

Selecting the Best Model using Honest Assessment

The GLMSELECT Procedure

| | |
|---------------------------|--------------------|
| Data Set | STAT1.AMESHousing3 |
| Validation Data Set | STAT1.AMESHousing4 |
| Dependent Variable | SalePrice |
| Selection Method | Backward |
| Select Criterion | SBC |
| Stop Criterion | SBC |
| Choose Criterion | Validation ASE |
| Effect Hierarchy Enforced | None |

| Observation Profile for Analysis Data | |
|--|-----|
| Number of Observations Read | 300 |
| Number of Observations Used | 294 |
| Number of Observations Used for Training | 294 |

| Observation Profile for Validation Data | |
|---|-----|
| Number of Observations Read | 300 |
| Number of Observations Used | 293 |

| Class Level Information | | |
|-------------------------|--------|---|
| Class | Levels | Values |
| House_Style2 | 5 | 1Story 2Story SFoyer SLvl 1.5Fin |
| Overall_Qual2 | 3 | 5 6 4 |
| Overall_Cond2 | 3 | 5 6 4 |
| Fireplaces | 3 | 1 2 0 |
| Season_Sold | 4 | 2 3 4 1 |
| Garage_Type_2 | 3 | Detached NA Attached |
| Foundation_2 | 3 | Cinder Block Concrete/Slab Brick/Tile/Stone |
| Heating_QC | 4 | Fa Gd TA Ex |
| Masonry_Veneer | 2 | Y N |
| Lot_Shape_2 | 2 | Regular Irregular |
| Central_Air | 2 | Y N |

| Dimensions | |
|----------------------|----|
| Number of Effects | 20 |
| Number of Parameters | 43 |

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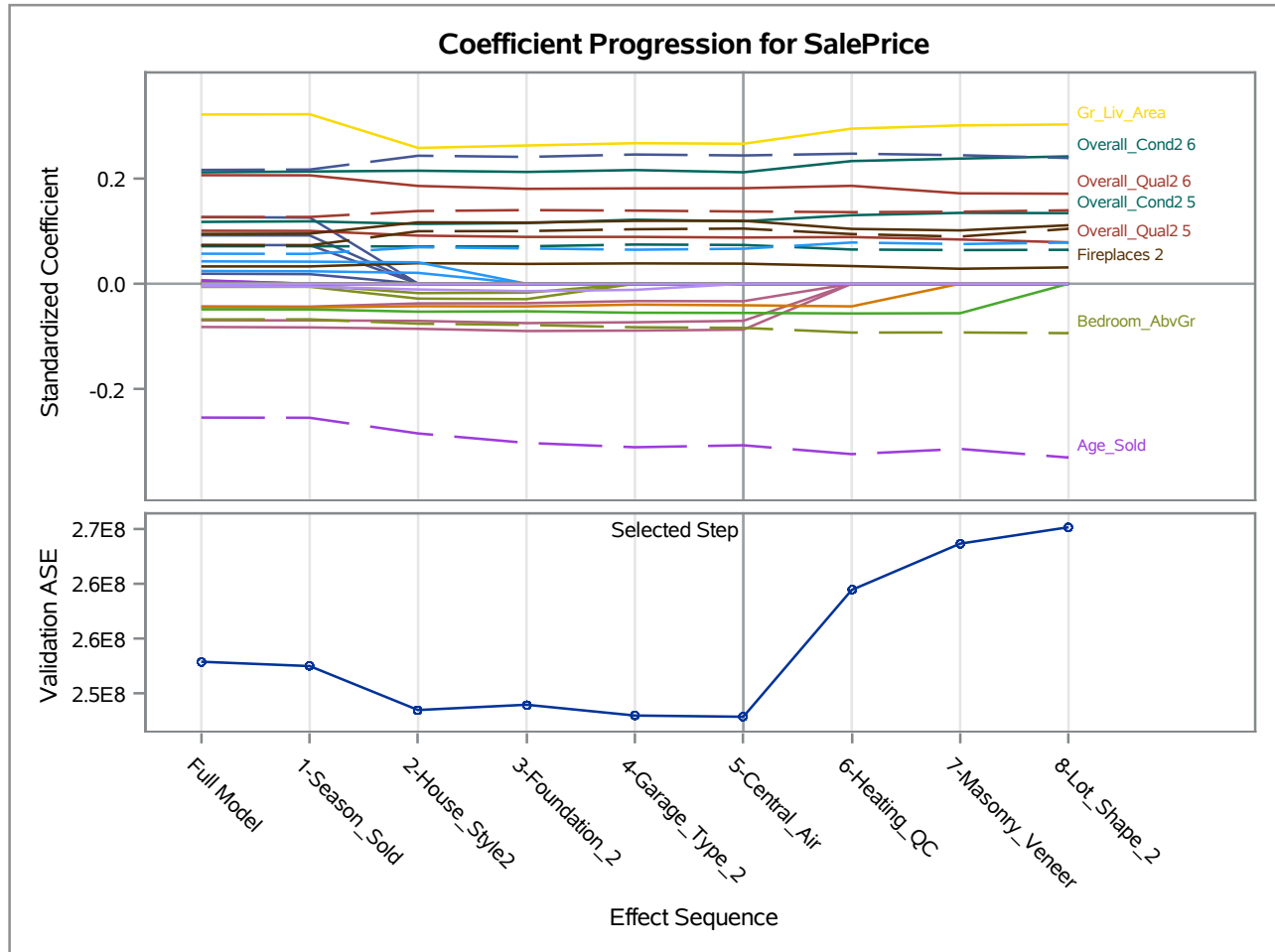
| Backward Selection Summary | | | | | | |
|------------------------------|----------------|-------------------|------------------|------------|-----------|----------------|
| Step | Effect Removed | Number Effects In | Number Params In | SBC | ASE | Validation ASE |
| 0 | | 20 | 32 | 5779.6460 | 185773538 | 252878776 |
| 1 | Season_Sold | 19 | 29 | 5762.6753 | 185824120 | 252480746 |
| 2 | House_Style2 | 18 | 25 | 5750.8247 | 192832172 | 248469026 |
| 3 | Foundation_2 | 17 | 23 | 5740.3830 | 193440101 | 248951925 |
| 4 | Garage_Type_2 | 16 | 21 | 5730.0735 | 194137231 | 247966687 |
| 5 | Central_Air | 15 | 20 | 5724.5490 | 194242334 | 247854963* |
| 6 | Heating_QC | 14 | 17 | 5721.3123 | 203586891 | 259432895 |
| 7 | Masonry_Veneer | 13 | 16 | 5718.5873 | 205646000 | 263660934 |
| 8 | Lot_Shape_2 | 12 | 15 | 5717.9317* | 209193215 | 265159474 |
| * Optimal Value of Criterion | | | | | | |

Selection stopped at a local minimum of the SBC criterion.

| Stop Details | | | | |
|---------------|-----------------|---------------|---|-------------|
| Candidate For | Effect | Candidate SBC | | Compare SBC |
| Removal | Deck_Porch_Area | 5718.6683 | > | 5717.9317 |

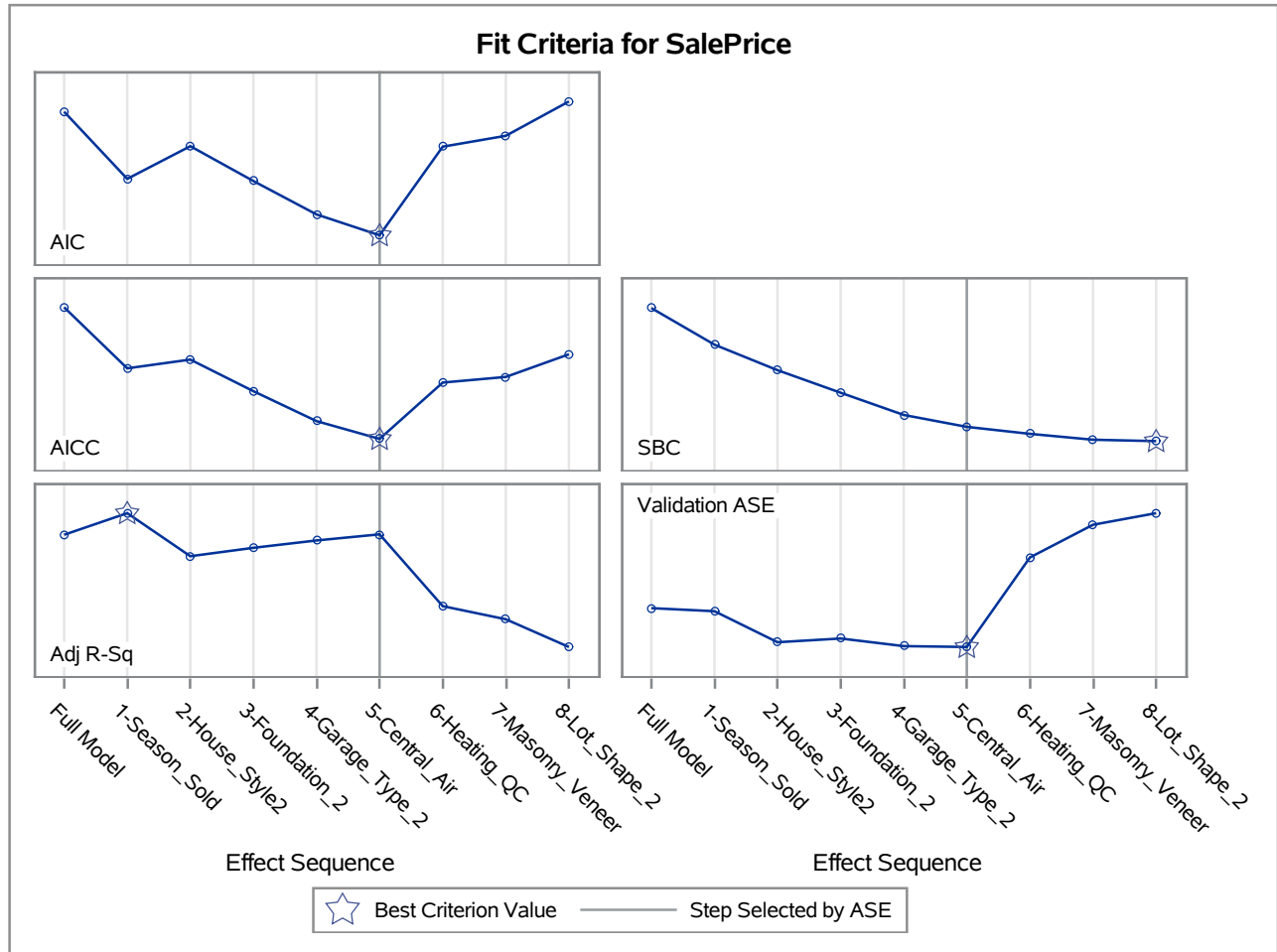
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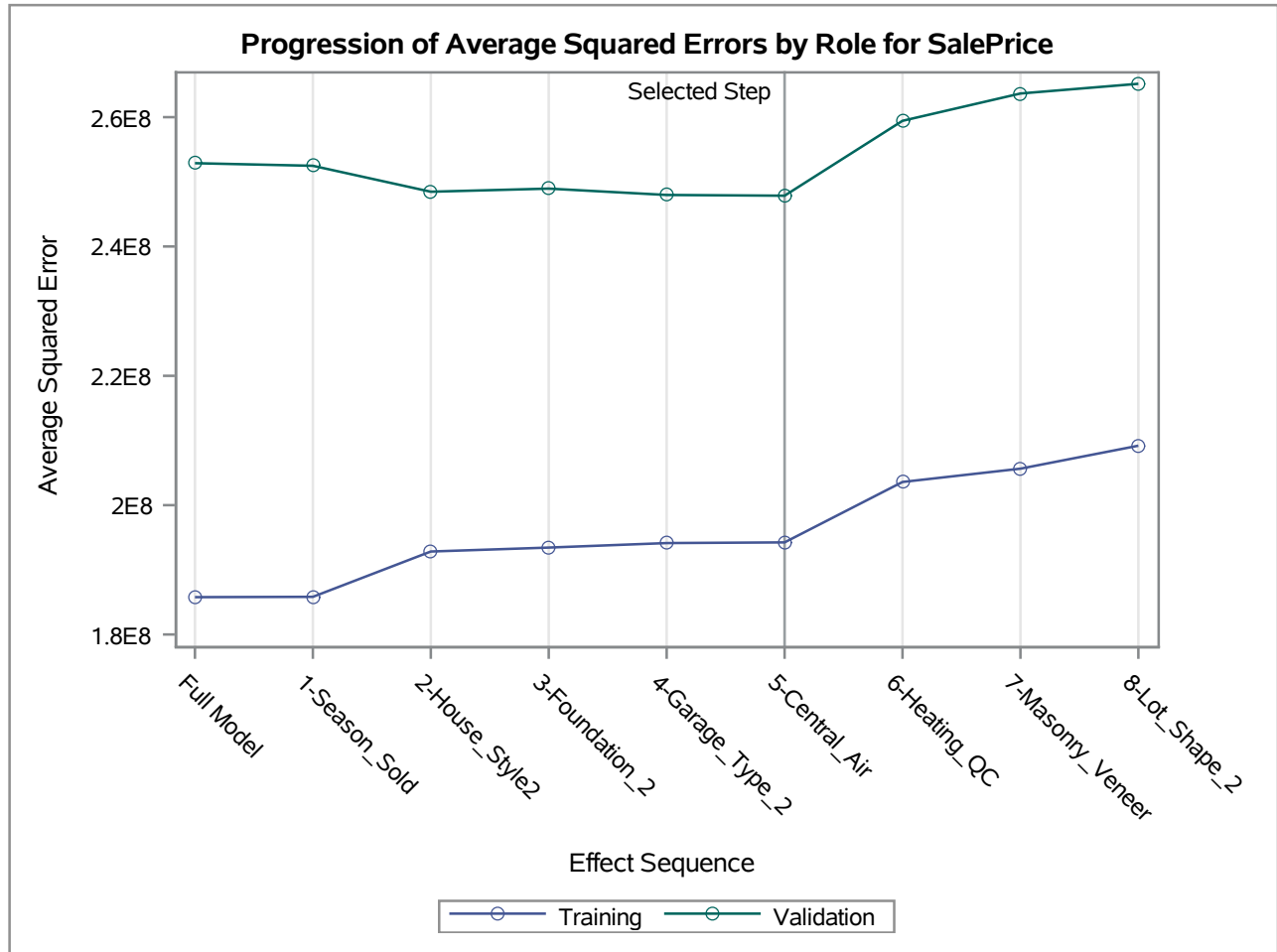
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The GLMSELECT Procedure



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The GLMSELECT Procedure Selected Model

The selected model, based on Validation ASE, is the model at Step 5.

| | |
|-----------------|---|
| Effects: | Intercept Overall_Qual2 Overall_Cond2 Fireplaces Heating_QC Masonry_Veneer Lot_Shape_2 Gr_Liv_Area Basement_Area Garage_Area Deck_Porch_Area Lot_Area Age_Sold Bedroom_AbvGr Total_Bathroom |
|-----------------|---|

| Analysis of Variance | | | | |
|----------------------|-----|----------------|-------------|---------|
| Source | DF | Sum of Squares | Mean Square | F Value |
| Model | 19 | 3.566452E11 | 18770797693 | 90.06 |
| Error | 274 | 57107246191 | 208420607 | |
| Corrected Total | 293 | 4.137524E11 | | |

| | |
|----------------|------------|
| Root MSE | 14437 |
| Dependent Mean | 137179 |
| R-Square | 0.8620 |
| Adj R-Sq | 0.8524 |
| AIC | 5946.87742 |
| AICC | 5950.27448 |
| SBC | 5724.54902 |
| ASE (Train) | 194242334 |
| ASE (Validate) | 247854963 |

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The GLMSELECT Procedure Selected Model

| Parameter Estimates | | | | |
|-----------------------|----|--------------|----------------|---------|
| Parameter | DF | Estimate | Standard Error | t Value |
| Intercept | 1 | 51207 | 7079.121457 | 7.23 |
| Overall_Qual2 5 | 1 | 6782.080263 | 3104.469941 | 2.18 |
| Overall_Qual2 6 | 1 | 13659 | 3414.565419 | 4.00 |
| Overall_Qual2 4 | 0 | 0 | . | . |
| Overall_Cond2 5 | 1 | 8996.618020 | 4137.937302 | 2.17 |
| Overall_Cond2 6 | 1 | 15909 | 4025.283609 | 3.95 |
| Overall_Cond2 4 | 0 | 0 | . | . |
| Fireplaces 1 | 1 | 9716.205925 | 2044.560791 | 4.75 |
| Fireplaces 2 | 1 | 7235.661619 | 4540.159269 | 1.59 |
| Fireplaces 0 | 0 | 0 | . | . |
| Heating_QC Fa | 1 | -11668 | 4315.812370 | -2.70 |
| Heating_QC Gd | 1 | -3178.918390 | 2496.841385 | -1.27 |
| Heating_QC TA | 1 | -6689.247126 | 2133.424223 | -3.14 |
| Heating_QC Ex | 0 | 0 | . | . |
| Masonry_Veneer Y | 1 | -3369.652622 | 2079.343731 | -1.62 |
| Masonry_Veneer N | 0 | 0 | . | . |
| Lot_Shape_2 Regular | 1 | -4507.715447 | 2036.544994 | -2.21 |
| Lot_Shape_2 Irregular | 0 | 0 | . | . |
| Gr_Liv_Area | 1 | 42.972194 | 5.709351 | 7.53 |
| Basement_Area | 1 | 25.491273 | 3.170869 | 8.04 |
| Garage_Area | 1 | 29.698556 | 5.913131 | 5.02 |
| Deck_Porch_Area | 1 | 20.952561 | 7.235245 | 2.90 |
| Lot_Area | 1 | 1.199858 | 0.307660 | 3.90 |
| Age_Sold | 1 | -422.187733 | 47.675825 | -8.86 |
| Bedroom_AbvGr | 1 | -4541.124997 | 1523.500120 | -2.98 |
| Total_Bathroom | 1 | 3806.351237 | 1714.333548 | 2.22 |