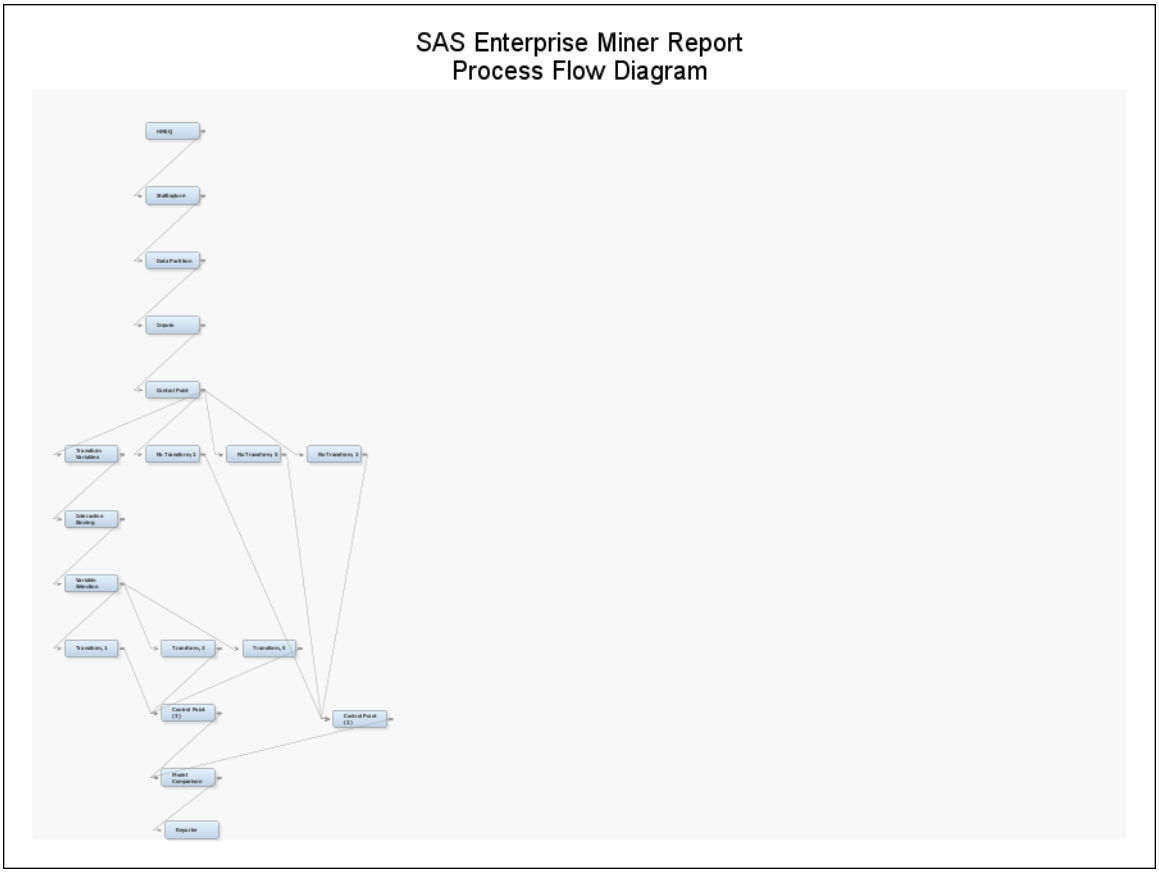
SAS Enterprise Miner Report

User = jmmorr01
Date = 21:48:22 November 07
Project = CIS 445 Project 3
Diagram = Project 3

Start Node = Report
Node label = Reporter
Nodes = PATH
Showall = N

Format = PDF
Style = LISTING



SAS Enterprise Miner Report

Node=HMEQ
Summary

Node id = Ids
Node label = HMEQ
Meta path = Ids
Notes =

Node=HMEQ
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	DataSource		DsCreatedBy	jmmorr01		NBytes	656384	.
ApplyIntervalLevelLowerLimit	Y		DsId	hmeq		NCols	13	.
ApplyMaxClassLevels	Y		DsModifiedBy	jmmorr01		NObs	5960	.
ApplyMaxPercentMissing	Y		DsModifyDate	1857243985.2		NewTable		
CMeta	WORK.M3RJ2XW_		DsSampleName			NewVariableRole	REJECT	
ComputeStatistics	N		DsSampleSize			OutputType	VIEW	
DBPassThrough	Y		DsSampleSizeType			Role	TRAIN	
Data	SAMPSIO.HMEQ		DsScope	LOCAL		Sample	D	
DataSelection	DATASOURCE		IdentifyEmptyColumns	Y		SampleSizeObs	10000	
DataSource	hmeq		IntervalLowerLimit	20		SampleSizePercent	20	
DataSourceRole	TRAIN		Library	SAMPSIO		SampleSizeType	PERCENT	
Description			MaxClassLevels	20		Scope	LOCAL	
DropMapVariables	Y		MaxPercentMissing	50		Segment		
DsCreateDate	1857243985		MetaAdvisor	BASIC		Table	HMEQ	

Node=HMEQ
Data Attributes

Attribute	Value	Attribute	Value	Attribute	Value
Data Name	HMEQ	Date Created	25Jun2015:01:26:45	Data Size	656384
Data Type	DATA	Date Modified	25Jun2015:01:26:45	Role	TRAIN
Data Label		Number Rows	5960	Segment	
Engine	V9	Number Columns	13	Data Library	SAMPSIO

Node=HMEQ
Variables List

Name	Label	Role	Level	Type	Length	Format	Creator
BAD		TARGET	BINARY	N	8		
CLAGE		INPUT	INTERVAL	N	8		
CLNO		INPUT	INTERVAL	N	8		
DEBTINC		INPUT	INTERVAL	N	8		
DELINQ		INPUT	INTERVAL	N	8		
DEROG		INPUT	INTERVAL	N	8		
JOB		INPUT	NOMINAL	C	7		
LOAN		INPUT	INTERVAL	N	8		
MORTDUE		INPUT	INTERVAL	N	8		
NINQ		INPUT	INTERVAL	N	8		
REASON		INPUT	NOMINAL	C	7		

Name	Label	Role	Level	Type	Length	Format	Creator
VALUE		INPUT	INTERVAL	N	8		
YOJ		INPUT	INTERVAL	N	8		

SAS Enterprise Miner Report

Node=StatExplore
Summary

Node id = Stat
Node label = StatExplore
Meta path = Ids => Stat
Notes =

Node=StatExplore
Properties

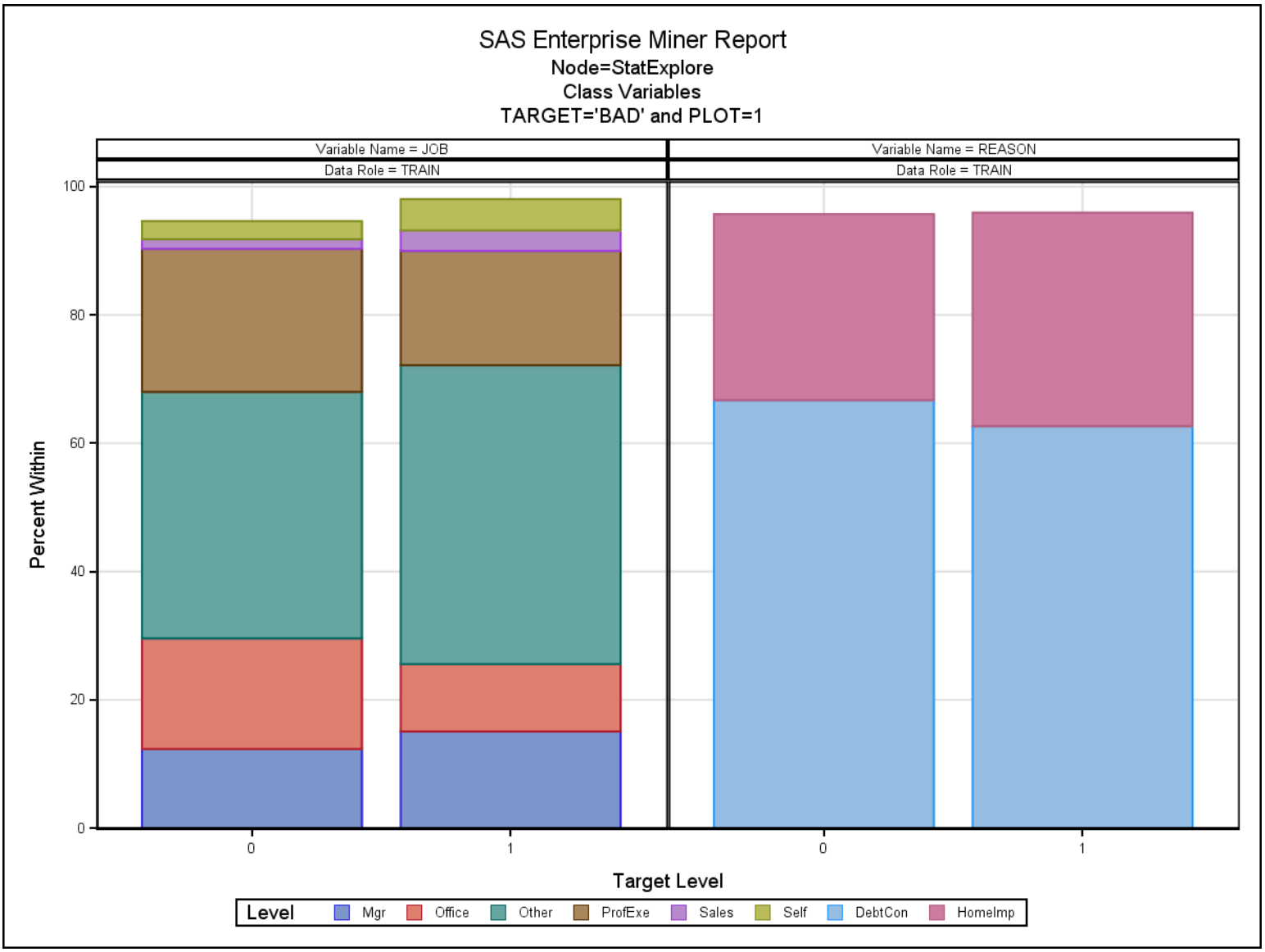
Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	StatExplore		Correlation	Y		NObs	100000	1000000
BySegment	N	Y	DropRejected	Y		Pearson	Y	
ChiSquare	Y		HideVariable	Y		Spearman	N	
ChiSquareInterval	N		IntervalDistribution	Y		UseScore	N	
ChiSquareIntervalNBins	5		LevelSummary	Y		UseTest	N	
ClassDistribution	Y		MaximumVars	1000		UseValidate	N	

Node=StatExplore
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	10	CLAGE CLNO DEBTINC DELINQ DEROG LOAN MORTDUE NINQ VALUE YOJ
INPUT	NOMINAL	2	JOB REASON

Target	Variable	Importance	Worth	Analysis Variable	Label	plot
BAD	DEBTINC	1	0.11987	1	DEBTINC	.
BAD	DELINQ	2	0.04066	1	DELINQ	.
BAD	VALUE	3	0.02921	1	VALUE	.
BAD	DEROG	4	0.02664	1	DEROG	.
BAD	LOAN	5	0.01284	1	LOAN	.
BAD	CLAGE	6	0.01272	1	CLAGE	.
BAD	NINQ	7	0.01094	1	NINQ	.
BAD	YOJ	8	0.00999	1	YOJ	.
BAD	CLNO	9	0.00960	1	CLNO	.
BAD	JOB	10	0.00578	1	JOB	.
BAD	MORTDUE	11	0.00476	1	MORTDUE	.
BAD	REASON	12	0.00045	1	REASON	.

Data Role	Segment	Segment Id	Segment Name:Value	Target	Input	Cramer's V	Prob	Chi-Square	Df	Role	Label	Ordered Inputs	Group	Plot
TRAIN			_OVERALL_	BAD	JOB	0.13511	<.0001	108.8035	6	INPUT	JOB	1	1	1
TRAIN			_OVERALL_	BAD	REASON	0.03752	0.0151	8.3900	2	INPUT	REASON	2	2	1


SAS Enterprise Miner Report
Node=StatExplore
Class Variables
TARGET='BAD' and PLOT=1
Variable Name = JOB
Data Role = TRAIN
Variable Name = REASON
Data Role = TRAIN
Percent Within
100
80
60
40
20
0
0
1
0
1
Target Level
Level
Mgr
Office
Other
ProfExe
Sales
Self
DebtCon
HomeImp

SAS Enterprise Miner Report

Node=Data Partition
Summary

Node id = Part
Node label = Data Partition
Meta path = Ids => Stat => Part
Notes =

Node=Data Partition
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Partition		Method	DEFAULT		TestPct	0	30
ClassDistribution	Y		OutputType	DATA		TrainPct	50	40
IntervalDistribution	Y		RandomSeed	12345		ValidatePct	50	30

Node=Data Partition
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	CLAGE CLNO DEBTINC DELINQ DEROG LOAN MORTDUE NINQ VALUE YOJ
INPUT	NOMINAL	2	JOB REASON

SAS Enterprise Miner Report

Node=Impute
Summary

Node id = Impt
Node label = Impute
Meta path = Ids => Stat => Part => Impt
Notes =

Node=Impute
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Impute		IndicatorRole	REJECTED		MinCatSize	5	
ABWTuning	9		IndicatorSource	IMPUTED		Normalize	Y	
AHUBERTuning	1.5		LeafSize	5		Nrules	5	
AWAVETuning	6.2831853072		MaxPctMissing	50		Nsurrs	2	
DefaultChar			Maxbranch	2		RandomSeed	12345	
DefaultNum	.		Maxdepth	6		ReplaceVariable	N	
DistributionMissing	N		MethodClass	COUNT		SpacingProportion	90	
HideVariable	Y		MethodInterval	MEAN		Splitsize	.	
ImputeNoMissing	N		MethodTargetClass	NONE		ValidateTestMissing	N	
Indicator	NONE		MethodTargetInterval	NONE				

Node=Impute
Variable Summary

Role	Level	Frequency Count	Name
INPUT	INTERVAL	10	CLAGE CLNO DEBTINC DELINQ DEROG LOAN MORTDUE NINQ VALUE YOJ
INPUT	NOMINAL	2	JOB REASON

Node=Impute
Imputation Summary

Variable Name	Impute Method	Imputed Variable	Impute Value	Role	Measurement Level	Label	Number of Missing for TRAIN
CLAGE	MEAN	IMP_CLAGE	181.15305208	INPUT	INTERVAL		159
CLNO	MEAN	IMP_CLNO	21.277078966	INPUT	INTERVAL		117
DEBTINC	MEAN	IMP_DEBTINC	33.786945547	INPUT	INTERVAL		615
DELINQ	MEAN	IMP_DELINQ	0.4622255303	INPUT	INTERVAL		292
DEROG	MEAN	IMP_DEROG	0.2409592691	INPUT	INTERVAL		352
JOB	COUNT	IMP_JOB	Other	INPUT	NOMINAL		141
MORTDUE	MEAN	IMP_MORTDUE	73574.90271	INPUT	INTERVAL		252
NINQ	MEAN	IMP_NINQ	1.1569852941	INPUT	INTERVAL		259
REASON	COUNT	IMP_REASON	DebtCon	INPUT	NOMINAL		131
VALUE	MEAN	IMP_VALUE	102480.61861	INPUT	INTERVAL		54
YOJ	MEAN	IMP_YOJ	8.868358373	INPUT	INTERVAL		250

SAS Enterprise Miner Report

Node=No Transform, 3
Summary

Node id = Neural2
Node label = No Transform, 3
Meta path = Ids => Stat => Part => Impt => Neural2
Notes =

Node=No Transform, 3
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	3		Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=No Transform, 3
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	IMP_CLAGE IMP_CLNO IMP_DEBTINC IMP_DELINQ IMP_DEROG IMP_MORTDUE IMP_NINQ IMP_VALUE IMP_YOJ LOAN
INPUT	NOMINAL	2	IMP_JOB IMP_REASON

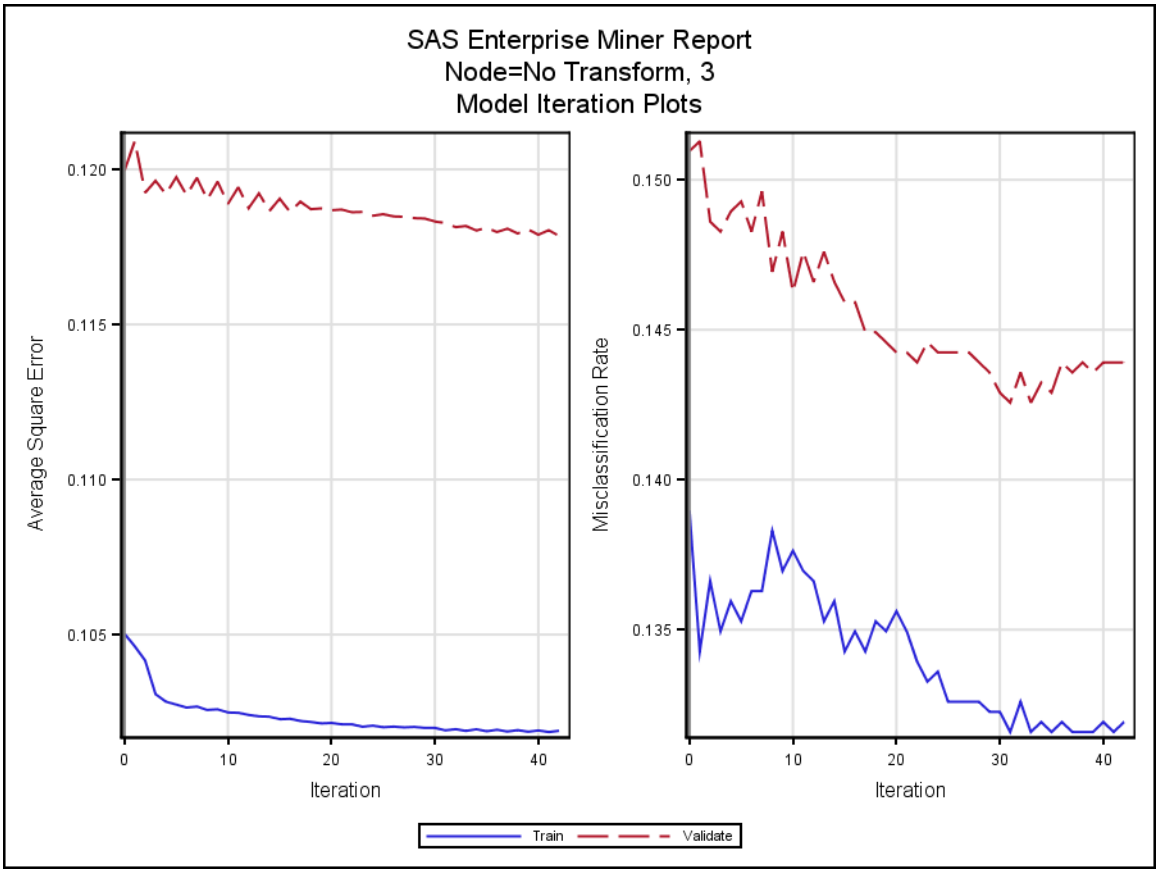
Node=No Transform, 3
Model Fit Statistics

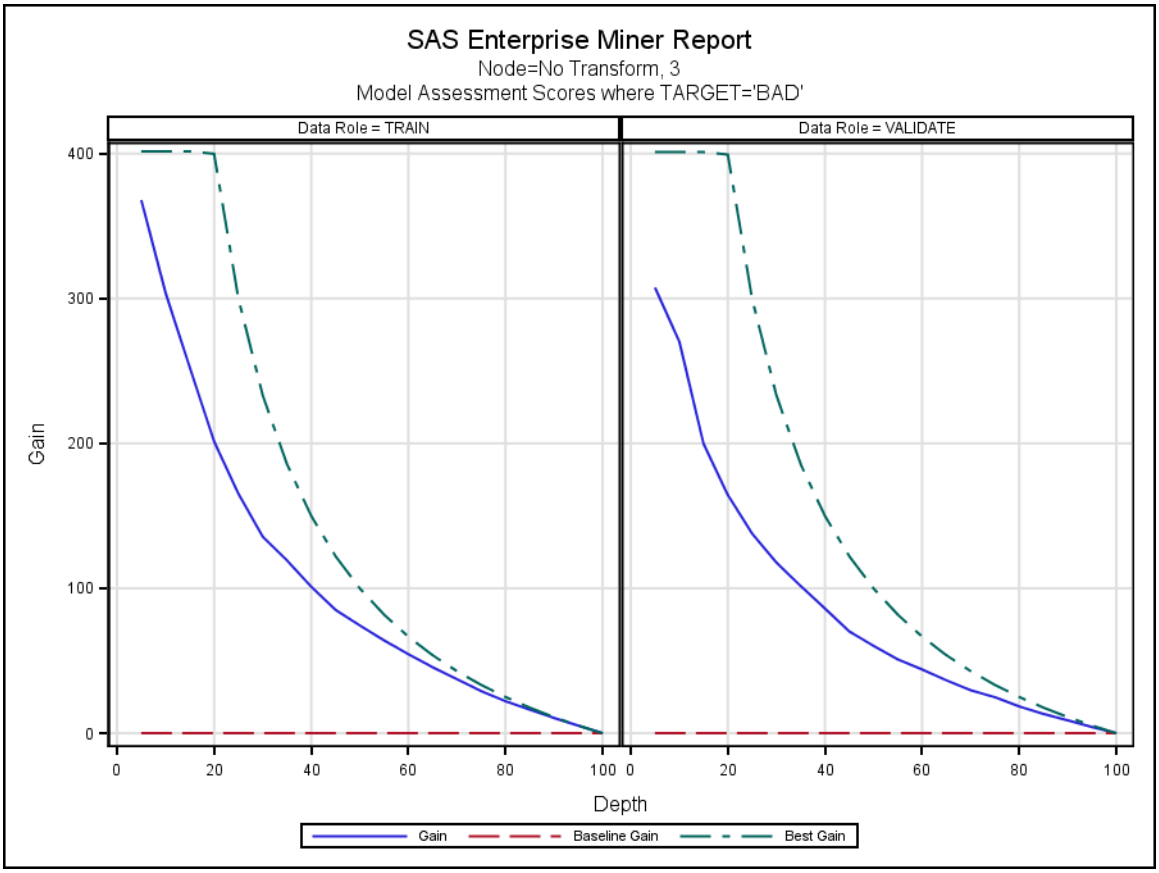
Target=BAD Target Label=' '

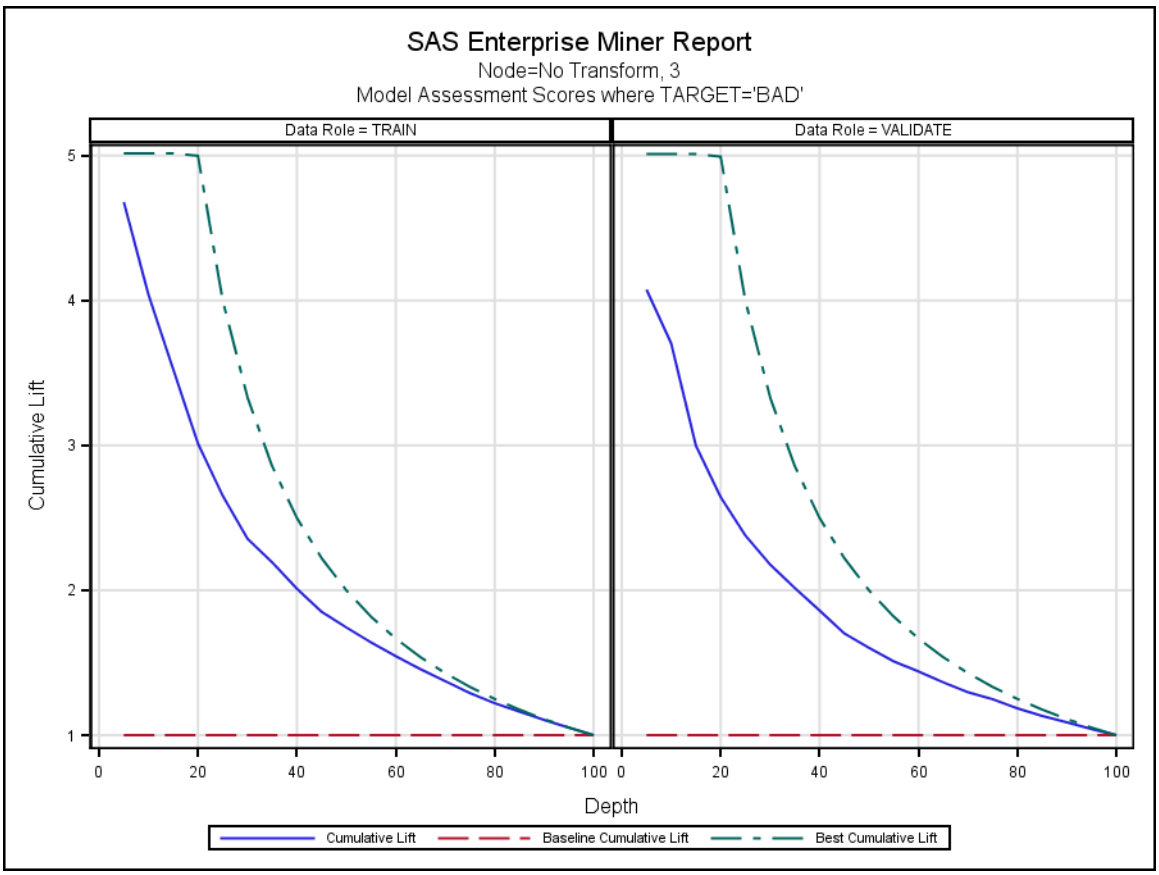
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2924.00	.	.
Model Degrees of Freedom	55.00	.	.
Number of Estimated Weights	55.00	.	.
Akaike's Information Criterion	2154.25	.	.

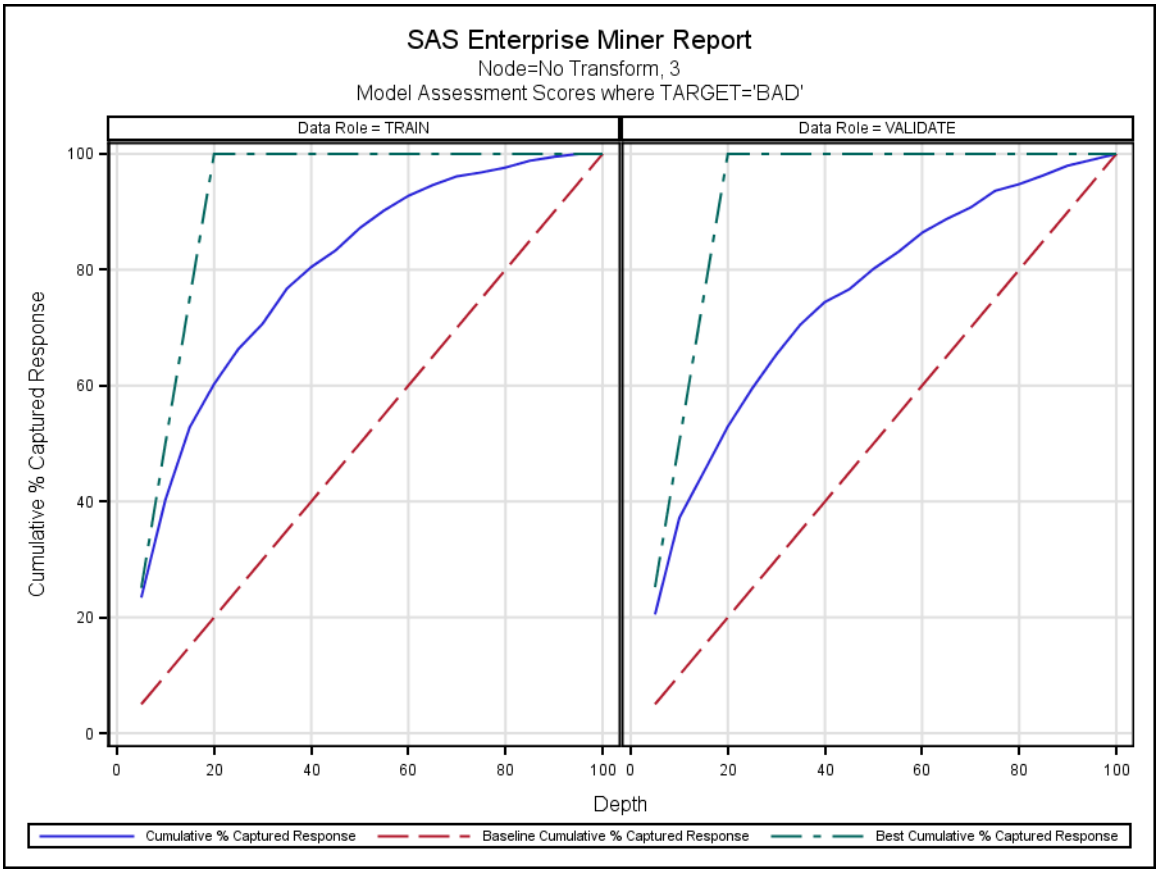
Target=BAD Target Label=' '

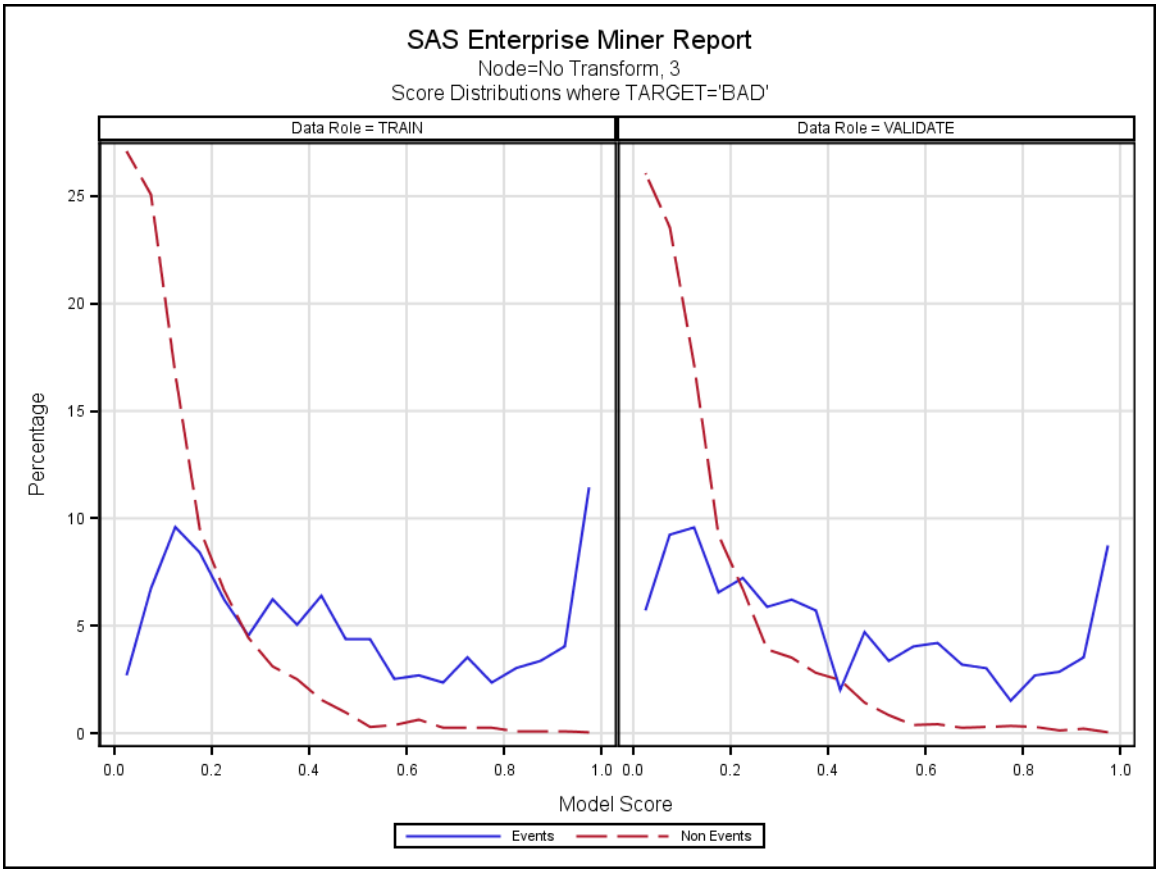
Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2484.21	.	.
Average Squared Error	0.11	0.12	.
Maximum Absolute Error	0.99	1.00	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.32	0.35	.
Sum of Squared Errors	625.77	715.21	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.11	.	.
Mean Squared Error	0.11	0.12	.
Root Final Prediction Error	0.33	.	.
Root Mean Squared Error	0.33	0.35	.
Average Error Function	0.34	0.40	.
Error Function	2044.25	2364.58	.
Misclassification Rate	0.14	0.15	.
Number of Wrong Classifications	414.00	450.00	.



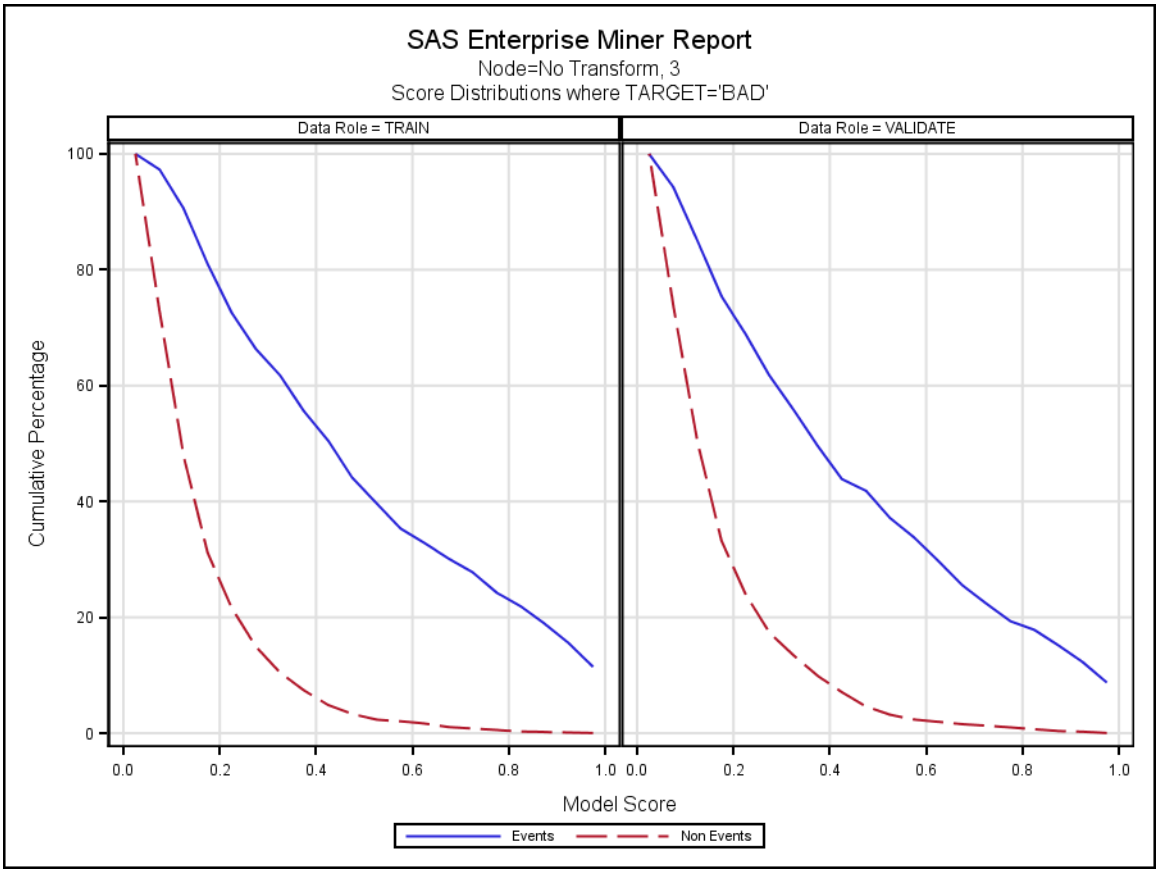

SAS Enterprise Miner Report
Node=No Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=No Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=No Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=No Transform, 3
Score Distributions where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

SAS Enterprise Miner Report
Node=No Transform, 3
Score Distributions where TARGET='BAD'



Node=No Transform, 3
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	68	11.4478	0.0419	11.448	0.042
0.90-0.95	24	4.0404	0.0839	15.488	0.126
0.85-0.90	20	3.3670	0.0839	18.855	0.210
0.80-0.85	18	3.0303	0.0839	21.886	0.294
0.75-0.80	14	2.3569	0.2516	24.242	0.545
0.70-0.75	21	3.5354	0.2516	27.778	0.797
0.65-0.70	14	2.3569	0.2516	30.135	1.048
0.60-0.65	16	2.6936	0.6289	32.828	1.677
0.55-0.60	15	2.5253	0.3774	35.354	2.055
0.50-0.55	26	4.3771	0.2935	39.731	2.348
0.45-0.50	26	4.3771	0.9644	44.108	3.312
0.40-0.45	38	6.3973	1.5514	50.505	4.864
0.35-0.40	30	5.0505	2.5157	55.556	7.379
0.30-0.35	37	6.2290	3.1027	61.785	10.482
0.25-0.30	27	4.5455	4.4444	66.330	14.927
0.20-0.25	37	6.2290	6.6667	72.559	21.593
0.15-0.20	50	8.4175	9.5178	80.976	31.111
0.10-0.15	57	9.5960	16.7296	90.572	47.841
0.05-0.10	40	6.7340	25.0734	97.306	72.914
0.00-0.05	16	2.6936	27.0860	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	52	8.73950	0.0419	8.739	0.042
0.90-0.95	21	3.52941	0.2096	12.269	0.251
0.85-0.90	17	2.85714	0.1257	15.126	0.377
0.80-0.85	16	2.68908	0.2934	17.815	0.671
0.75-0.80	9	1.51261	0.3353	19.328	1.006
0.70-0.75	18	3.02521	0.2934	22.353	1.299
0.65-0.70	19	3.19328	0.2515	25.546	1.551
0.60-0.65	25	4.20168	0.4191	29.748	1.970
0.55-0.60	24	4.03361	0.3772	33.782	2.347
0.50-0.55	20	3.36134	0.8382	37.143	3.185
0.45-0.50	28	4.70588	1.4250	41.849	4.610
0.40-0.45	12	2.01681	2.4728	43.866	7.083
0.35-0.40	34	5.71429	2.8080	49.580	9.891
0.30-0.35	37	6.21849	3.5205	55.798	13.412
0.25-0.30	35	5.88235	3.8977	61.681	17.309
0.20-0.25	43	7.22689	6.7058	68.908	24.015
0.15-0.20	39	6.55462	9.2205	75.462	33.236
0.10-0.15	57	9.57983	17.1417	85.042	50.377
0.05-0.10	55	9.24370	23.5541	94.286	73.931
0.00-0.05	34	5.71429	26.0687	100.000	100.000

SAS Enterprise Miner Report

Node=No Transform, 5
Summary

Node id = Neural
Node label = No Transform, 5
Meta path = Ids => Stat => Part => Impt => Neural
Notes =

Node=No Transform, 5
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	5	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=No Transform, 5
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	IMP_CLAGE IMP_CLNO IMP_DEBTINC IMP_DELINQ IMP_DEROG IMP_MORTDUE IMP_NINQ IMP_VALUE IMP_YOJ LOAN
INPUT	NOMINAL	2	IMP_JOB IMP_REASON

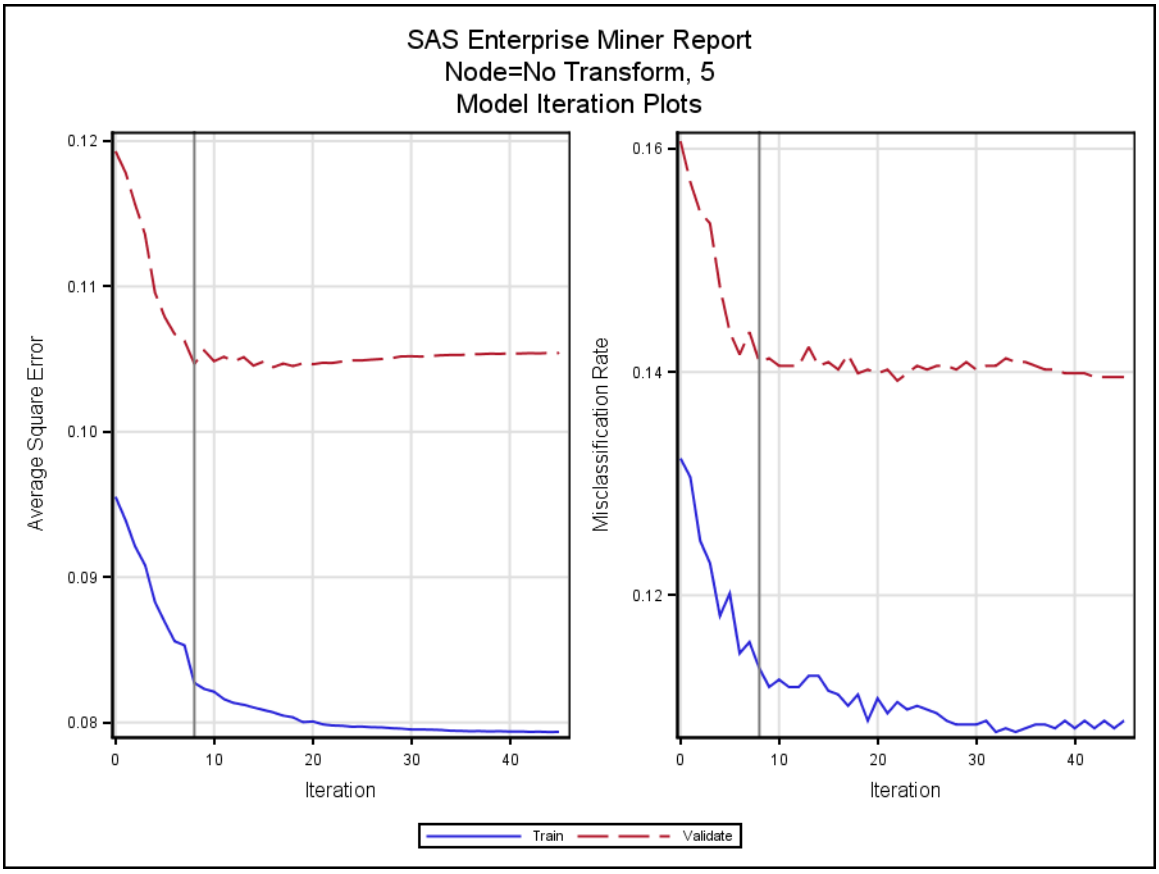
Node=No Transform, 5
Model Fit Statistics

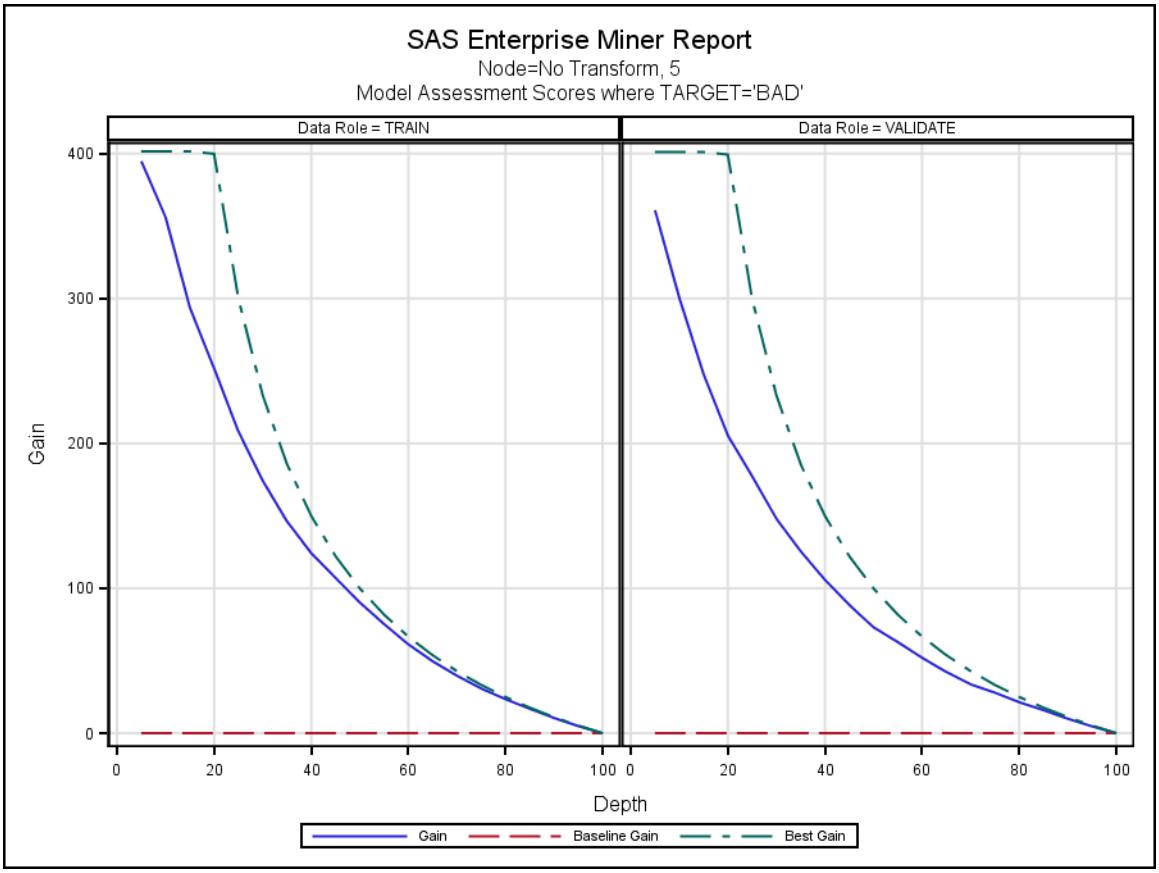
Target=BAD Target Label=' '

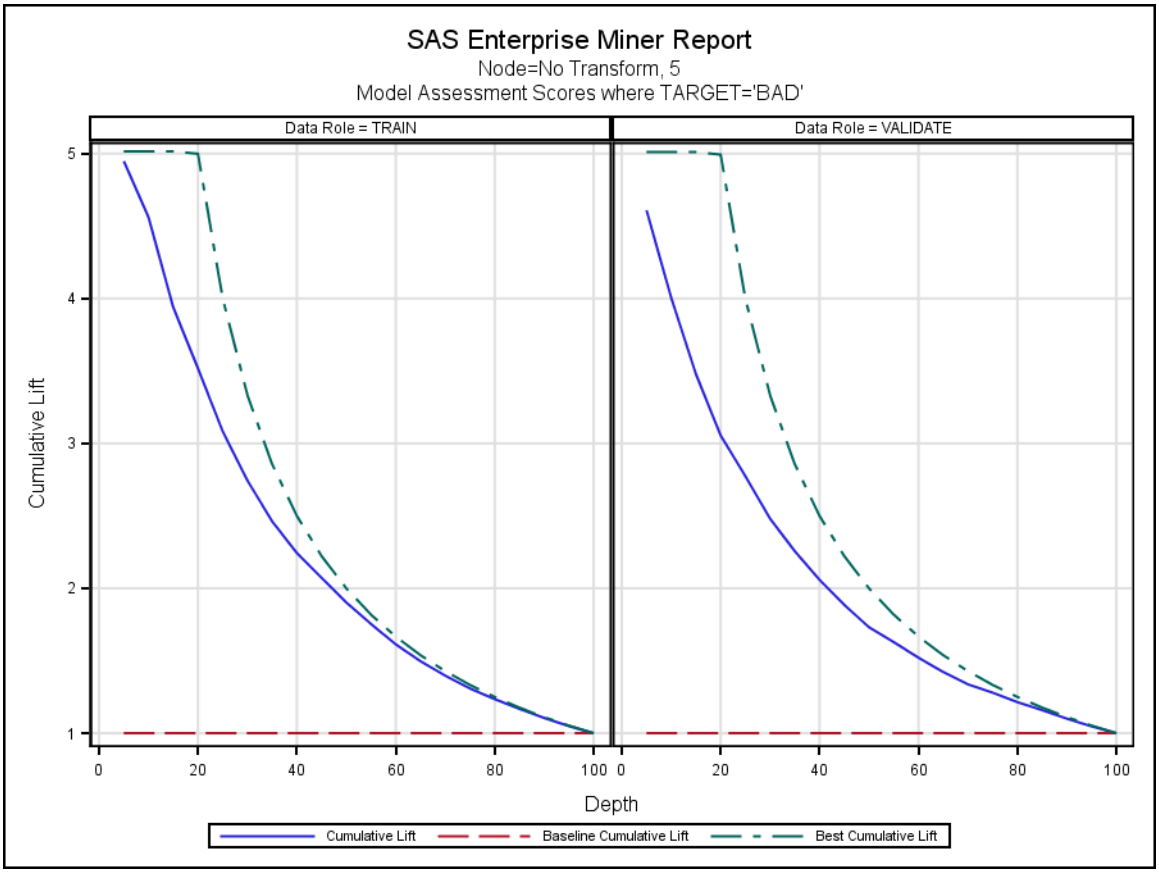
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2888.00	.	.
Model Degrees of Freedom	91.00	.	.
Number of Estimated Weights	91.00	.	.
Akaike's Information Criterion	1827.90	.	.

Target=BAD Target Label=' '

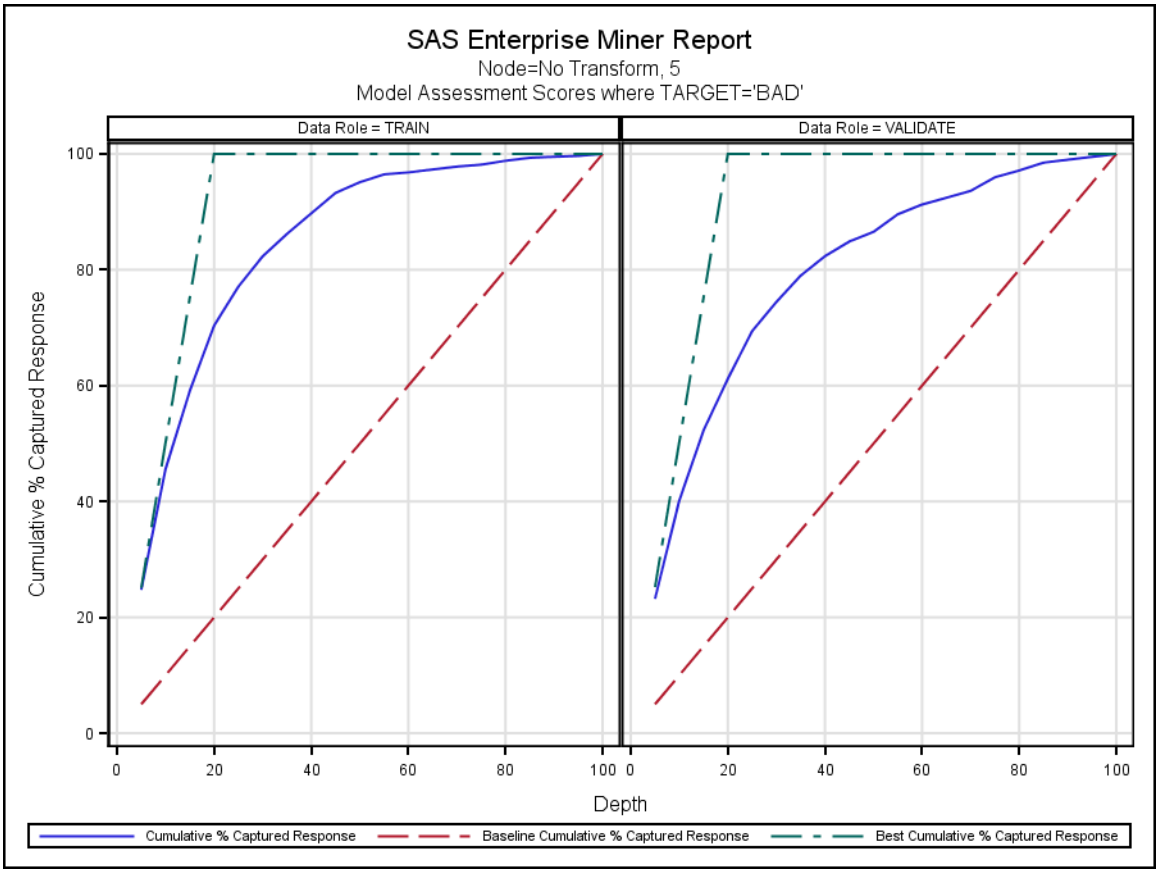
Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2373.84	.	.
Average Squared Error	0.08	0.10	.
Maximum Absolute Error	1.00	1.00	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.29	0.32	.
Sum of Squared Errors	492.83	624.03	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.09	.	.
Mean Squared Error	0.09	0.10	.
Root Final Prediction Error	0.30	.	.
Root Mean Squared Error	0.29	0.32	.
Average Error Function	0.28	0.35	.
Error Function	1645.90	2097.38	.
Misclassification Rate	0.11	0.14	.
Number of Wrong Classifications	338.00	420.00	.

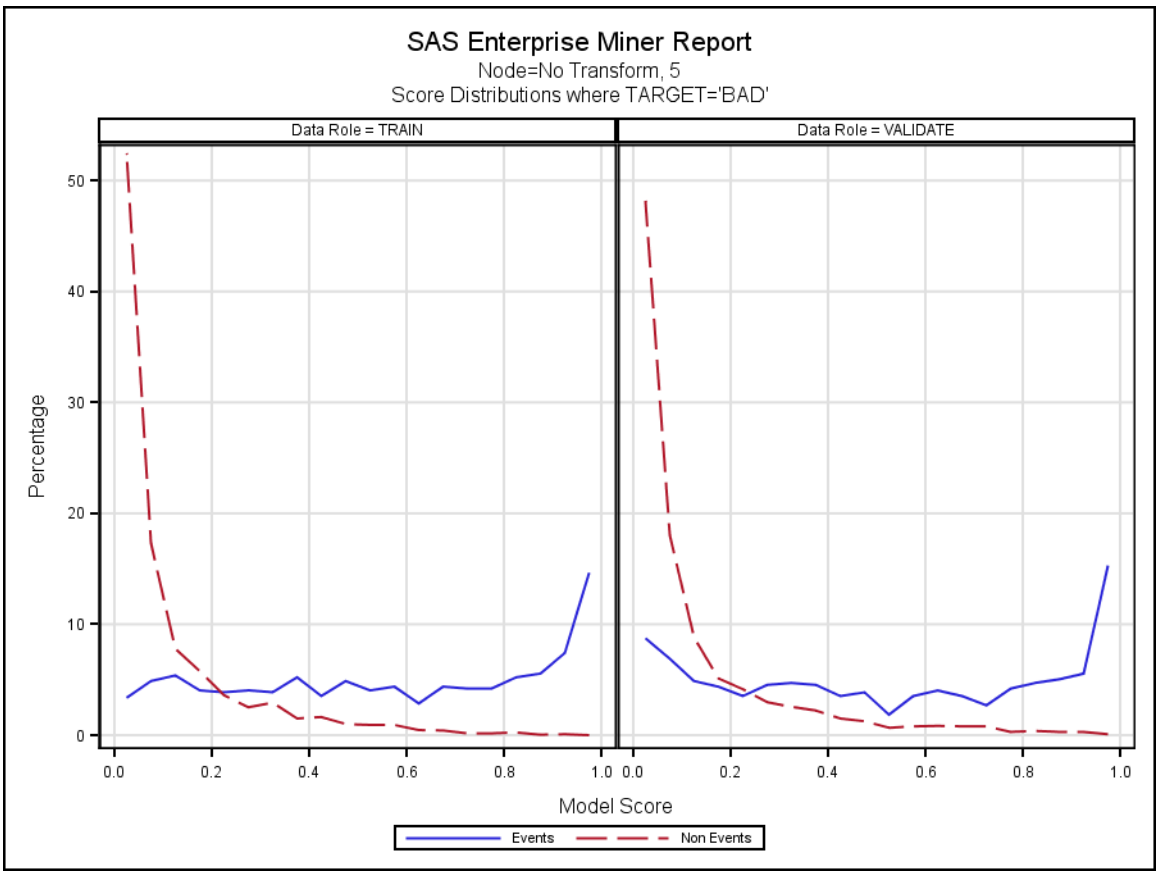



SAS Enterprise Miner Report
Node=No Transform, 5
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain

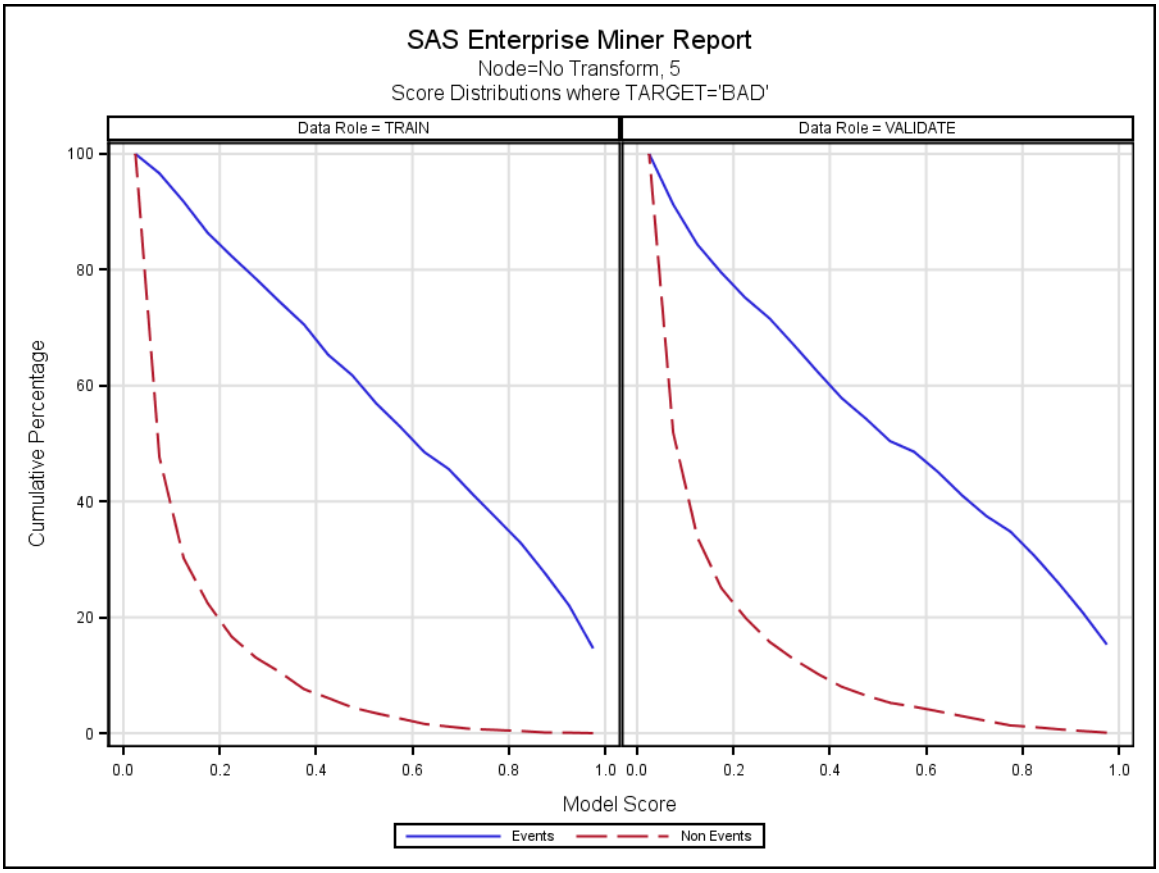

SAS Enterprise Miner Report
Node=No Transform, 5
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift

SAS Enterprise Miner Report
Node=No Transform, 5
Model Assessment Scores where TARGET='BAD'





SAS Enterprise Miner Report
Node=No Transform, 5
Score Distributions where TARGET='BAD'



Node=No Transform, 5
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	87	14.6465	0.0000	14.646	0.000
0.90-0.95	44	7.4074	0.0839	22.054	0.084
0.85-0.90	33	5.5556	0.0419	27.609	0.126
0.80-0.85	31	5.2189	0.2516	32.828	0.377
0.75-0.80	25	4.2088	0.1677	37.037	0.545
0.70-0.75	25	4.2088	0.1677	41.246	0.713
0.65-0.70	26	4.3771	0.4193	45.623	1.132
0.60-0.65	17	2.8620	0.4612	48.485	1.593
0.55-0.60	26	4.3771	0.9224	52.862	2.516
0.50-0.55	24	4.0404	0.9224	56.902	3.438
0.45-0.50	29	4.8822	1.0063	61.785	4.444
0.40-0.45	21	3.5354	1.6352	65.320	6.080
0.35-0.40	31	5.2189	1.5094	70.539	7.589
0.30-0.35	23	3.8721	2.9350	74.411	10.524
0.25-0.30	24	4.0404	2.5157	78.451	13.040
0.20-0.25	23	3.8721	3.6059	82.323	16.646
0.15-0.20	24	4.0404	5.7862	86.364	22.432
0.10-0.15	32	5.3872	7.7987	91.751	30.231
0.05-0.10	29	4.8822	17.3166	96.633	47.547
0.00-0.05	20	3.3670	52.4528	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.95-1.00	91	15.2941	0.0838	15.294	0.084
0.90-0.95	33	5.5462	0.2934	20.840	0.377
0.85-0.90	30	5.0420	0.2934	25.882	0.671
0.80-0.85	28	4.7059	0.3772	30.588	1.048
0.75-0.80	25	4.2017	0.2934	34.790	1.341
0.70-0.75	16	2.6891	0.7963	37.479	2.137
0.65-0.70	21	3.5294	0.7963	41.008	2.934
0.60-0.65	24	4.0336	0.8382	45.042	3.772
0.55-0.60	21	3.5294	0.7963	48.571	4.568
0.50-0.55	11	1.8487	0.6706	50.420	5.239
0.45-0.50	23	3.8655	1.2573	54.286	6.496
0.40-0.45	21	3.5294	1.5088	57.815	8.005
0.35-0.40	27	4.5378	2.2213	62.353	10.226
0.30-0.35	28	4.7059	2.5566	67.059	12.783
0.25-0.30	27	4.5378	2.9757	71.597	15.759
0.20-0.25	21	3.5294	4.1492	75.126	19.908
0.15-0.20	26	4.3697	5.1132	79.496	25.021
0.10-0.15	29	4.8739	8.8013	84.370	33.822
0.05-0.10	41	6.8908	18.0218	91.261	51.844
0.00-0.05	52	8.7395	48.1559	100.000	100.000

SAS Enterprise Miner Report

Node=No Transform, 1
Summary

Node id = Neural3
Node label = No Transform, 1
Meta path = Ids => Stat => Part => Impt => Neural3
Notes =

Node=No Transform, 1
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	1	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=No Transform, 1
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	IMP_CLAGE IMP_CLNO IMP_DEBTINC IMP_DELINQ IMP_DEROG IMP_MORTDUE IMP_NINQ IMP_VALUE IMP_YOJ LOAN
INPUT	NOMINAL	2	IMP_JOB IMP_REASON

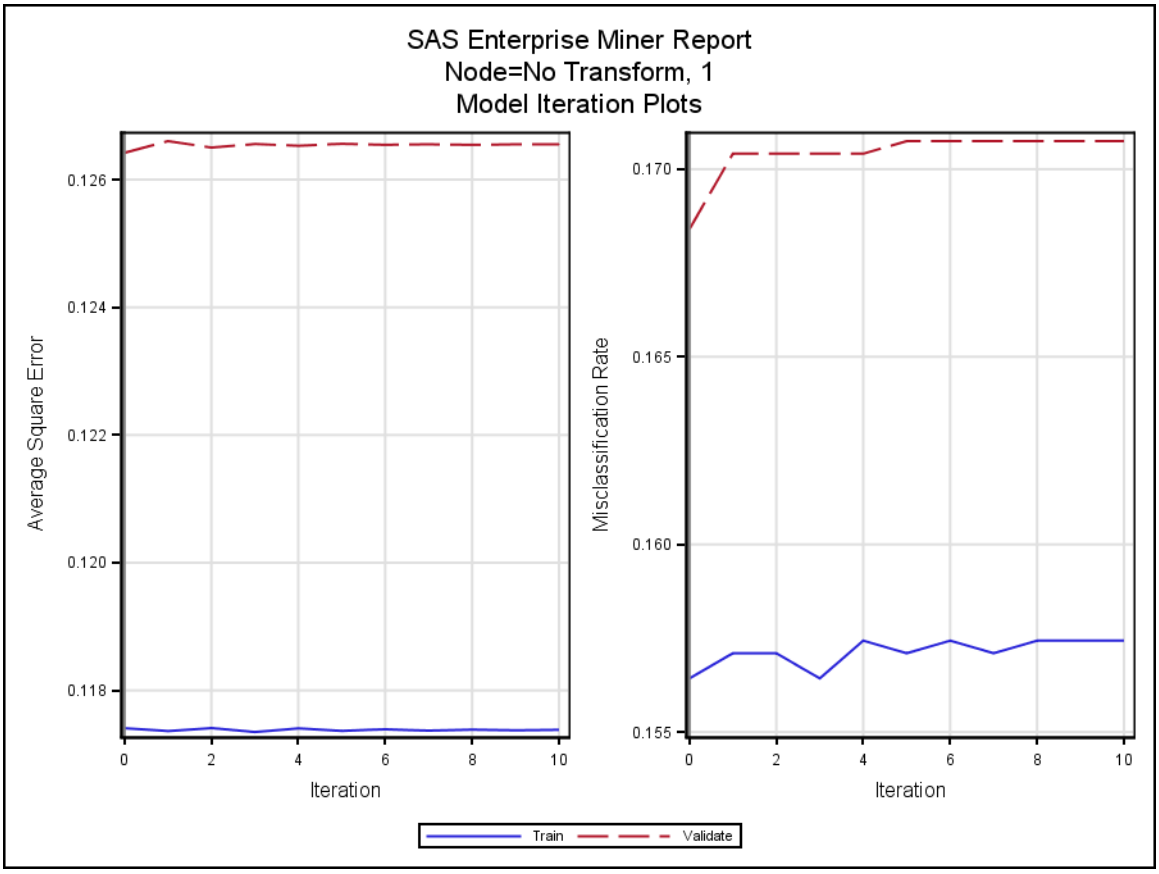
Node=No Transform, 1
Model Fit Statistics

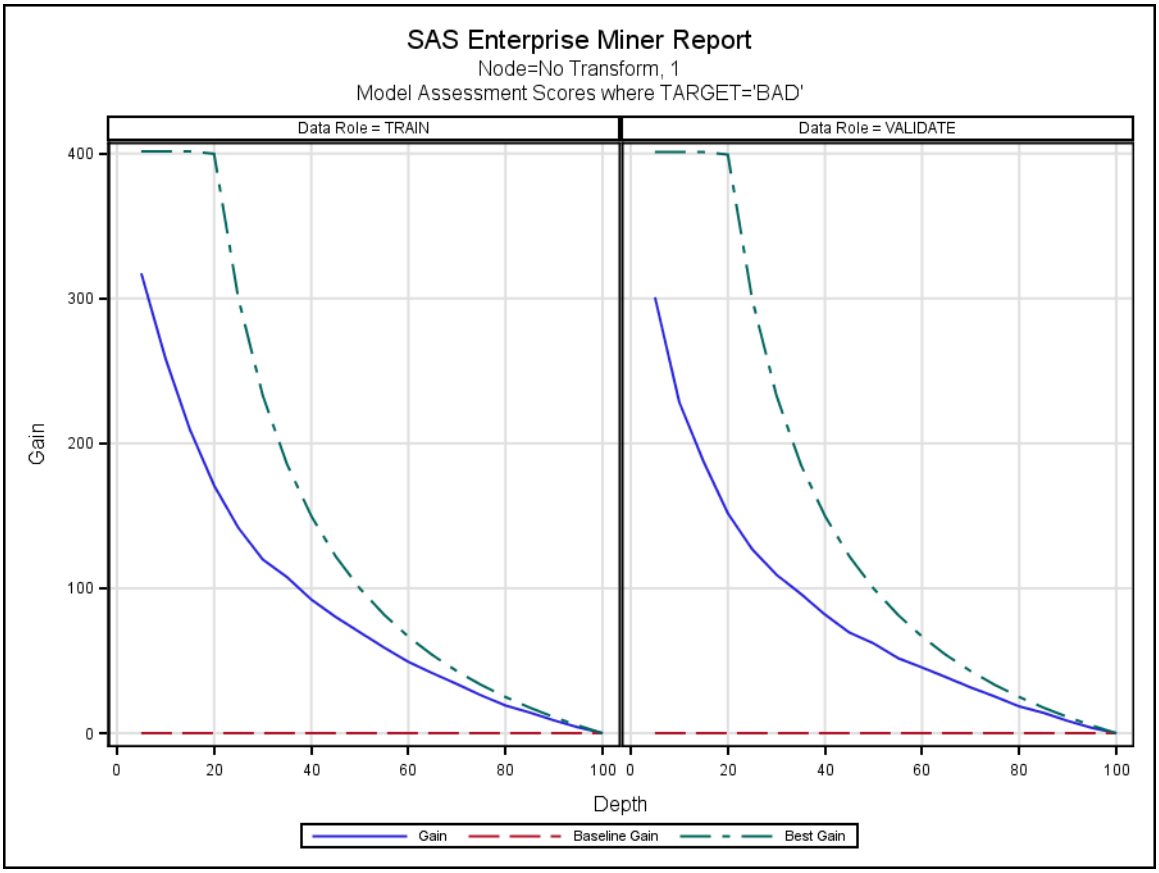
Target=BAD Target Label=' '

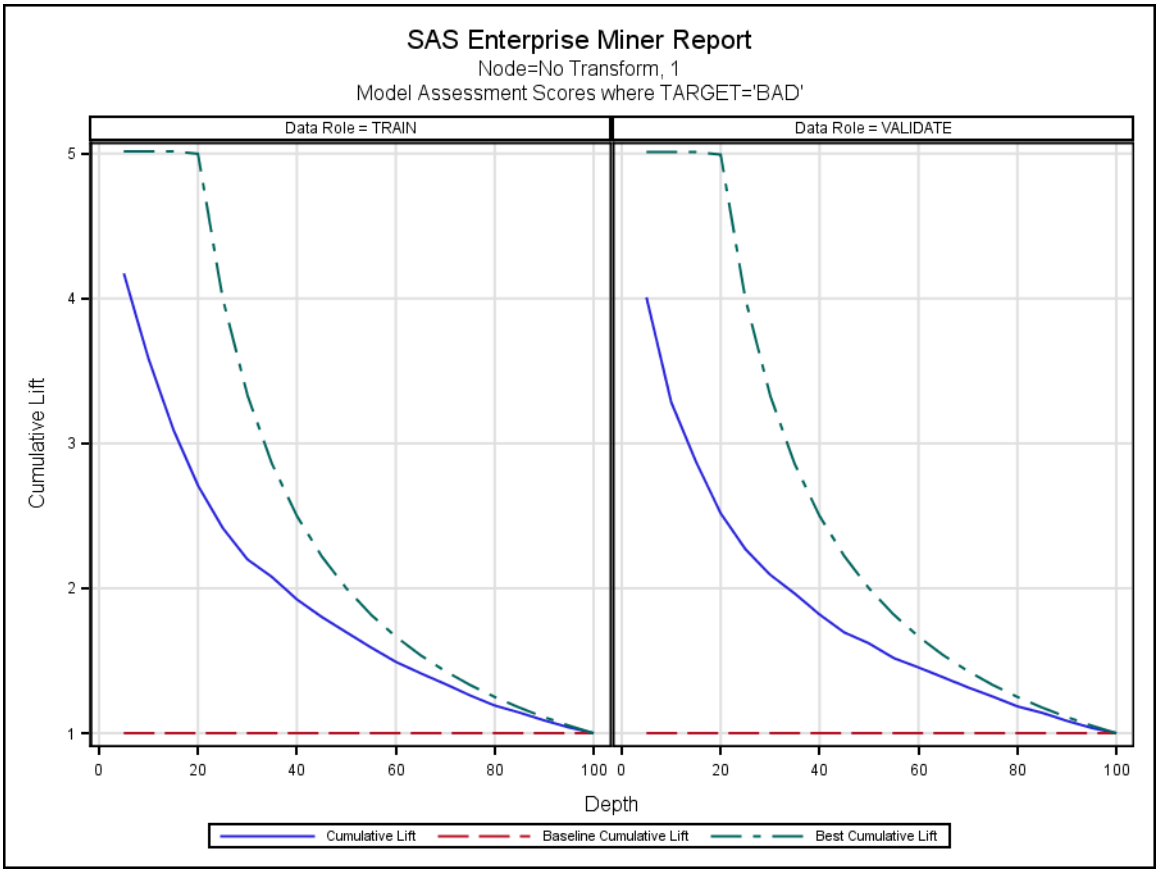
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2960.00	.	.
Model Degrees of Freedom	19.00	.	.
Number of Estimated Weights	19.00	.	.
Akaike's Information Criterion	2313.36	.	.

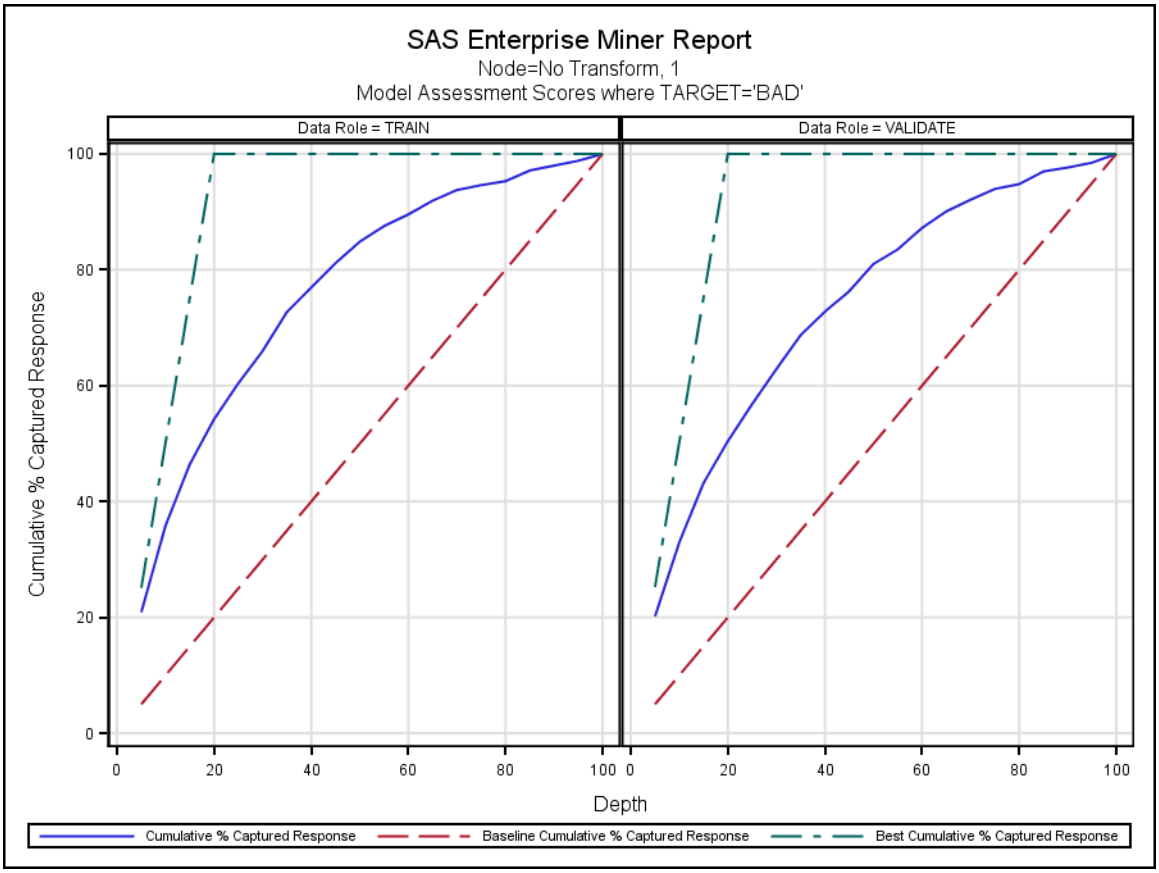
Target=BAD Target Label=' '

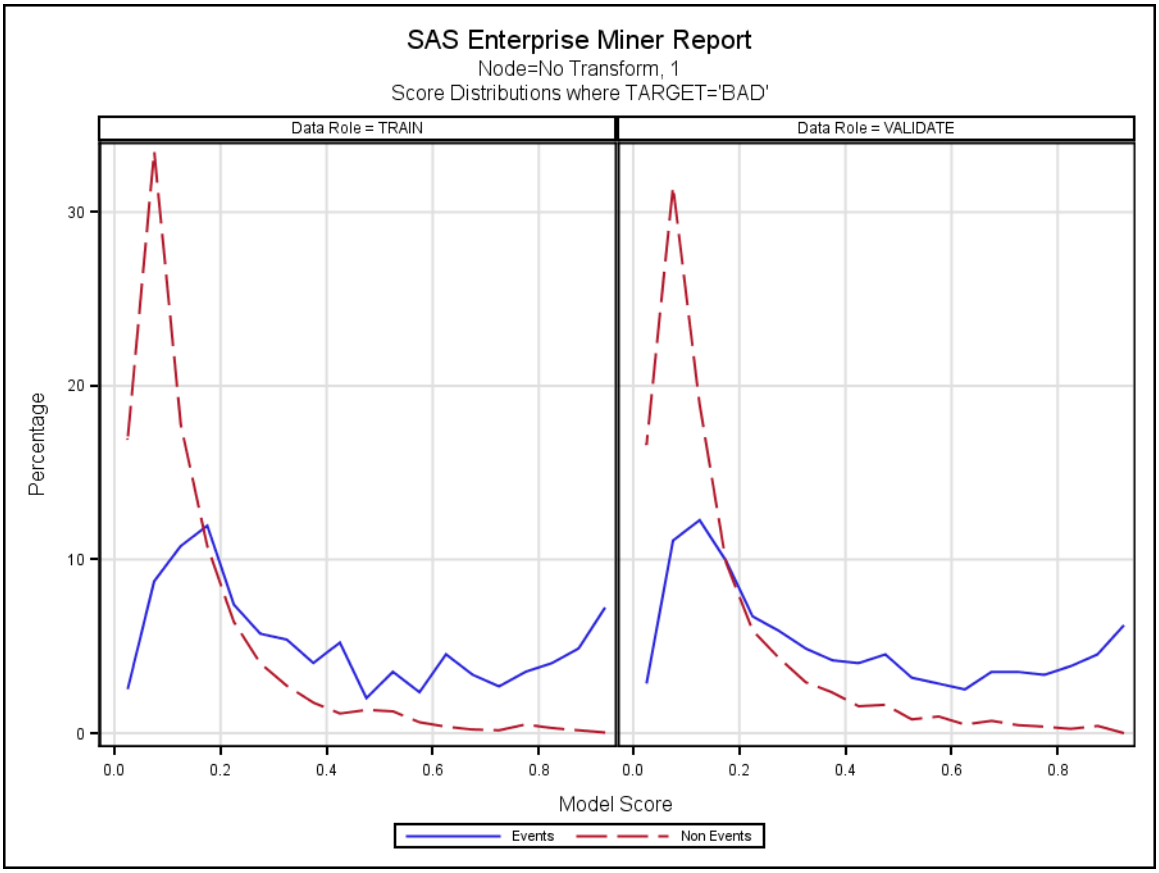
Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2427.35	.	.
Average Squared Error	0.12	0.13	.
Maximum Absolute Error	0.99	0.98	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.34	0.36	.
Sum of Squared Errors	699.52	753.72	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.13	.
Root Final Prediction Error	0.34	.	.
Root Mean Squared Error	0.34	0.36	.
Average Error Function	0.38	0.41	.
Error Function	2275.36	2423.38	.
Misclassification Rate	0.16	0.17	.
Number of Wrong Classifications	466.00	502.00	.

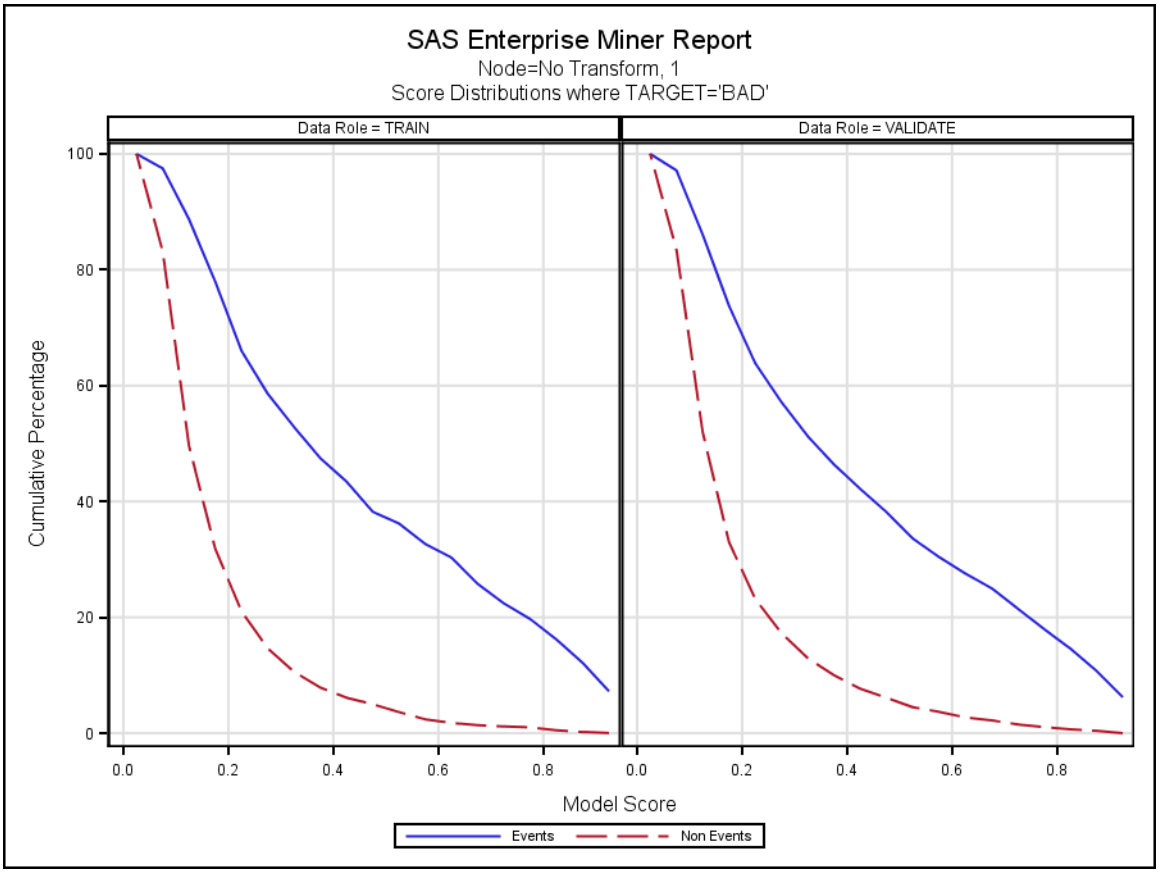



SAS Enterprise Miner Report
Node=No Transform, 1
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=No Transform, 1
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=No Transform, 1
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=No Transform, 1
Score Distributions where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events



Node=No Transform, 1
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.90-0.95	43	7.2391	0.0419	7.239	0.042
0.85-0.90	29	4.8822	0.1677	12.121	0.210
0.80-0.85	24	4.0404	0.2935	16.162	0.503
0.75-0.80	21	3.5354	0.5031	19.697	1.006
0.70-0.75	16	2.6936	0.1677	22.391	1.174
0.65-0.70	20	3.3670	0.2096	25.758	1.384
0.60-0.65	27	4.5455	0.3774	30.303	1.761
0.55-0.60	14	2.3569	0.6289	32.660	2.390
0.50-0.55	21	3.5354	1.2579	36.195	3.648
0.45-0.50	12	2.0202	1.3417	38.215	4.990
0.40-0.45	31	5.2189	1.1321	43.434	6.122
0.35-0.40	24	4.0404	1.7610	47.475	7.883
0.30-0.35	32	5.3872	2.7254	52.862	10.608
0.25-0.30	34	5.7239	4.0252	58.586	14.633
0.20-0.25	44	7.4074	6.4151	65.993	21.048
0.15-0.20	71	11.9529	10.7757	77.946	31.824
0.10-0.15	64	10.7744	17.7778	88.721	49.602
0.05-0.10	52	8.7542	33.5010	97.475	83.103
0.00-0.05	15	2.5253	16.8973	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.90-0.95	37	6.2185	0.0000	6.218	0.000
0.85-0.90	27	4.5378	0.4191	10.756	0.419
0.80-0.85	23	3.8655	0.2515	14.622	0.671
0.75-0.80	20	3.3613	0.3772	17.983	1.048
0.70-0.75	21	3.5294	0.4610	21.513	1.509
0.65-0.70	21	3.5294	0.7125	25.042	2.221
0.60-0.65	15	2.5210	0.5029	27.563	2.724
0.55-0.60	17	2.8571	0.9640	30.420	3.688
0.50-0.55	19	3.1933	0.7963	33.613	4.484
0.45-0.50	27	4.5378	1.6345	38.151	6.119
0.40-0.45	24	4.0336	1.5507	42.185	7.670
0.35-0.40	25	4.2017	2.3470	46.387	10.017
0.30-0.35	29	4.8739	2.9338	51.261	12.951
0.25-0.30	35	5.8824	4.3168	57.143	17.267
0.20-0.25	40	6.7227	5.9095	63.866	23.177
0.15-0.20	59	9.9160	9.8072	73.782	32.984
0.10-0.15	73	12.2689	18.9438	86.050	51.928
0.05-0.10	66	11.0924	31.4753	97.143	83.403
0.00-0.05	17	2.8571	16.5968	100.000	100.000

SAS Enterprise Miner Report

Node=Transform Variables
Summary

Node id = Trans
Node label = Transform Variables
Meta path = Ids => Stat => Part => Impt => Trans
Notes =

Node=Transform Variables
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Transform		EmSampleSize	DEFAULT		MissingValue	USEINSEARCH	
DefaultClassMethod	NONE		GroupCutoff	0.1		NumberofBins	VARIABLES	
DefaultClassTargetMethod	NONE		GroupMissing	N		Offset	1	
DefaultMethod	NONE		HideVariable	Y		RejectVariable	Y	
DefaultTargetMethod	NONE		MaxOptimalBins	4		SummaryStatistics	Y	
EmRandomSeed	12345		MinOffset	Y		SummaryVariables	TRANSFORMED	
EmSampleMethod	FIRSTN		MissingAsLevel	N		UseMetaTransform	Y	

Node=Transform Variables
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	IMP_CLAGE IMP_CLNO IMP_DEBTINC IMP_DELINQ IMP_DEROG IMP_MORTDUE IMP_NINQ IMP_VALUE IMP_YOJ LOAN
INPUT	NOMINAL	2	IMP_JOB IMP_REASON

Node=Transform Variables
Transformations Statistics

Source	Method	Variable Name	Formula	Number of Levels	Non Missing	Missing	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis	Label
Input	Original	IMP_DELINQ		.	2979	0	0	15	0.46223	1.14466	4.53692	30.0227	Imputed DELINQ
Input	Original	IMP_DEROG		.	2979	0	0	10	0.24096	0.76317	6.00271	49.6711	Imputed DEROG
Input	Original	IMP_YOJ		.	2979	0	0	41	8.86836	7.30658	1.06931	0.7990	Imputed YOJ
Output	Formula	INDELINQ	IMP_DELINQ > 0	.	2979	0	0	1	0.29507	0.45615	0.89915	-1.1923	
Output	Formula	INDEROG	IMP_DEROG > 0	.	2979	0	0	1	0.23599	0.42468	1.24418	-0.4523	
Output	Formula	INYOJ	IMP_YOJ > 0	.	2979	0	0	1	0.92984	0.25546	-3.36756	9.3467	

SAS Enterprise Miner Report

Node=Interactive Binning
Summary

Node id = BINNING
Node label = Interactive Binning
Meta path = Ids => Stat => Part => Impt => Trans => BINNING
Notes =

Node=Interactive Binning
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	Binning		GiniCutoff	20	20.0	MaxVar	10	
ApplyLevelRule	N		GroupCutoff	0.5		MissingAsLevel	Y	
BinMethod	QUANTILE		GroupMissing	N		NumBins	4	
ClassGroupRare	Y		GrpMsmnt	ORDINAL		Precision	2	
CreateGrouping	N		INTTARGETMETHOD	CUTMEAN		RejectIntTarget	N	
CreateMethod	OVERWRITE		ImportData			USERCUTVALUE	0.20	0.2
Freeze	N		ImportGrouping	N		VarSelMethod	GINI	

Node=Interactive Binning
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	INTERVAL	10	IMP_CLAGE IMP_CLNO IMP_DEBTINC IMP_MORTDUE IMP_NINQ IMP_VALUE INDELINQ INDEROG INYOJ LOAN
INPUT	NOMINAL	2	IMP_JOB IMP_REASON
ID	INTERVAL	1	_dataobs_

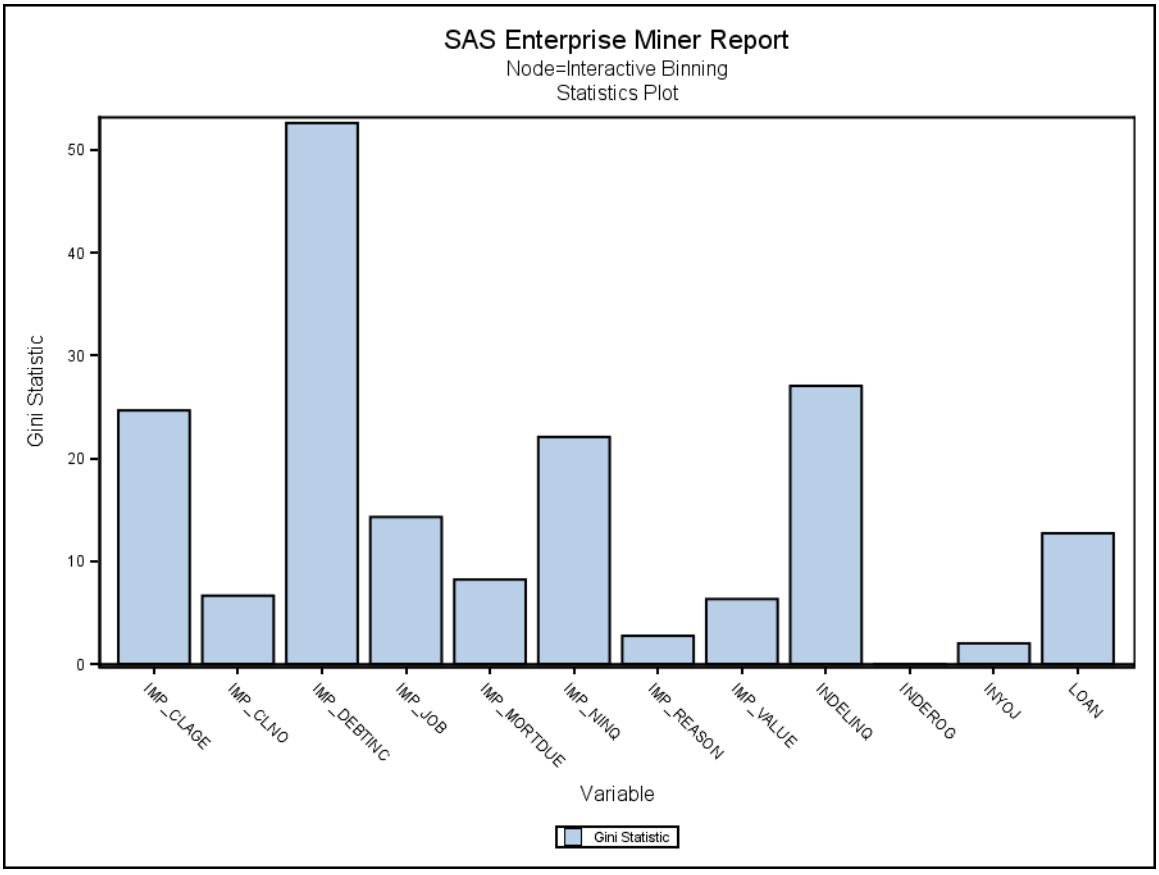
Node=Interactive Binning
Created Variables Summary

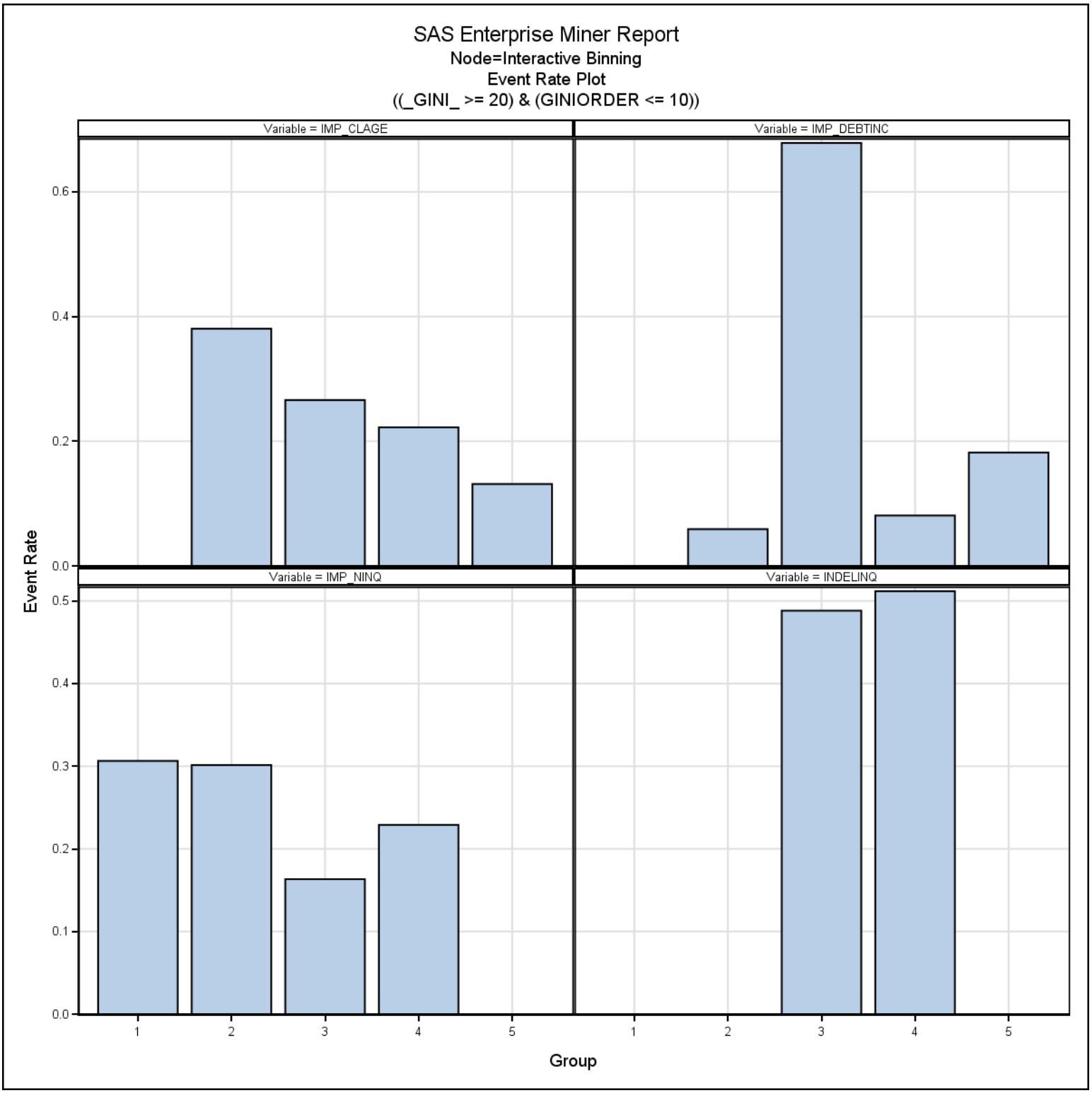
Role	Level	Frequency Count	Name
INPUT	ORDINAL	4	GRP_IMP_CLAGE GRP_IMP_DEBTINC GRP_IMP_NINQ GRP_INDELINQ

Node=Interactive Binning
Output Variables

Variable	Gini Statistic	Level for Interactive	New Role	Calculated Role	Level	Label	Gini Ordering
IMP_DEBTINC	52.626	INTERVAL	Default	Input	INTERVAL	Imputed DEBTINC	1
INDELINQ	27.069	INTERVAL	Default	Input	INTERVAL		2
IMP_CLAGE	24.681	INTERVAL	Default	Input	INTERVAL	Imputed CLAGE	3
IMP_NINQ	22.098	INTERVAL	Default	Input	INTERVAL	Imputed NINQ	4
IMP_JOB	14.317	NOMINAL	Default	Rejected	NOMINAL	Imputed JOB	5
LOAN	12.733	INTERVAL	Default	Rejected	INTERVAL		6
IMP_MORTDUE	8.233	INTERVAL	Default	Rejected	INTERVAL	Imputed MORTDUE	7
IMP_CLNO	6.666	INTERVAL	Default	Rejected	INTERVAL	Imputed CLNO	8
IMP_VALUE	6.340	INTERVAL	Default	Rejected	INTERVAL	Imputed VALUE	9
IMP_REASON	2.763	NOMINAL	Default	Rejected	NOMINAL	Imputed REASON	10

Variable	Gini Statistic	Level for Interactive	New Role	Calculated Role	Level	Label	Gini Ordering
INYOJ	2.034	INTERVAL	Default	Rejected	INTERVAL		11
INDEROG	0.000	INTERVAL	Default	Rejected	INTERVAL		12




SAS Enterprise Miner Report
Node=Interactive Binning
Event Rate Plot
((_GINI_ >= 20) & (GINIORDER <= 10))
Variable = IMP_CLAGE
Variable = IMP_DEBTINC
Variable = IMP_NINQ
Variable = INDELINQ
Event Rate
0.0
0.1
0.2
0.3
0.4
0.5
0.6
1
2
3
4
5
Group

SAS Enterprise Miner Report
Node=Interactive Binning
Event Rate Plot
((_GINI_ >= 20) & (GINIORDER <= 10))

Variable	Group Values	Group	Role	Event Rate
IMP_CLAGE	Missing	1	Input	0.00000
IMP_CLAGE	IMP_CLAGE< 118.57	2	Input	0.38047
IMP_CLAGE	118.57<= IMP_CLAGE< 179.57	3	Input	0.26599
IMP_CLAGE	179.57<= IMP_CLAGE< 226.86	4	Input	0.22222
IMP_CLAGE	226.86<= IMP_CLAGE	5	Input	0.13131
IMP_DEBTINC	Missing	1	Input	0.00000
IMP_DEBTINC	IMP_DEBTINC< 30.4	2	Input	0.05892
IMP_DEBTINC	30.4<= IMP_DEBTINC< 33.79	3	Input	0.67845
IMP_DEBTINC	33.79<= IMP_DEBTINC< 38.07	4	Input	0.08081
IMP_DEBTINC	38.07<= IMP_DEBTINC	5	Input	0.18182
IMP_NINQ	IMP_NINQ< 1, Missing	1	Input	0.30640
IMP_NINQ	1<= IMP_NINQ< 2	2	Input	0.30135
IMP_NINQ	2<= IMP_NINQ< 2.5	3	Input	0.16330
IMP_NINQ	2.5<= IMP_NINQ	4	Input	0.22896
INDELINQ	Missing	1	Input	0.00000
INDELINQ	INDELINQ< 0	2	Input	0.00000
INDELINQ	0<= INDELINQ< 1	3	Input	0.48822
INDELINQ	1<= INDELINQ	4	Input	0.51178

SAS Enterprise Miner Report

Node=Variable Selection
Summary

Node id = Varsel
Node label = Variable Selection
Meta path = Ids => Stat => Part => Impt => Trans => BINNING => Varsel
Notes =

Node=Variable Selection
Properties

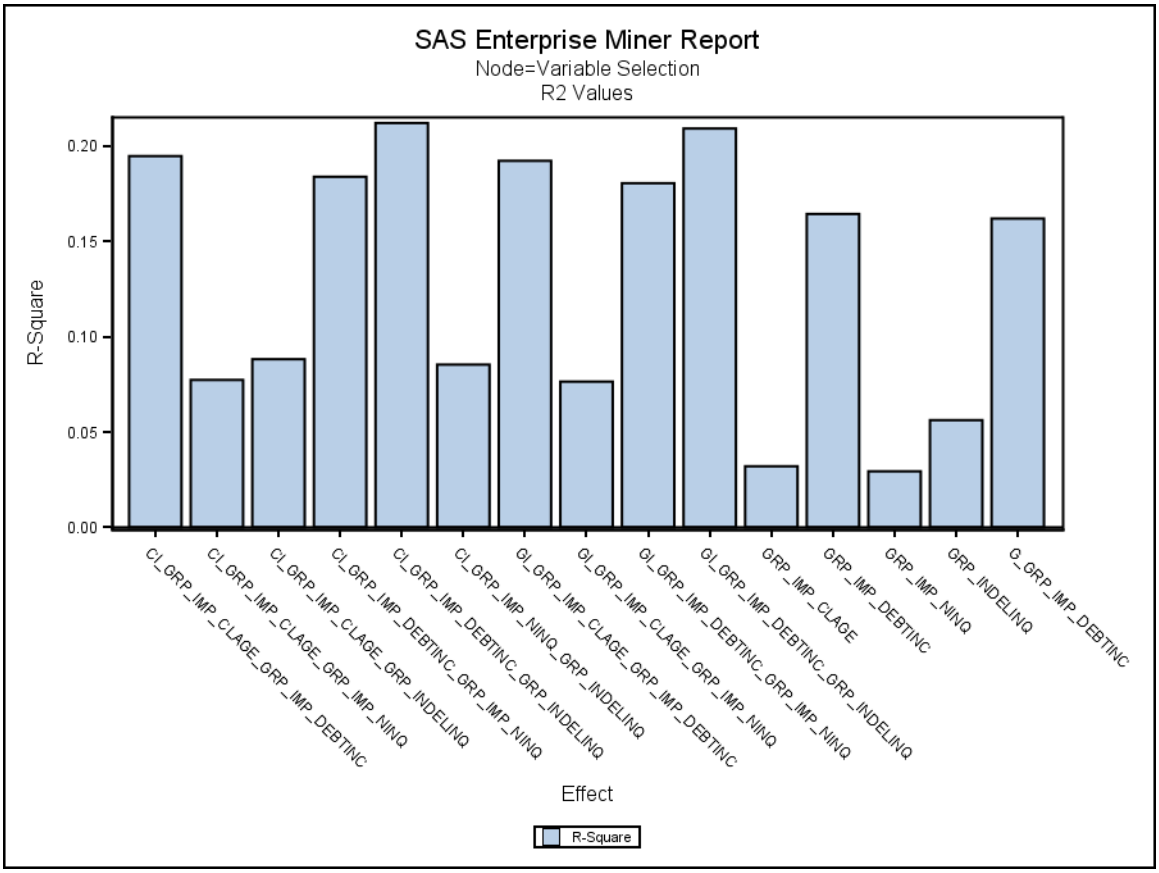
Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	VariableSelection		MaxLevel	100		RoleUnusedVars	DEFAULT	
Bins	50		MaxMissingPercent	50		SASSPDS	Y	
ByPassVars	NONE		MaxRows	3000		StopR2	0.0005	
ByPassVarsRole	INPUT		MinR2	0.005		TargetModel	DEFAULT	
ChiSquare	3.84		Passes	6		UseAov16	N	
HideRejectedVars	Y		PrintOption	DEFAULT		UseGroups	Y	
HideUnusedInputVars	Y		RejectUnusedInputVars	Y		UseInteractions	N	

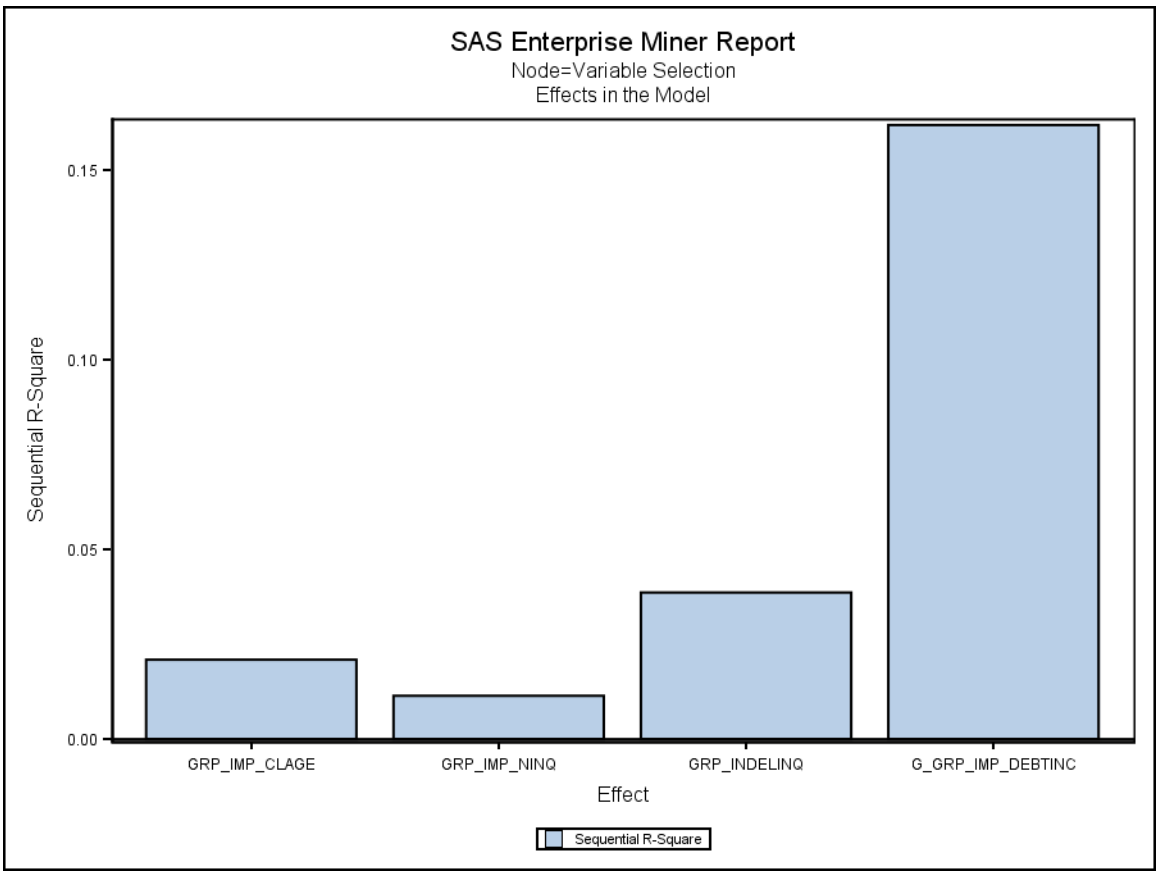
Node=Variable Selection
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	ORDINAL	4	GRP_IMP_CLAGE GRP_IMP_DEBTINC GRP_IMP_NINQ GRP_INDELINQ

Node=Variable Selection
Variable Selection

Variable Name	Role	Measurement Level	Type	Label	Reasons for Rejection
GRP_IMP_CLAGE	INPUT	ORDINAL	N	Grouped: Imputed CLAGE	
GRP_IMP_DEBTINC	REJECTED	ORDINAL	N	Grouped: Imputed DEBTINC	Varsel:Small R-square value, Group variable preferred
GRP_IMP_NINQ	INPUT	ORDINAL	N	Grouped: Imputed NINQ	
GRP_INDELINQ	INPUT	ORDINAL	N	Grouped: INDELINQ	
G_GRP_IMP_DEBTINC	INPUT	NOMINAL	N	Grouped Levels for GRP_IMP_DEBTINC	


SAS Enterprise Miner Report
Node=Variable Selection
R2 Values
R-Square
0.20
0.15
0.10
0.05
0.00
CL_GRP_IMP_CLAGE_GRP_IMP_DEBTINC
CL_GRP_IMP_CLAGE_GRP_IMP_NINQ
CL_GRP_IMP_CLAGE_GRP_INDELINQ
CL_GRP_IMP_DEBTINC_GRP_IMP_NINQ
CL_GRP_IMP_DEBTINC_GRP_INDELINQ
GL_GRP_IMP_NINQ_GRP_INDELINQ
GL_GRP_IMP_CLAGE_GRP_IMP_DEBTINC
GL_GRP_IMP_CLAGE_GRP_IMP_NINQ
GL_GRP_IMP_DEBTINC_GRP_IMP_NINQ
GL_GRP_IMP_DEBTINC_GRP_INDELINQ
GRP_IMP_CLAGE
GRP_IMP_DEBTINC
GRP_IMP_NINQ
GRP_INDELINQ
G_GRP_IMP_DEBTINC
Effect
R-Square


SAS Enterprise Miner Report
Node=Variable Selection
Effects in the Model
Sequential R-Square
0.15
0.10
0.05
0.00
GRP_IMP_CLAGE
GRP_IMP_NINQ
GRP_INDELINQ
G_GRP_IMP_DEBTINC
Effect
Sequential R-Square

SAS Enterprise Miner Report

Node=Transform, 5
Summary

Node id = Neural6
Node label = Transform, 5
Meta path = Ids => Stat => Part => Impt => Trans => BINNING => Varsel => Neural6
Notes =

Node=Transform, 5
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	5	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Transform, 5
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	NOMINAL	1	G_GRP_IMP_DEBTINC
INPUT	ORDINAL	3	GRP_IMP_CLAGE GRP_IMP_NINQ GRP_INDELINQ

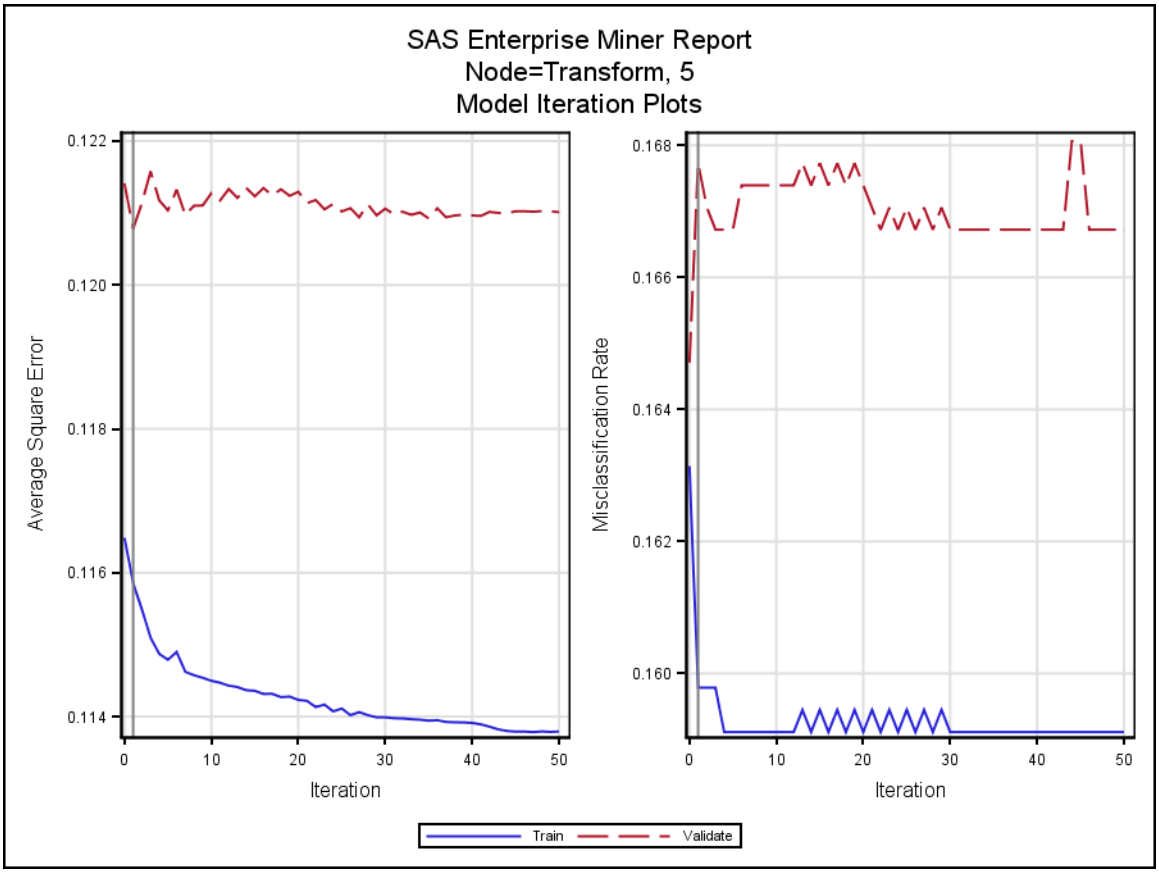
Node=Transform, 5
Model Fit Statistics

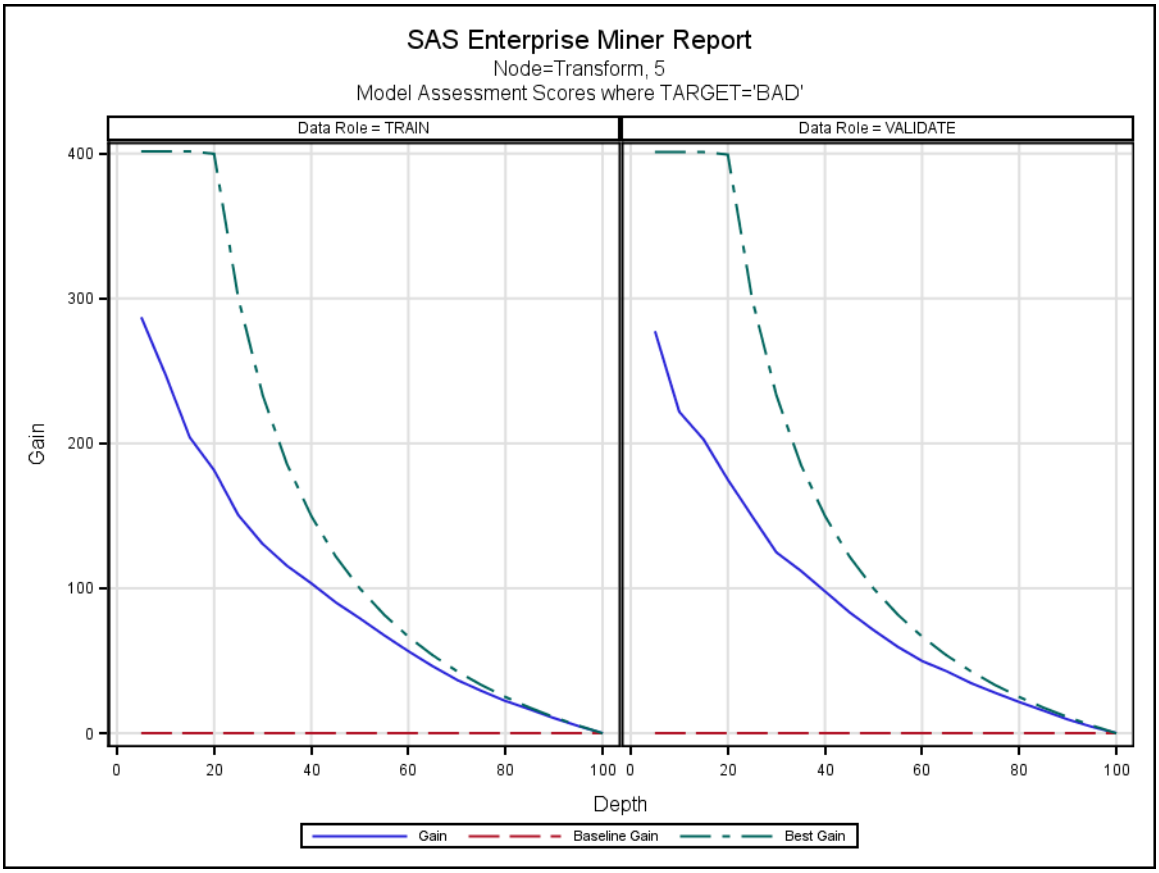
Target=BAD Target Label=' '

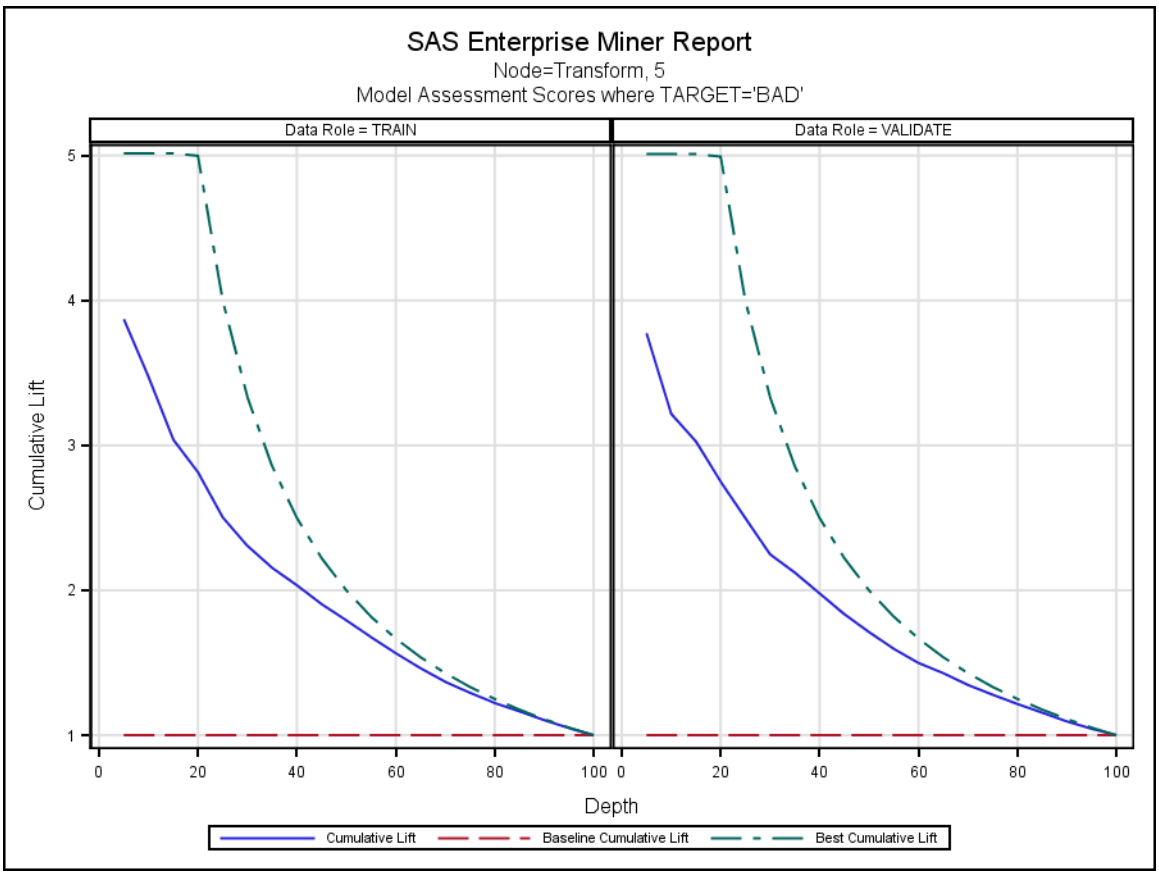
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2923.00	.	.
Model Degrees of Freedom	56.00	.	.
Number of Estimated Weights	56.00	.	.
Akaike's Information Criterion	2308.43	.	.

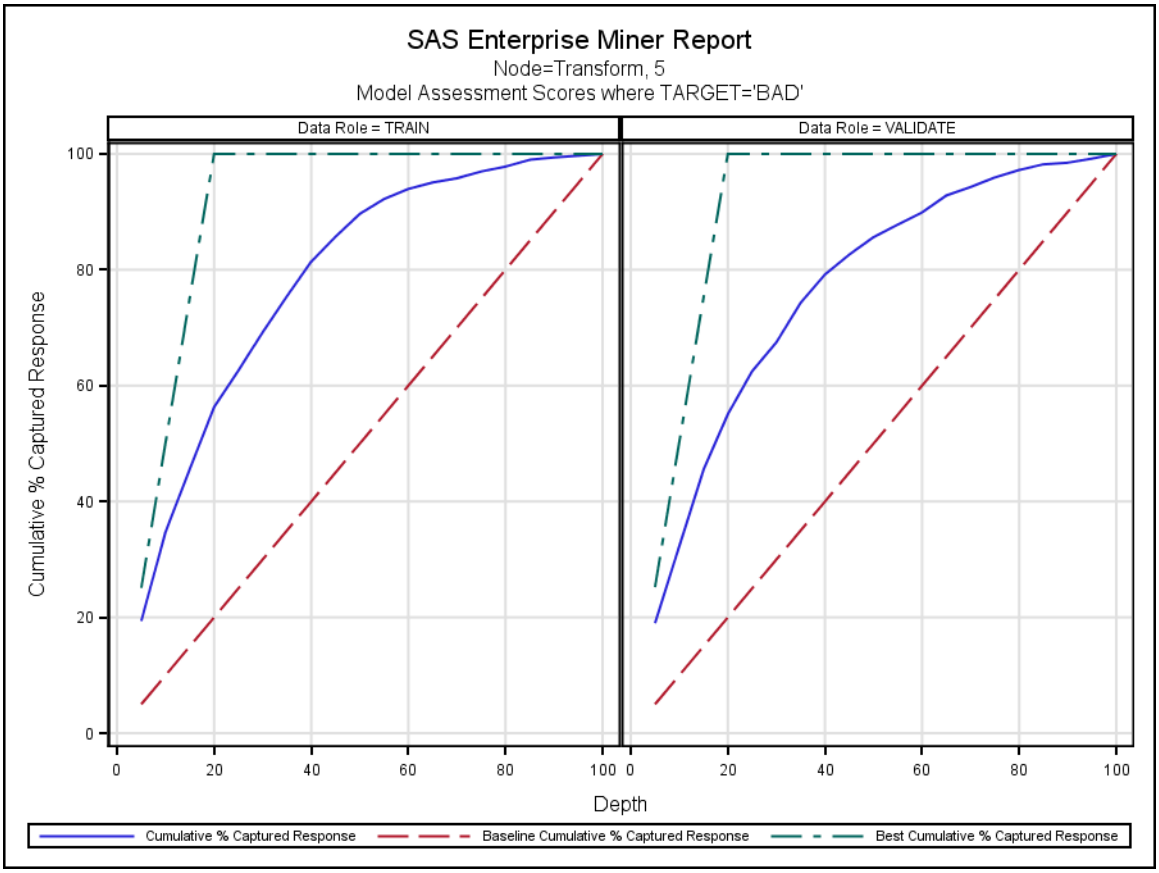
Target=BAD Target Label=' '

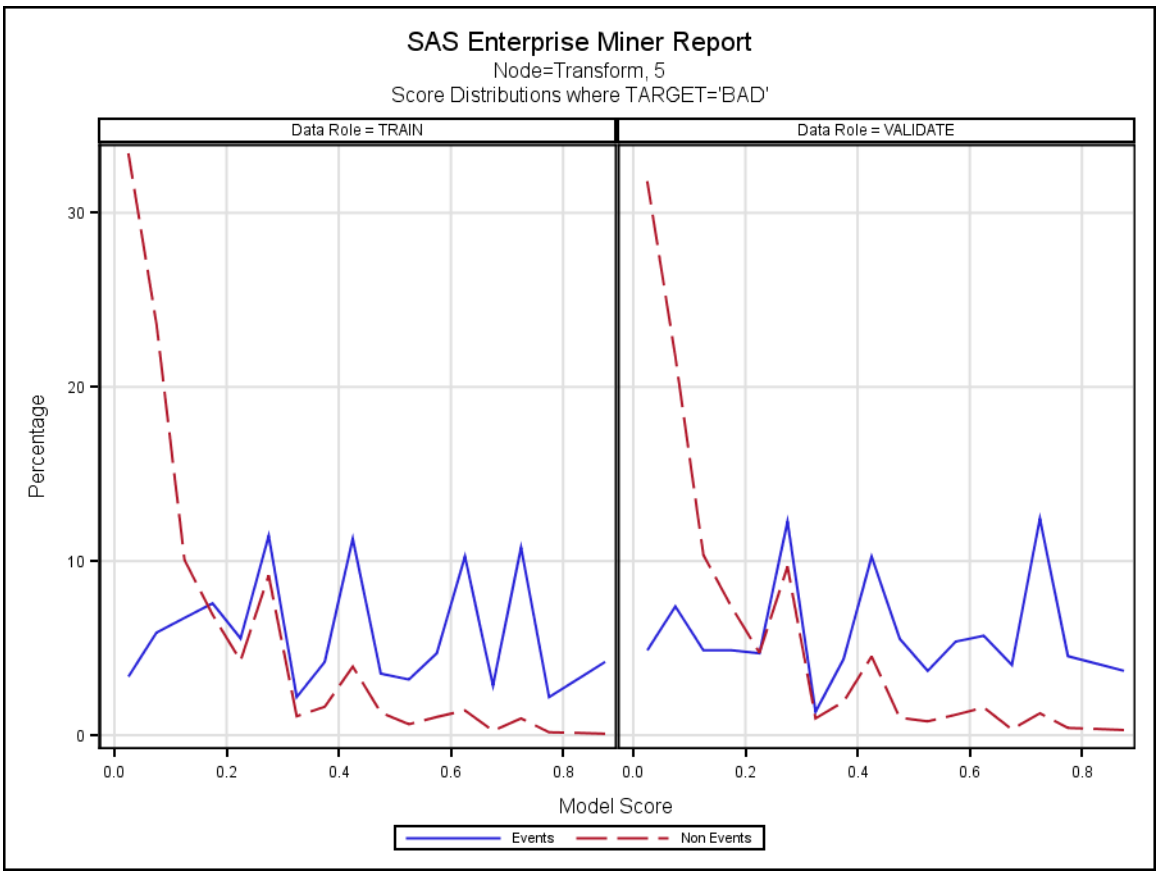
Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2644.39	.	.
Average Squared Error	0.12	0.12	.
Maximum Absolute Error	0.99	0.99	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.34	0.35	.
Sum of Squared Errors	690.26	720.09	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.12	.
Root Final Prediction Error	0.35	.	.
Root Mean Squared Error	0.34	0.35	.
Average Error Function	0.37	0.39	.
Error Function	2196.43	2309.21	.
Misclassification Rate	0.16	0.17	.
Number of Wrong Classifications	476.00	500.00	.

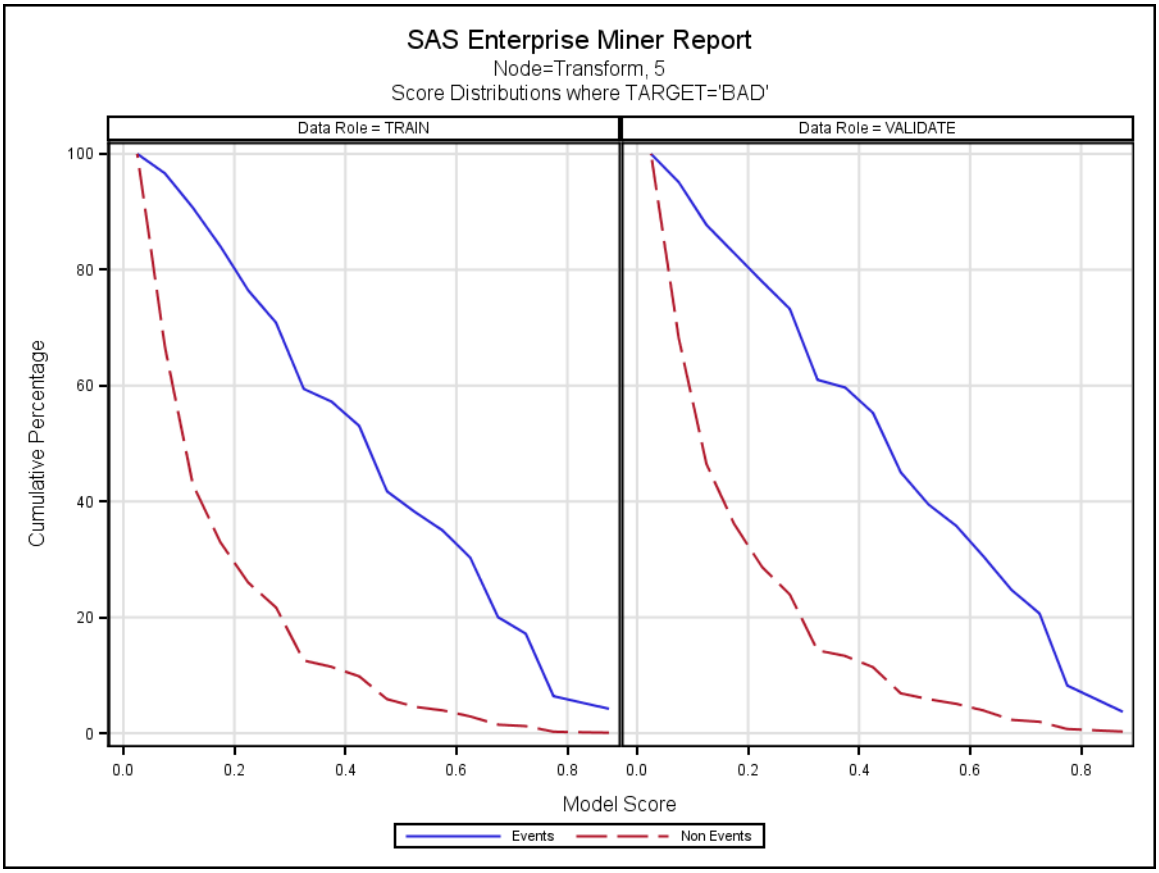



SAS Enterprise Miner Report
Node=Transform, 5
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Transform, 5
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Transform, 5
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Transform, 5
Score Distributions where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events



Node=Transform, 5
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.85-0.90	25	4.2088	0.0839	4.209	0.084
0.75-0.80	13	2.1886	0.1677	6.397	0.252
0.70-0.75	64	10.7744	0.9644	17.172	1.216
0.65-0.70	17	2.8620	0.2516	20.034	1.468
0.60-0.65	61	10.2694	1.4256	30.303	2.893
0.55-0.60	28	4.7138	1.0482	35.017	3.941
0.50-0.55	19	3.1987	0.6289	38.215	4.570
0.45-0.50	21	3.5354	1.2998	41.751	5.870
0.40-0.45	67	11.2795	3.9413	53.030	9.811
0.35-0.40	25	4.2088	1.6352	57.239	11.447
0.30-0.35	13	2.1886	1.0901	59.428	12.537
0.25-0.30	68	11.4478	9.1824	70.875	21.719
0.20-0.25	33	5.5556	4.2767	76.431	25.996
0.15-0.20	45	7.5758	6.9182	84.007	32.914
0.10-0.15	40	6.7340	10.0629	90.741	42.977
0.05-0.10	35	5.8923	23.6059	96.633	66.583
0.00-0.05	20	3.3670	33.4172	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.85-0.90	22	3.6975	0.2934	3.697	0.293
0.75-0.80	27	4.5378	0.4191	8.235	0.712
0.70-0.75	74	12.4370	1.2573	20.672	1.970
0.65-0.70	24	4.0336	0.3353	24.706	2.305
0.60-0.65	34	5.7143	1.5926	30.420	3.898
0.55-0.60	32	5.3782	1.1735	35.798	5.071
0.50-0.55	22	3.6975	0.7963	39.496	5.868
0.45-0.50	33	5.5462	1.0059	45.042	6.873
0.40-0.45	61	10.2521	4.5264	55.294	11.400
0.35-0.40	26	4.3697	1.9279	59.664	13.328
0.30-0.35	8	1.3445	0.9640	61.008	14.292
0.25-0.30	73	12.2689	9.6815	73.277	23.973
0.20-0.25	28	4.7059	4.7360	77.983	28.709
0.15-0.20	29	4.8739	7.3764	82.857	36.085
0.10-0.15	29	4.8739	10.3521	87.731	46.438
0.05-0.10	44	7.3950	21.7519	95.126	68.189
0.00-0.05	29	4.8739	31.8106	100.000	100.000

SAS Enterprise Miner Report

Node=Transform, 3
Summary

Node id = Neural5
Node label = Transform, 3
Meta path = Ids => Stat => Part => Impt => Trans => BINNING => Varsel => Neural5
Notes =

Node=Transform, 3
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	3		Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Transform, 3
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	NOMINAL	1	G_GRP_IMP_DEBTINC
INPUT	ORDINAL	3	GRP_IMP_CLAGE GRP_IMP_NINQ GRP_INDELINQ

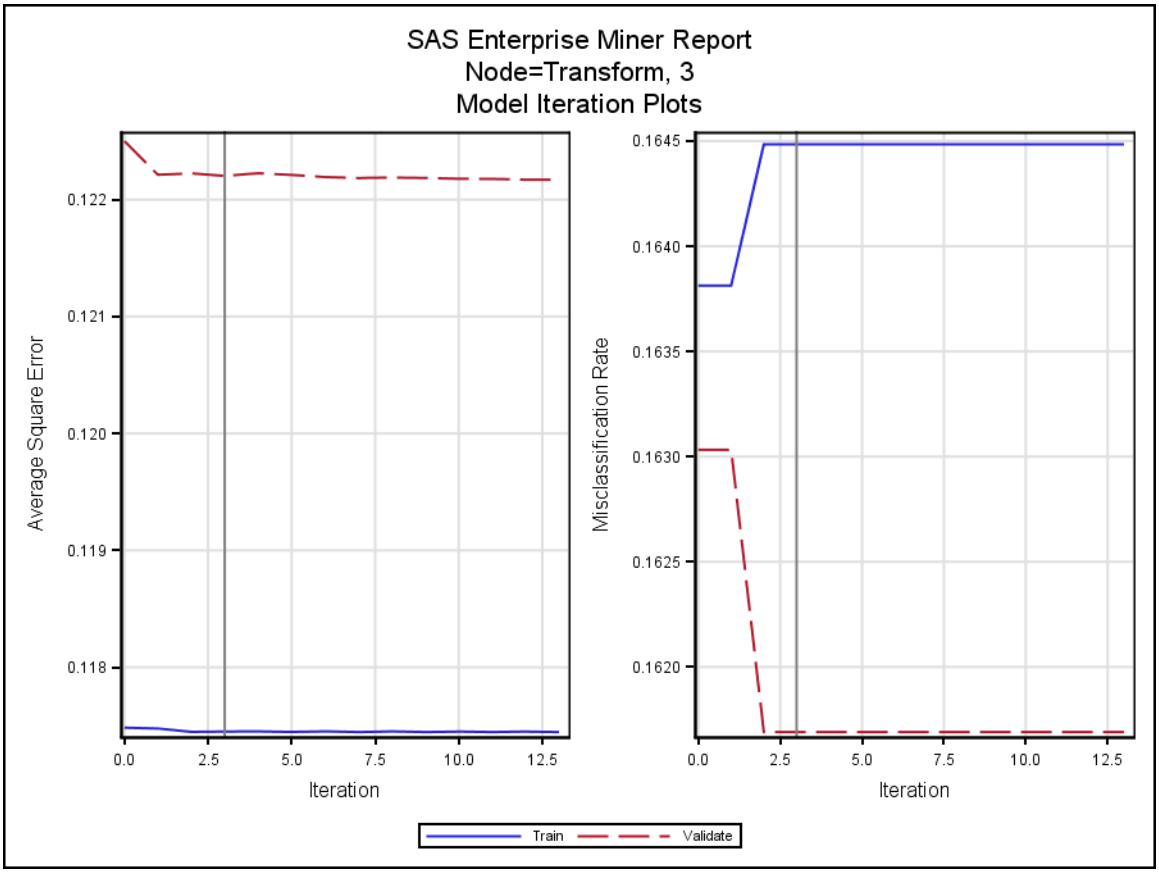
Node=Transform, 3
Model Fit Statistics

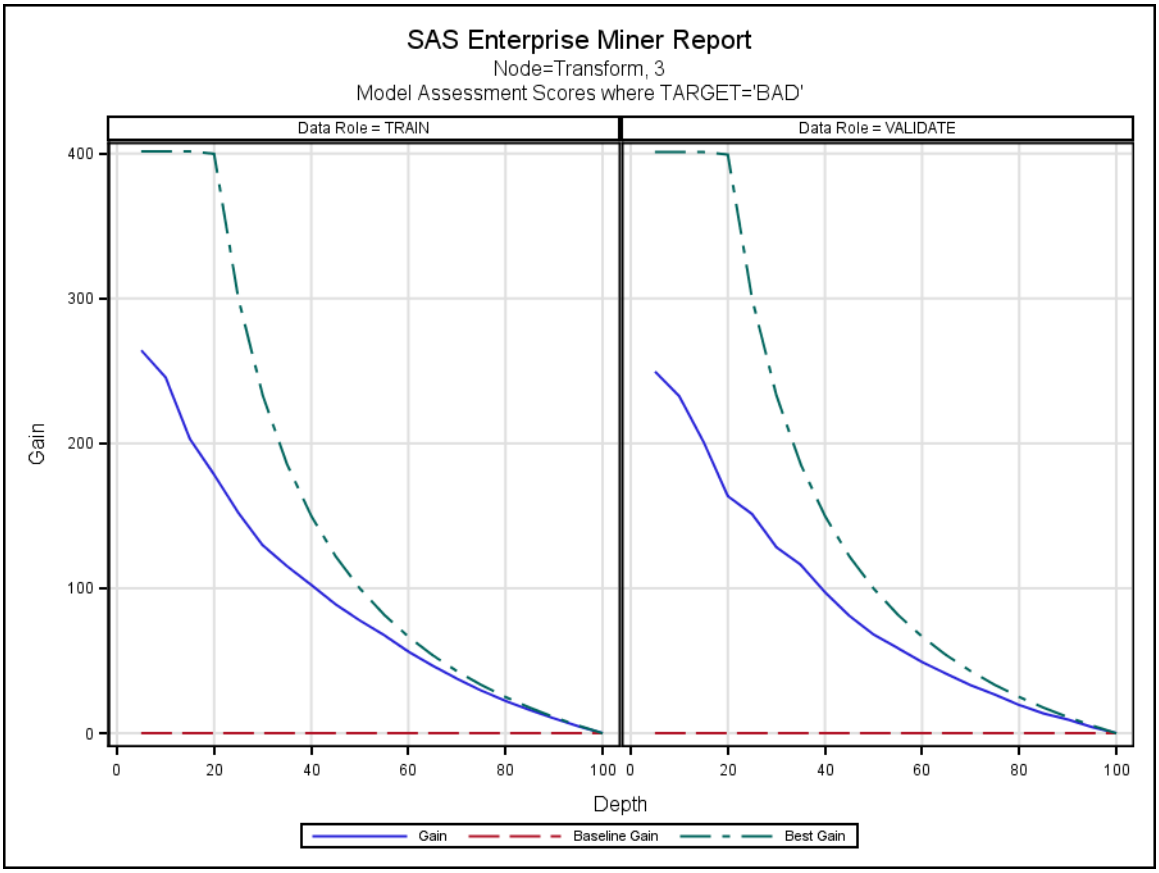
Target=BAD Target Label=' '

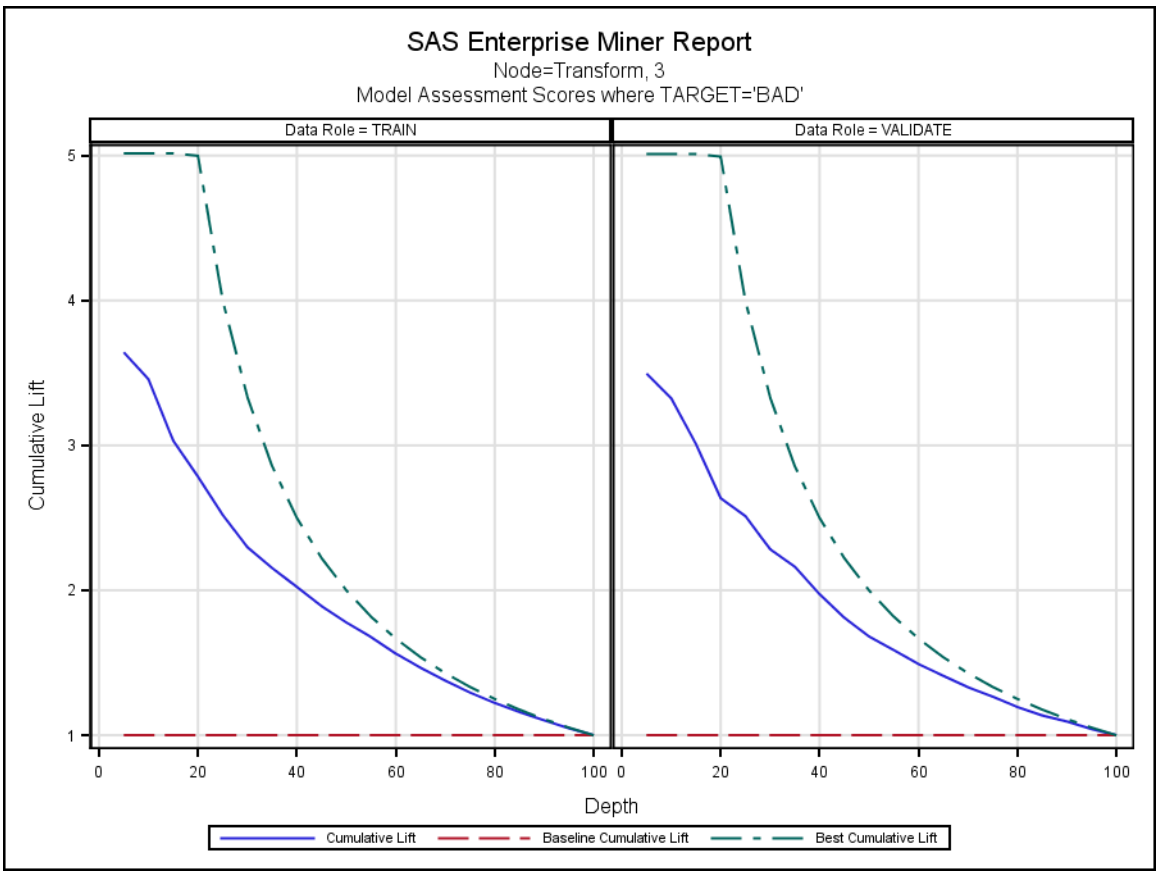
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2945.00	.	.
Model Degrees of Freedom	34.00	.	.
Number of Estimated Weights	34.00	.	.
Akaike's Information Criterion	2287.13	.	.

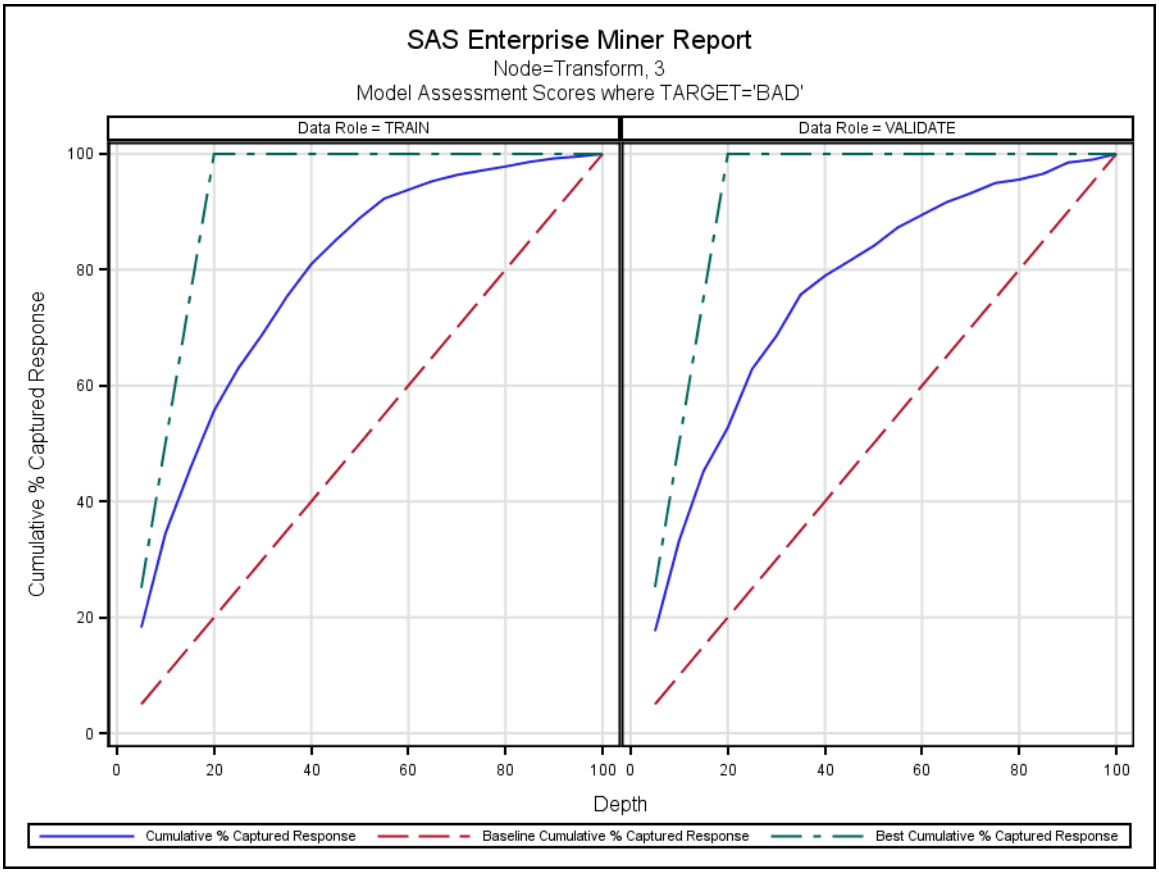
Target=BAD Target Label=' '

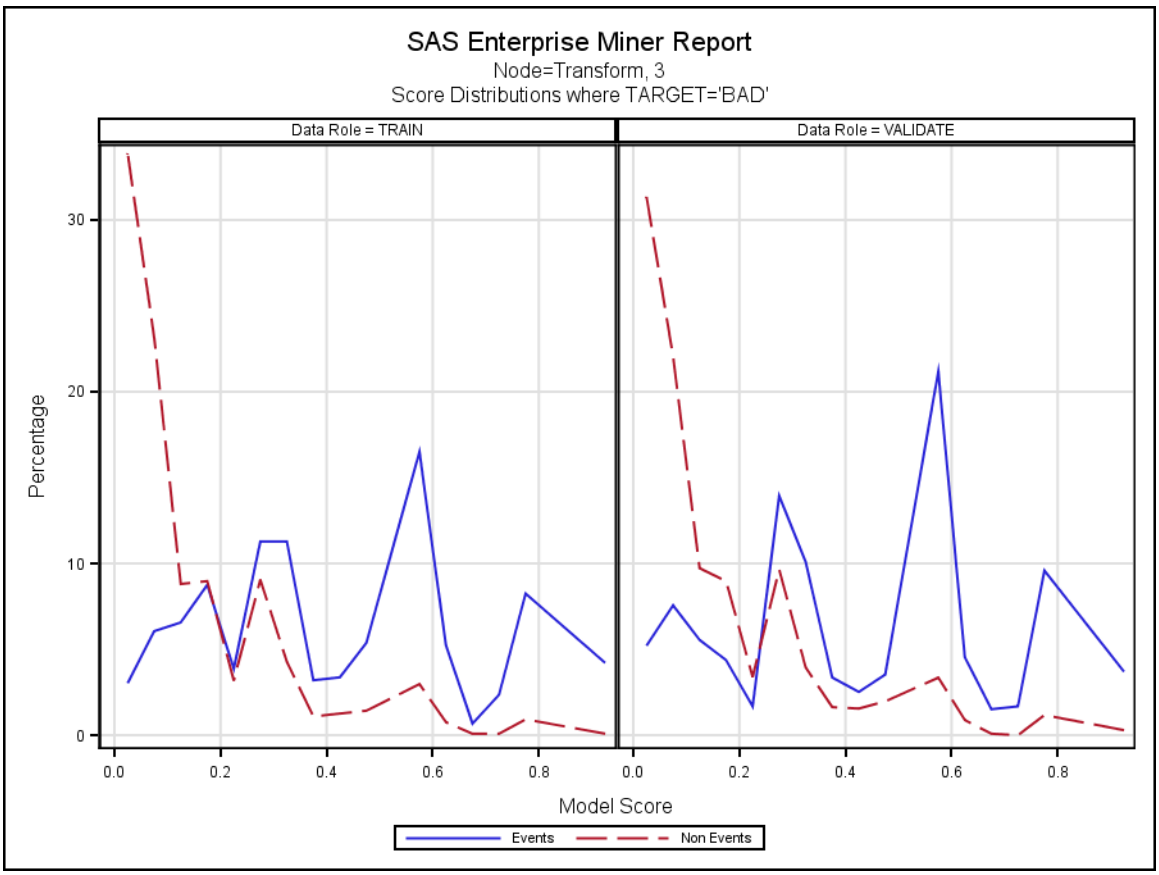
Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2491.11	.	.
Average Squared Error	0.12	0.12	.
Maximum Absolute Error	0.99	0.99	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.34	0.35	.
Sum of Squared Errors	699.77	728.57	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.12	.
Root Final Prediction Error	0.35	.	.
Root Mean Squared Error	0.34	0.35	.
Average Error Function	0.37	0.39	.
Error Function	2219.13	2351.50	.
Misclassification Rate	0.16	0.16	.
Number of Wrong Classifications	490.00	482.00	.



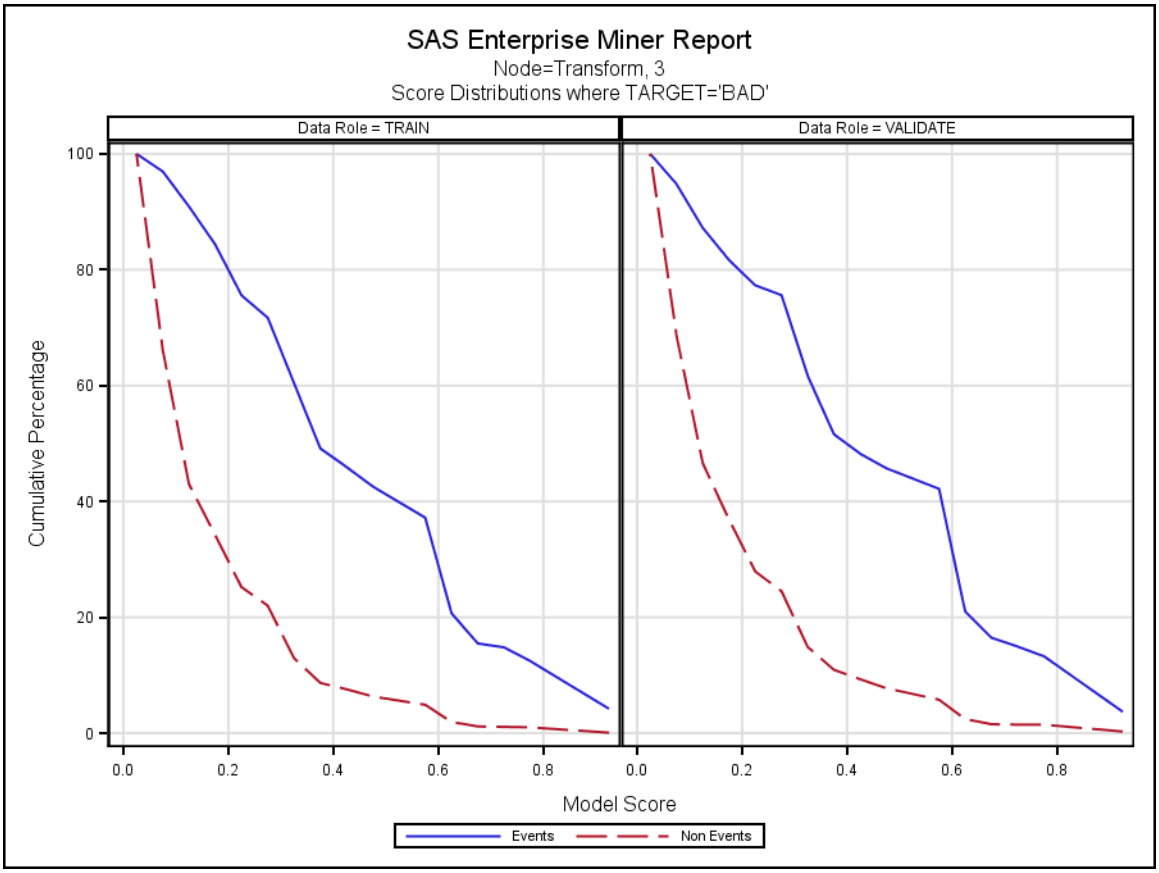

SAS Enterprise Miner Report
Node=Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Gain
400
300
200
100
0
0
20
40
60
80
100
Depth
Gain
Baseline Gain
Best Gain


SAS Enterprise Miner Report
Node=Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative Lift
5
4
3
2
1
0
20
40
60
80
100
Depth
Cumulative Lift
Baseline Cumulative Lift
Best Cumulative Lift


SAS Enterprise Miner Report
Node=Transform, 3
Model Assessment Scores where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Cumulative % Captured Response
Depth
Cumulative % Captured Response
Baseline Cumulative % Captured Response
Best Cumulative % Captured Response


SAS Enterprise Miner Report
Node=Transform, 3
Score Distributions where TARGET='BAD'
Data Role = TRAIN
Data Role = VALIDATE
Percentage
Model Score
Events
Non Events

SAS Enterprise Miner Report
Node=Transform, 3
Score Distributions where TARGET='BAD'



Node=Transform, 3
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.90-0.95	25	4.2088	0.0839	4.209	0.084
0.75-0.80	49	8.2492	0.9224	12.458	1.006
0.70-0.75	14	2.3569	0.0839	14.815	1.090
0.65-0.70	4	0.6734	0.0839	15.488	1.174
0.60-0.65	31	5.2189	0.7547	20.707	1.929
0.55-0.60	98	16.4983	2.9769	37.205	4.906
0.45-0.50	32	5.3872	1.4256	42.593	6.331
0.40-0.45	20	3.3670	1.2579	45.960	7.589
0.35-0.40	19	3.1987	1.0901	49.158	8.679
0.30-0.35	67	11.2795	4.2767	60.438	12.956
0.25-0.30	67	11.2795	9.0566	71.717	22.013
0.20-0.25	23	3.8721	3.1866	75.589	25.199
0.15-0.20	52	8.7542	8.9727	84.343	34.172
0.10-0.15	39	6.5657	8.8050	90.909	42.977
0.05-0.10	36	6.0606	23.1447	96.970	66.122
0.00-0.05	18	3.0303	33.8784	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.90-0.95	22	3.6975	0.2934	3.697	0.293
0.75-0.80	57	9.5798	1.1735	13.277	1.467
0.70-0.75	10	1.6807	0.0000	14.958	1.467
0.65-0.70	9	1.5126	0.0838	16.471	1.551
0.60-0.65	27	4.5378	0.8801	21.008	2.431
0.55-0.60	126	21.1765	3.3529	42.185	5.784
0.45-0.50	21	3.5294	1.9698	45.714	7.754
0.40-0.45	15	2.5210	1.5507	48.235	9.304
0.35-0.40	20	3.3613	1.6345	51.597	10.939
0.30-0.35	60	10.0840	3.9396	61.681	14.878
0.25-0.30	83	13.9496	9.6396	75.630	24.518
0.20-0.25	10	1.6807	3.3948	77.311	27.913
0.15-0.20	26	4.3697	8.9690	81.681	36.882
0.10-0.15	33	5.5462	9.7234	87.227	46.605
0.05-0.10	45	7.5630	22.0453	94.790	68.650
0.00-0.05	31	5.2101	31.3495	100.000	100.000

SAS Enterprise Miner Report

Node=Transform, 1
Summary

Node id = Neural4
Node label = Transform, 1
Meta path = Ids => Stat => Part => Impt => Trans => BINNING => Varsel => Neural4
Notes =

Node=Transform, 1
Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	NeuralNetwork		Hidden	1	3	Prelim	Y	
AbsConvValue	-1.34078E154	-7.237006E75	HiddenActivation	DEFAULT		PrelimMaxTime	1 HOUR	
AbsFTime	1		HiddenBias	Y		PrelimMaxiter	10	
AbsFValue	0		HiddenCombFunction	DEFAULT		PrelimOutest		
AbsGTime	1		HiddenUnits	N		PreliminaryRuns	5	
AbsGValue	0.00001		InitialDs			RandDist	NORMAL	
AbsXTime	1		InitialSeed	12345		RandLoc	0	
AbsXValue	1E-8		InputStandardization	STD		RandScale	0.1	
Accelerate	1.2		Learn	0.1		Residuals	Y	
AddHidden	Y		MaxLearn	50		Standardizations	N	
CodefileNoRes			MaxMomentum	1.75		SuppressOutput	N	
CodefileRes			Maxiter	50		TargetActivation	DEFAULT	
ConvDefaults	Y		Maxtime	4 HOURS		TargetBias	Y	
Decelerate	0.5		MinLearn	0.00001		TargetCombFunction	DEFAULT	
DirectConnection	N		ModelSelectionCriterion	PROFIT/LOSS		TargetError	DEFAULT	
FConvTime	1		Momentum	0		Tilt	0	
FConvValue	0		NetworkArchitecture	MLP		TrainCode		
GConvTime	1		Outest			TrainingTechnique	DEFAULT	
GConvValue	1E-6		Outfit			UseEstimates	N	

Node=Transform, 1
Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD
INPUT	NOMINAL	1	G_GRP_IMP_DEBTINC
INPUT	ORDINAL	3	GRP_IMP_CLAGE GRP_IMP_NINQ GRP_INDELINQ

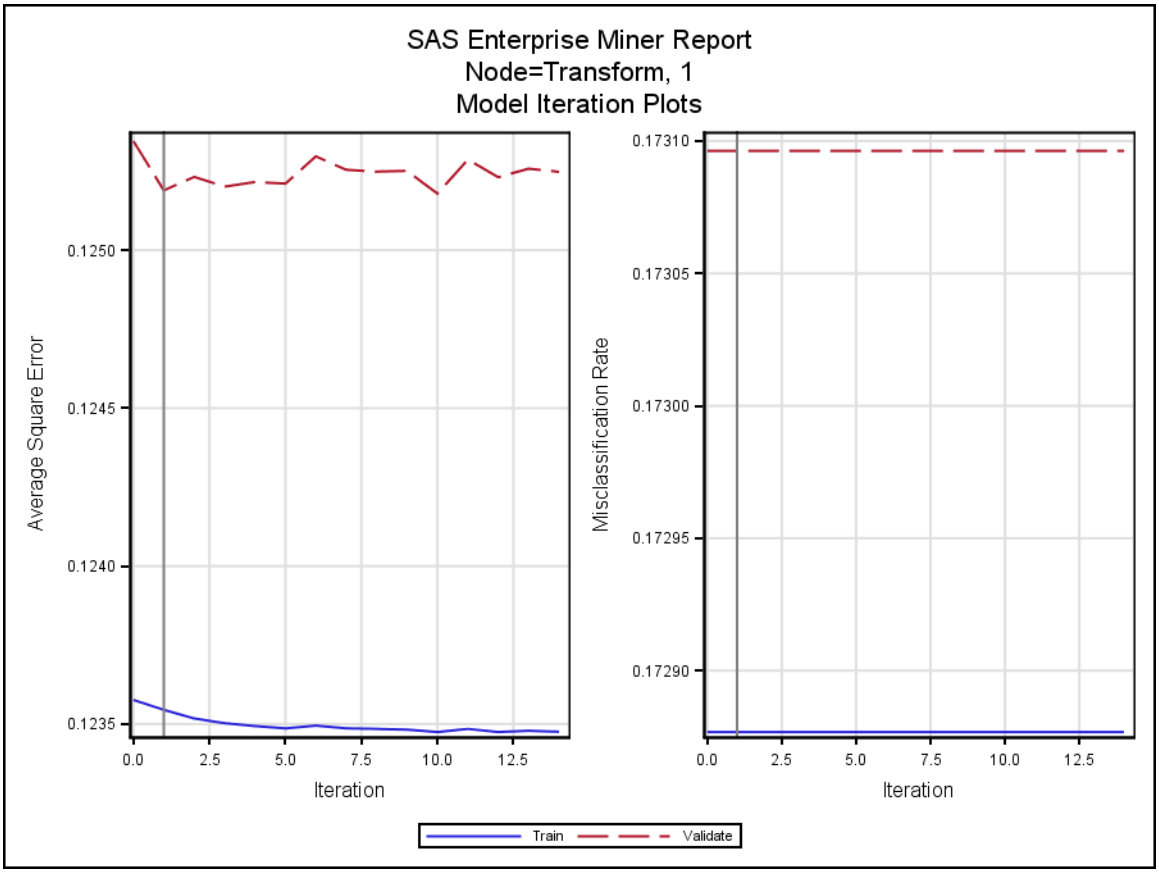
Node=Transform, 1
Model Fit Statistics

Target=BAD Target Label=' '

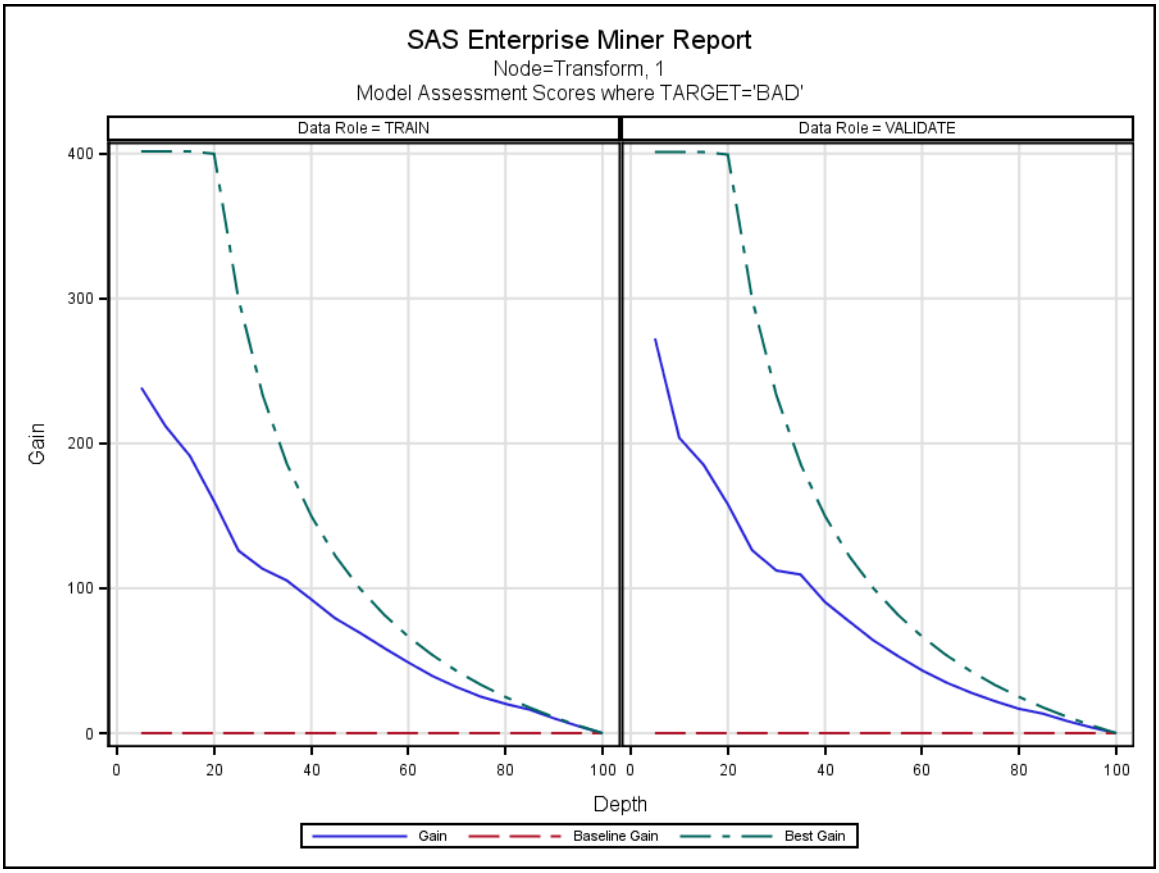
Label of Statistic	Train	Validation	Test
Total Degrees of Freedom	2979.00	.	.
Degrees of Freedom for Error	2967.00	.	.
Model Degrees of Freedom	12.00	.	.
Number of Estimated Weights	12.00	.	.
Akaike's Information Criterion	2362.46	.	.

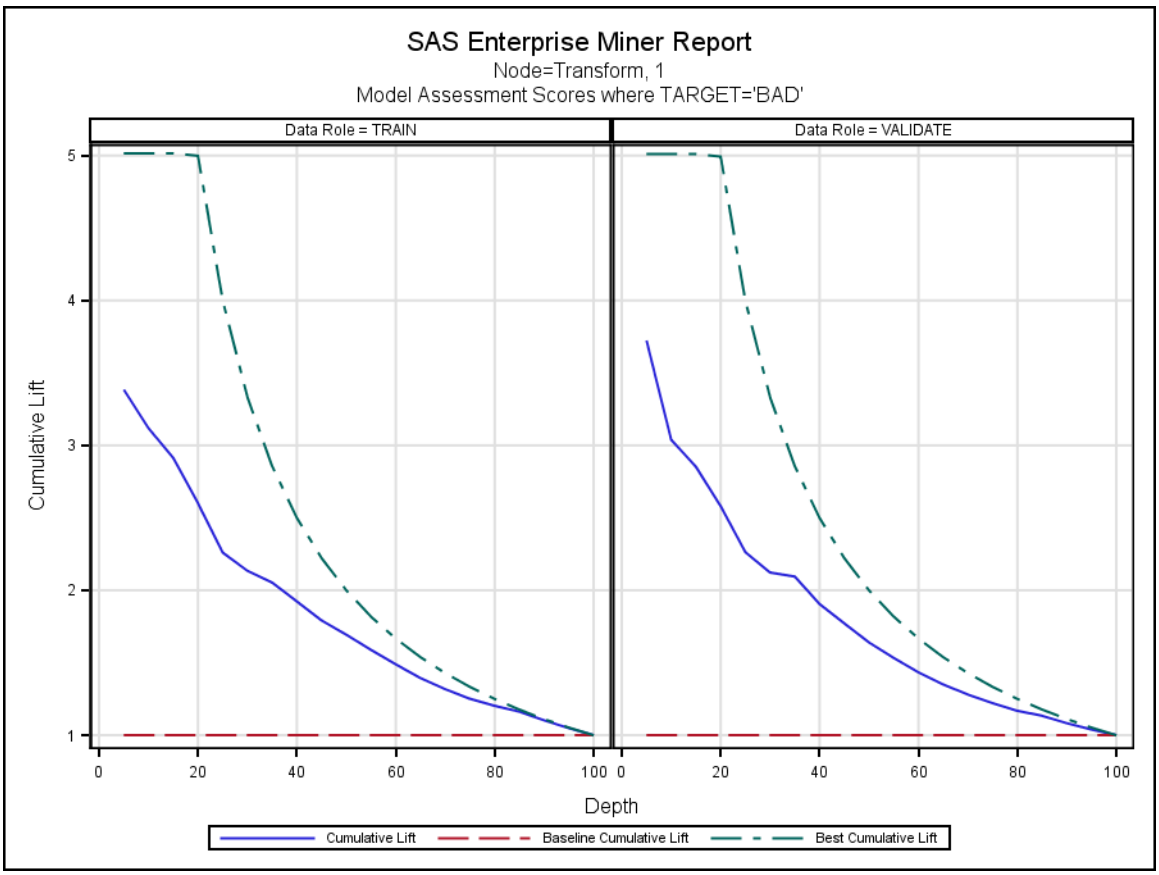
Target=BAD Target Label=' '

Label of Statistic	Train	Validation	Test
Schwarz's Bayesian Criterion	2434.45	.	.
Average Squared Error	0.12	0.13	.
Maximum Absolute Error	0.97	0.97	.
Divisor for ASE	5958.00	5962.00	.
Sum of Frequencies	2979.00	2981.00	.
Root Average Squared Error	0.35	0.35	.
Sum of Squared Errors	736.08	746.38	.
Sum of Case Weights Times Freq	5958.00	5962.00	.
Final Prediction Error	0.12	.	.
Mean Squared Error	0.12	0.13	.
Root Final Prediction Error	0.35	.	.
Root Mean Squared Error	0.35	0.35	.
Average Error Function	0.39	0.40	.
Error Function	2338.46	2403.67	.
Misclassification Rate	0.17	0.17	.
Number of Wrong Classifications	515.00	516.00	.

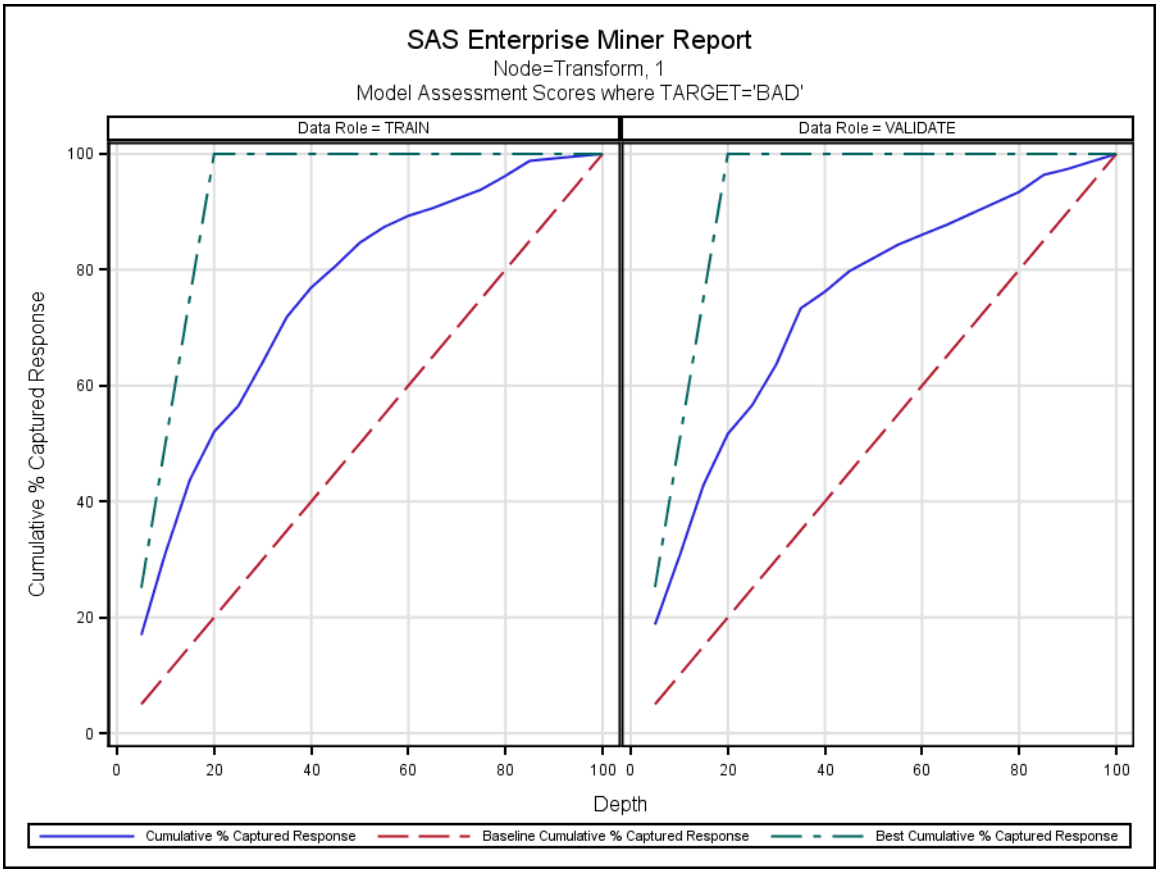


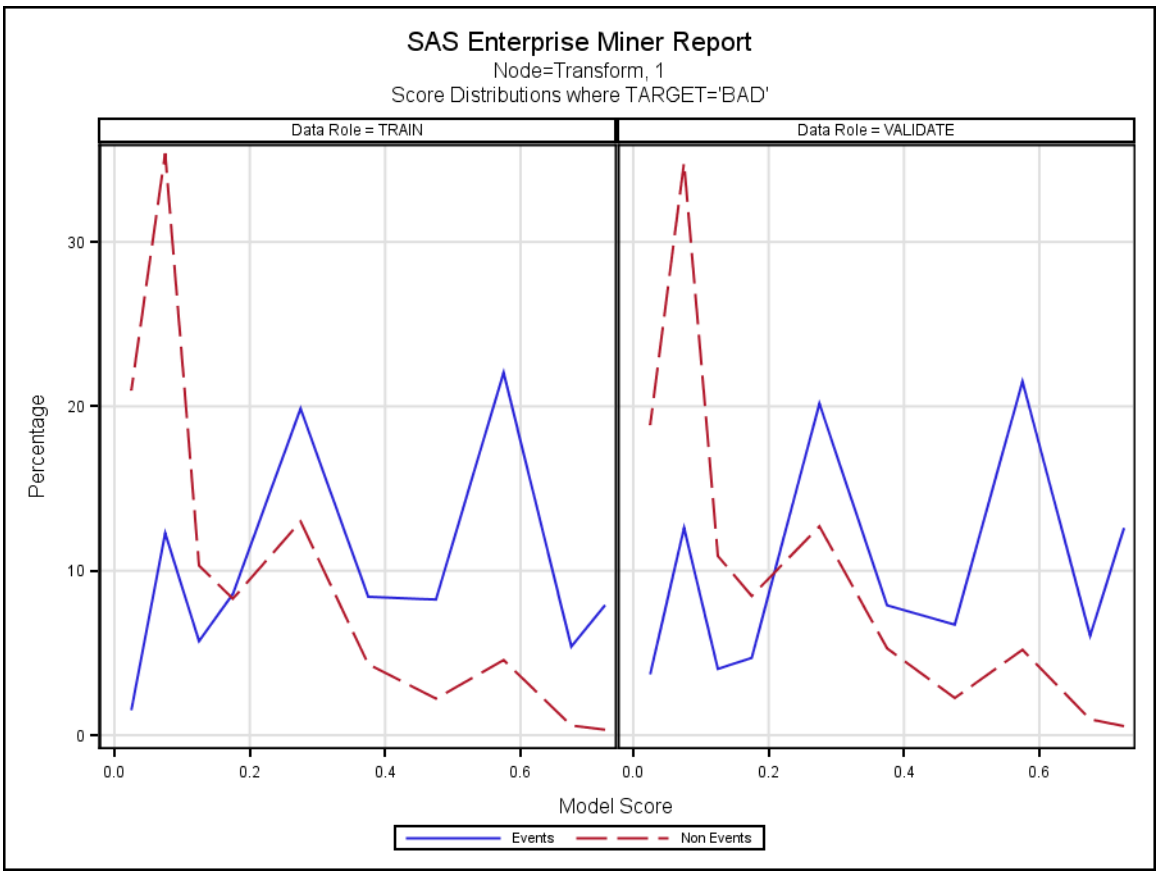
SAS Enterprise Miner Report
Node=Transform, 1
Model Assessment Scores where TARGET='BAD'

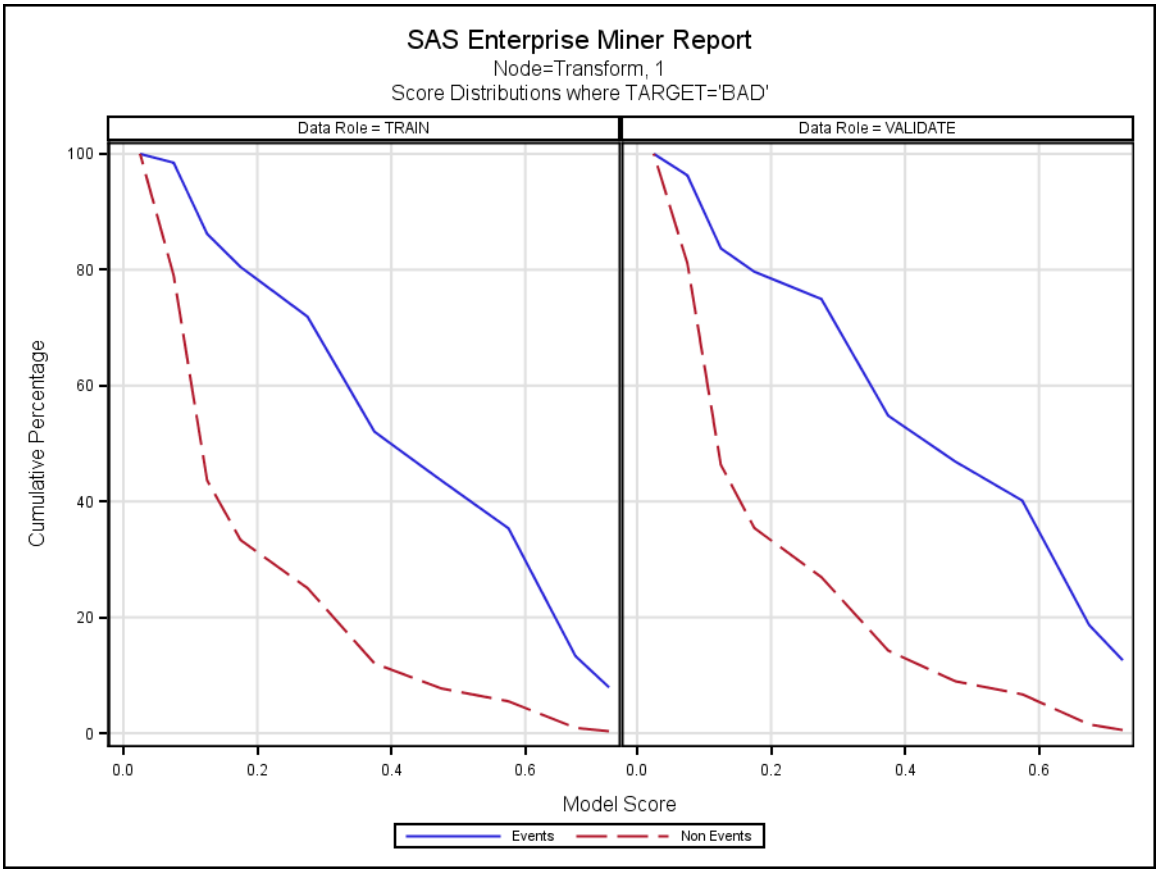




SAS Enterprise Miner Report
Node=Transform, 1
Model Assessment Scores where TARGET='BAD'







Node=Transform, 1
Score Distributions

Target Variable=BAD Data Role=TRAIN

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.70-0.75	47	7.9125	0.3354	7.912	0.335
0.65-0.70	32	5.3872	0.5870	13.300	0.922
0.55-0.60	131	22.0539	4.5702	35.354	5.493
0.45-0.50	49	8.2492	2.2222	43.603	7.715
0.35-0.40	50	8.4175	4.3187	52.020	12.034
0.25-0.30	118	19.8653	12.9979	71.886	25.031
0.15-0.20	51	8.5859	8.3019	80.471	33.333
0.10-0.15	34	5.7239	10.3145	86.195	43.648
0.05-0.10	73	12.2896	35.3878	98.485	79.036
0.00-0.05	9	1.5152	20.9644	100.000	100.000

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.70-0.75	75	12.6050	0.5448	12.605	0.545
0.65-0.70	36	6.0504	0.9640	18.655	1.509
0.55-0.60	128	21.5126	5.1970	40.168	6.706
0.45-0.50	40	6.7227	2.2632	46.891	8.969
0.35-0.40	47	7.8992	5.2808	54.790	14.250

Target Variable=BAD Data Role=VALIDATE

Posterior Probability Range	Number of Events	Percentage of Events	Percentage of Nonevents	Cumulative Percentage of Events	Cumulative Percentage of Nonevents
0.25-0.30	120	20.1681	12.6991	74.958	26.949
0.15-0.20	28	4.7059	8.4661	79.664	35.415
0.10-0.15	24	4.0336	10.8969	83.697	46.312
0.05-0.10	75	12.6050	34.8282	96.303	81.140
0.00-0.05	22	3.6975	18.8600	100.000	100.000

SAS Enterprise Miner Report

Node=Model Comparison Summary

Node id = MdlComp
Node label = Model Comparison
Meta path = Ids => Stat => Part => Impt => Neural => MdlComp
Notes =

Node=Model Comparison Properties

Property	Value	Default	Property	Value	Default	Property	Value	Default
Component	ModelCompare		NormalizeReportingVariables	Y		ScoreDistBin	20	
AssessAllTargetLevels	N		NumberOfReportedLevels	1E-6		SelectionCriteria	DEFAULT	
DecileBin	20		NumberofBins	20		SelectionData	DEFAULT	
HPCriteria	DEFAULT		ProfitEpsilon	1E-6		SelectionDepth	10	
LiftEpsilon	1E-6		RecomputeAssess	N		SelectionTable	TRAIN	TABLE
ModelCriteria	Valid: Misclassification Rate		RocChart	Y		StatisticUsed	_VMISC_	
ModelDescription	No Transform, 5		RocEpsilon	0.01		TargetLabel		
ModelId	Neural		RoiEpsilon	1E-6		TargetName	BAD	

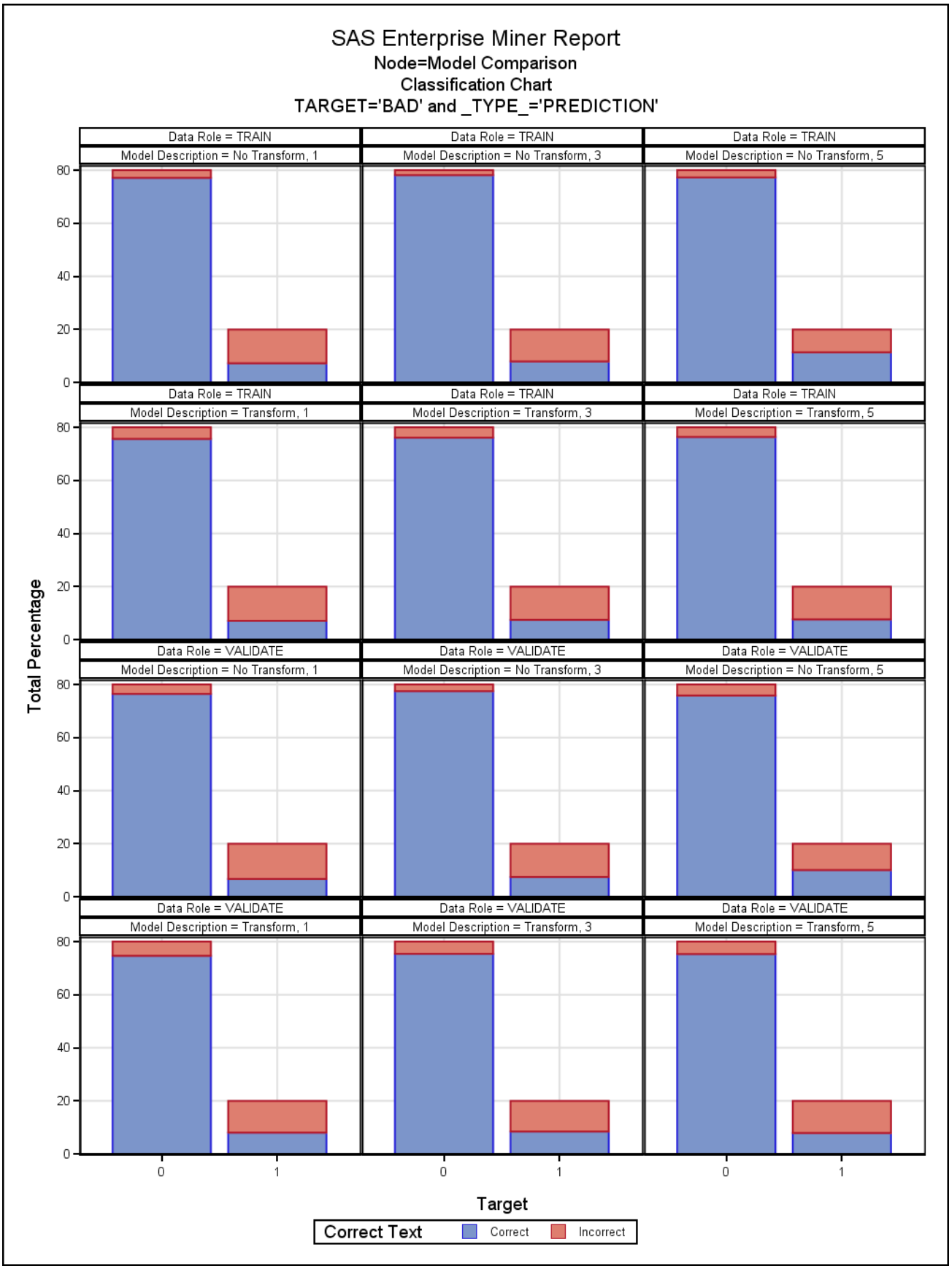
Node=Model Comparison Variable Summary

Role	Level	Frequency Count	Name
TARGET	BINARY	1	BAD

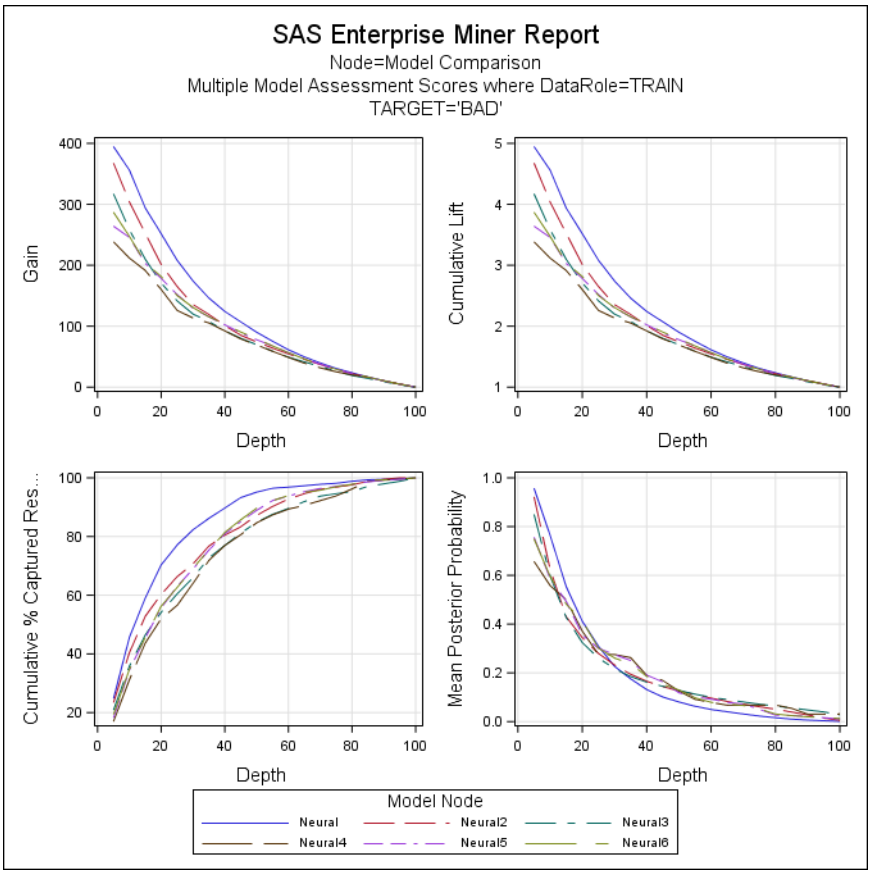
Node=Model Comparison Fit Statistics Table

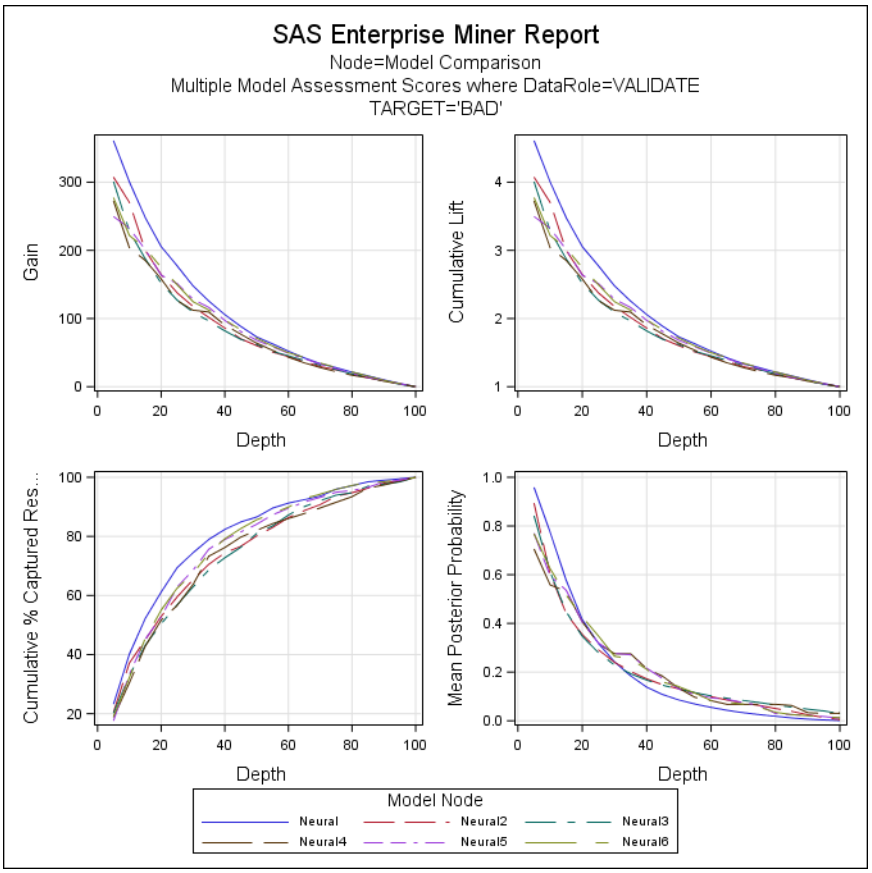
Selected Model	Predecessor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion: Valid: Misclassification Rate	Train: Average Squared Error	Train: Misclassification Rate	Train: Kolmogorov-Smirnov Statistic
Y	Neural	Neural	No Transform, 5	BAD		0.14089	0.08272	0.11346	0.660
	Neural2	Neural2	No Transform, 3	BAD		0.15096	0.10503	0.13897	0.521
	Neural5	Neural5	Transform, 3	BAD		0.16169	0.11745	0.16448	0.514
	Neural6	Neural6	Transform, 5	BAD		0.16773	0.11586	0.15979	0.517
	Neural3	Neural3	No Transform, 1	BAD		0.16840	0.11741	0.15643	0.471
	Neural4	Neural4	Transform, 1	BAD		0.17310	0.12354	0.17288	0.471

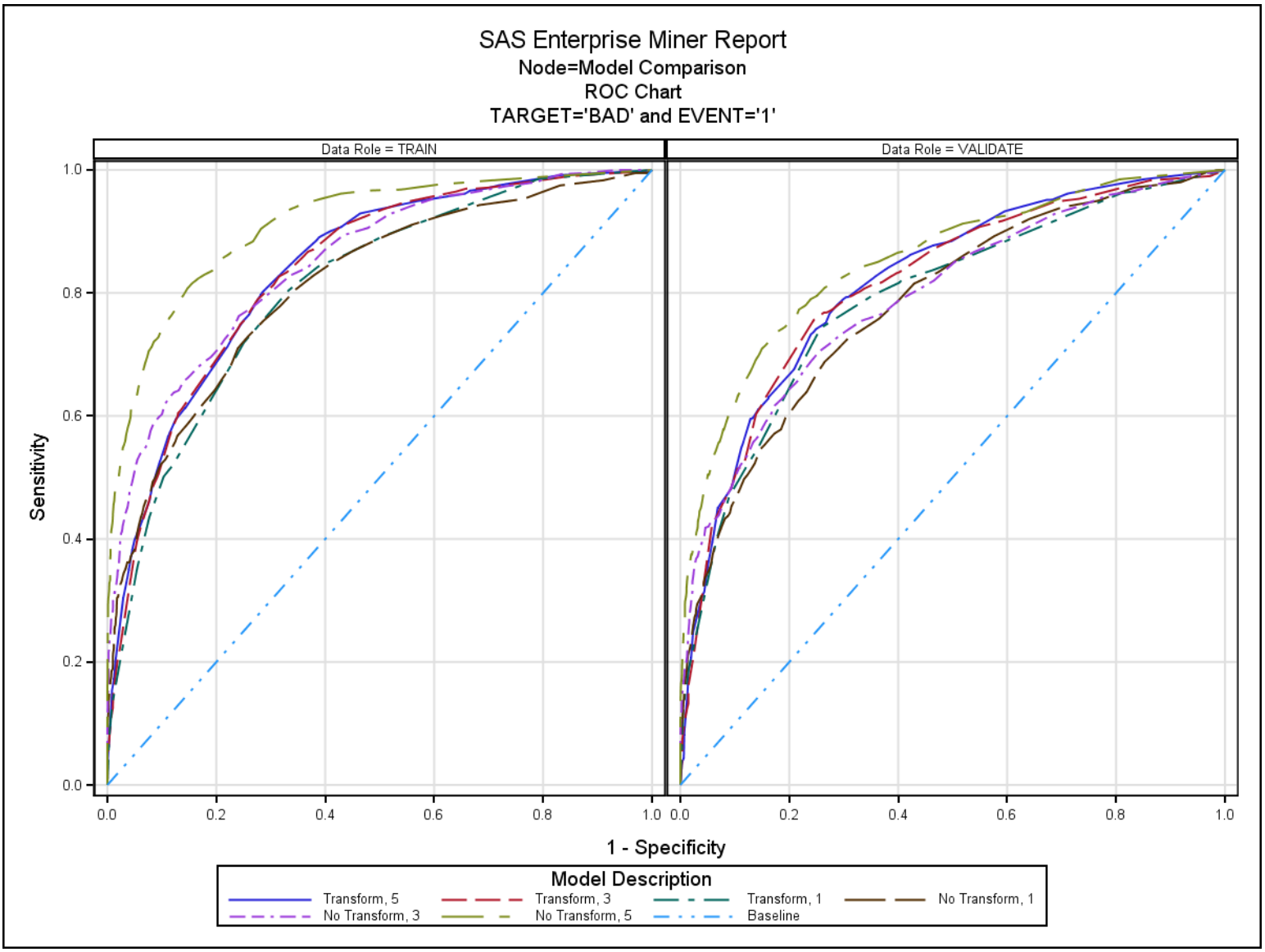
Selected Model	Predecessor Node	Model Node	Model Description	Target Variable	Target Label	Selection Criterion: Valid: Misclassification Rate	Valid: Average Squared Error	Valid: Misclassification Rate	Valid: Kolmogorov-Smirnov Statistic
Y	Neural	Neural	No Transform, 5	BAD		0.14089	0.10467	0.14089	0.560
	Neural2	Neural2	No Transform, 3	BAD		0.15096	0.11996	0.15096	0.450
	Neural5	Neural5	Transform, 3	BAD		0.16169	0.12220	0.16169	0.511
	Neural6	Neural6	Transform, 5	BAD		0.16773	0.12078	0.16773	0.493
	Neural3	Neural3	No Transform, 1	BAD		0.16840	0.12642	0.16840	0.423
	Neural4	Neural4	Transform, 1	BAD		0.17310	0.12519	0.17310	0.486


SAS Enterprise Miner Report
Node=Model Comparison
Classification Chart
TARGET='BAD' and _TYPE_='PREDICTION'
Data Role = TRAIN
Model Description = No Transform, 1
Data Role = TRAIN
Model Description = No Transform, 3
Data Role = TRAIN
Model Description = No Transform, 5
Data Role = TRAIN
Model Description = Transform, 1
Data Role = TRAIN
Model Description = Transform, 3
Data Role = TRAIN
Model Description = Transform, 5
Data Role = VALIDATE
Model Description = No Transform, 1
Data Role = VALIDATE
Model Description = No Transform, 3
Data Role = VALIDATE
Model Description = No Transform, 5
Data Role = VALIDATE
Model Description = Transform, 1
Data Role = VALIDATE
Model Description = Transform, 3
Data Role = VALIDATE
Model Description = Transform, 5
Total Percentage
0
20
40
60
80
0
1
Target
Correct Text
Correct
Incorrect

SAS Enterprise Miner Report
Node=Model Comparison
Multiple Model Assessment Scores where DataRole=TRAIN
TARGET='BAD'







End of Report