select distinct model\_id\_small as model\_id\_small,

count(\*)-1 as No\_Of\_Vars,

max(Final\_adj\_R\_sq) as Adj\_R\_Sq,

max(Final\_AIC) as AIC,

max(AR\_Linear\_Final) as AR\_Linear\_Model,

max(VIF) as VIF\_Max,

max(pvalue) as pvalue\_Max from coef\_&model\_id.;

quit;

data model\_sum\_&model\_id.;

set model\_sum\_&model\_id.;

model\_id\_large="&model\_id.";

run;

data coef\_summary\_all\_final;

set coef\_summary\_all\_final coef\_&model\_id.;

run;

data summary\_all\_models\_final;

set summary\_all\_models\_final model\_sum\_&model\_id.;

run;

data predicted\_val\_summary;

set predicted\_val\_summary predicted\_&model\_id.;

run;

%end;

%end;

%end;

%end;

%end;

%mend;

%linear\_models\_final\_summary\_loop();

data EM\_LIB.EM\_Linear\_Qual\_op\_WithoutIND\_FLG;

set predicted\_val\_summary;

run;