

## JMP for Model Selection

In order to build a model using JMP you will use the Modeling/Fit Model program. The response variable is entered as Y and all the explanatory variables,  $X_1, X_2, \dots, X_k$  are Added to Construct Model Effects. The Personality of the model should be changed from Standardized Least Squares to Stepwise. Then click on Run Model. The Direction of the Stepwise fit can be selected: Forward, Backward or Mixed. The Prob to Enter and Prob to Leave can be adjusted. However, until you feel more comfortable with the procedure you should go with the default settings. Click on Go. JMP will display the final model under Current Estimates. It will also indicate what happened at each step of the procedure in terms of variables added and deleted in the Step History. Note that the p given by JMP is really the number of parameters in the model not the number of variables. The text uses p to denote the number of variables in the model so p+1 would be the number of parameters in the model.

The screenshot displays the JMP software interface for a Stepwise Regression analysis. The main window shows a data table with the following data:

	Age	MHP	NoP	MDBH	X1	X2	X3
1	19	51.5	500	7	51.5	9500	0.103
2	14	41.3	900	5	41.3	12600	0.045889
3	11	36.7	650	6.2	36.7	7150	0.056462
4	13	32.2	480	5.2	32.2	6240	0.067083
5	13	39	520	6.2	39	6760	0.075
6	12	29.8	610	5.2	29.8	7320	0.048852
7	18	51.2	700	6.2	51.2	12600	0.073143
8	14	46.8	760	6.4	46.8	10640	0.061579
9	20	61.8	930	6.4	61.8	18600	0.066452
10	17	55.8	690	6.4	55.8	11730	0.08087
11	13	37.3	800	5.4	37.3	10400	0.046625
12	21	54.2	650	6.4	54.2	13650	0.083385
13	11	37.5	630	6.4	37.5	6960	0.061321

The 'Fit Model' dialog box is open, showing the following settings:

- Model Specification:**
  - Select Columns: Age, MHP, NoP, MDBH, X1, X2, X3, Resid(YonX3), Resid(X1onX3), Resid(X2onX3)
  - Pick Role Variables: Y (MDBH), optional
  - Weight: optional Numerical
  - Freq: optional Numerical
  - By: optional
  - Personality: Stepwise
  - Buttons: Run Model, Help, Remove
- Stepwise Regression Control:**
  - Prob to Enter: 0.250
  - Prob to Leave: 0.100
  - Direction: Forward
  - Buttons: Go, Stop, Step, Make Model
- Current Estimates:**

	SSE	DFE	MSE	RSquare	RSquare Adj	Cp	AIC
1	3791191	16	0.0861949	0.8672	0.8423	4	-45.4657

Lock	Entered	Parameter	Estimate	nDF	SS	F Ratio	Prob>F
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Intercept	3.23573225	1	0	0.000	1.0000
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X1	0.09740662	1	1.26783	14.709	0.0015
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X2	-0.0001689	1	0.670967	7.784	0.0131
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	X3	3.46681347	1	0.014774	0.171	0.6944
- Step History:**

Step	Parameter	Action	"Sig Prob"	Seq SS	RSquare	Cp	p
1	X3	Entered	0.0000	7.335255	0.7063	19.388	2
2	X1	Entered	0.0104	1.000159	0.8026	9.7843	3
3	X2	Entered	0.0131	0.670967	0.8672	4	4