Making Journal-Quality Tables

Marta Alvira-Hammond & Ryan H. Bogle
CFDR Workshop Series
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Agenda

 Illustrate basic methods for getting output into Excel—go beyond copy and paste

Both SAS and Stata code

Some considerations for when you're formatting your tables



SAS: Output Delivery System (ODS)

What is ODS?

Produce different types of procedure output

HTML, RTF, XML and other file types

 Use styles and options to manage appearance of output



Using ODS to Export Output

Three things to cover:

ODS tagsets.ExcelXP

- ODS HTML

RTF style



Using ODS: ODS tagsets.ExcelXP

 A tagset specifies instructions for working with SAS data

 Contains embedded instructions defining layout and some content

There are a variety of different tagsets



Using ODS: ODS tagsets.ExcelXP

For a basic frequency distribution:

```
ods listing close;
ods tagsets.excelxp style=rtf file='C:\Documents and
Settings\Malvira\Desktop\New Folder.xml';
proc freq data=a;
tables marital;
run;
ods tagsets.excelxp close;
quit;
```

- Make sure to specify "style=rtf"—formatting will be much easier
- Now open your new file in Excel and format as needed



Using ODS: ODS tagsets.ExcelXP

 Now you can easily make formatting changes

 Can also transfer to Word

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4	2	127	9.47	761	56.75			
5	3	225	16.78	986	73.53			
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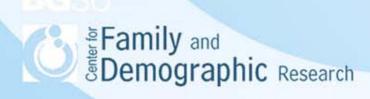


Using ODS tagsets.ExcelXP: Multiple Procedures

 You can run multiple procedures and they will be output into separate spreadsheets:

```
ods listing close;
ods tagsets.excelxp style=rtf file='C:\Documents and
Settings\Malvira\Desktop\New Folder.xml';
proc freq data=a;
tables marital2;

proc freq data=a;
tables rincom06;
run;
ods tagsets.excelxp close;
quit;
```







Each table is output to a separate spreadsheet

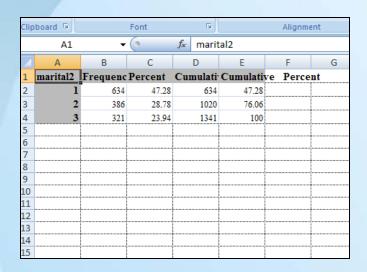
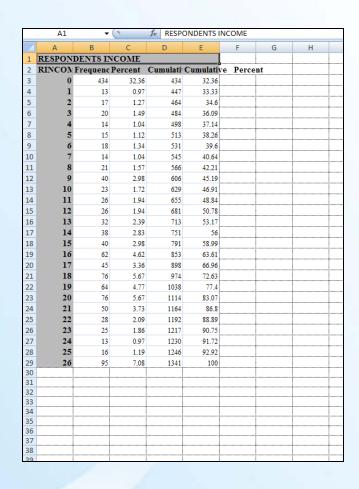


Table 1



Using ODS HTML

Saves your output as either an .html or an .xls extension, which can both be read in Excel

 ODS HTML with the .xls or .csv extension preserves formatting in the Excel spreadsheet



Using ODS HTML: Crosstab

Let's do a basic crosstab:

```
ods html file = 'C:\Documents and
Settings\Malvira\Desktop\test.xls' style=rtf;
proc freq data;
tables marital2*race/norow nocol nofreq;
run;
ods html close;
```



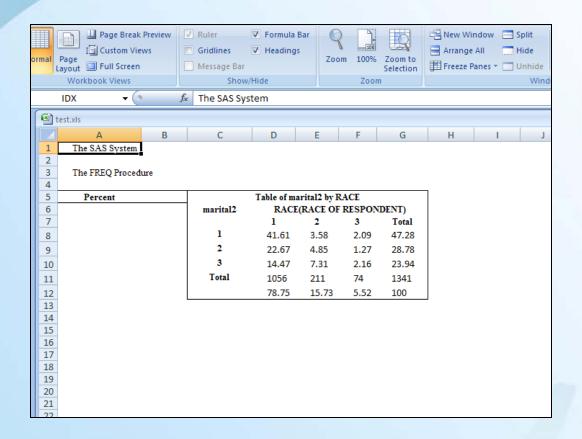
Using ODS: Opening Your File

Find your XLS file in the location you designated

Open file in Excel

Now you can easily make any necessary formatting changes





ODS HTML crosstab of marital status and race

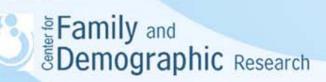


Using ODS: Linear Regression

Let's run a linear regression of income on sex:

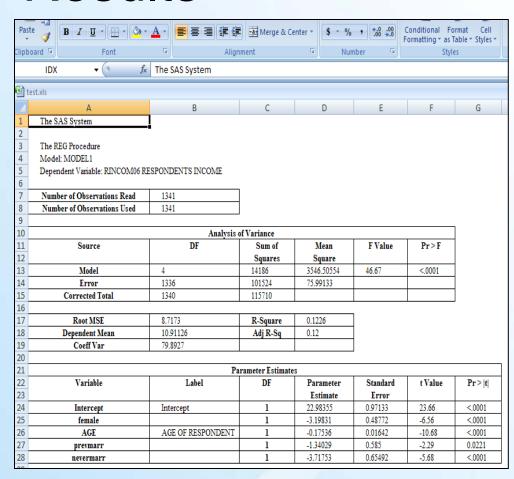
```
ods html file= 'C:\Documents and
Settings\Malvira\Desktop\test.xls';
proc reg data=a;
model rincom06=female age prevmarr nevermarr;
run;
ods html close;
```

- If you're running other procedures first, put "quit" after running them to avoid getting errors
- If you set your Results Viewer style to RTF, you do not need to specify "style=rtf" in your code



Using ODS: Linear Regression Results

- This is what your results will look like in Excel
- Now you can
 easily make any
 adjustments you
 need





Using ODS: Logistic Regression

We can do the same thing with logistic regression:

```
ods html file = 'C:\Documents and
Settings\Malvira\Desktop\test.xls';
proc logistic descending DATA=a;
model obama=female age prevmarr nevermarr;
run;
ods html close;
```



Using ODS: Logistic Regression Results

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9		Only	and			
0			Covariates	1		
1	AIC	1806.692	1740.155	1		
2	SC	1811.894	1766.161	1		
3	-2 Log L	1804.692	1730.155]		
4					1	
5		Blobal Null Hypothesis: BE				
6	Test	Chi-Square	DF	Pr > ChiSq		
7	Likelihood Ratio	74.5377	4	<.0001		
8	Score	71.7649	4	<.0001		
9	Wald	68.4021	4	<.0001		
10						
11			mum Likelihood Est		*****	7 . 61.6
12 13	Parameter	DF	Estimate	Standard	Wald	Pr > ChiSq
14	T44	1	-0.2162	Error 0.232	Chi-Square 0.8688	0.3513
15	Intercept female	1	0.3976	0.232	11.5897	0.0007
		1	0.000531	0.00394	0.0182	0.8927
16	ACT				0.0182	
16	AGE				0.1504	
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Using ODS HTML: Multiple Procedures

 You can run multiple procedures within an ODS HTML statement:

```
ods html file = 'C:\Documents and
Settings\Malvira\Desktop\test.xls';
proc freq data=a;
tables marital2;

proc logistic descending;
model obama=female age prevmarr nevermarr;
run;
ods html close;
```



Each of your procedures will be output to your Excel spreadsheet

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9	3	321	23.94	1341	100	-	
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13							
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15	Data Set	WORK.A	1				
16	Response Variable	obama]				
17	Number of Response Levels	2]				
18	Model	binary logit					
19	Optimization Technique	Fisher's scoring]				
20			,				
21	Number of Observations Read	1341	1				
22	Number of Observations Used	1341]				
23		- ·		٦			
24	Response		7.1	-			
25 26	Ordered Value	obama	Total Frequency				
27	value 1	1	805	-			
28	2	0	536	1			
29			, 550	_			
30	Probability modeled is obama=1.						
31	···, ···· ··· ··· ···						
32							
33	Model Convergence Status						
34	Convergence criterion (GCONV=1E-8) sati	s <u>fi</u> ed.					
35				-			
36	Model Fit			1			
37	Criterion	Intercept	Intercept				
38		Only	and				
39		4004 400	Covariates	4			
40	AIC SC	1806.692	1740.155	4			
//1	ec.	1011 004	1766 161				



Using ODS: Transferring to Word

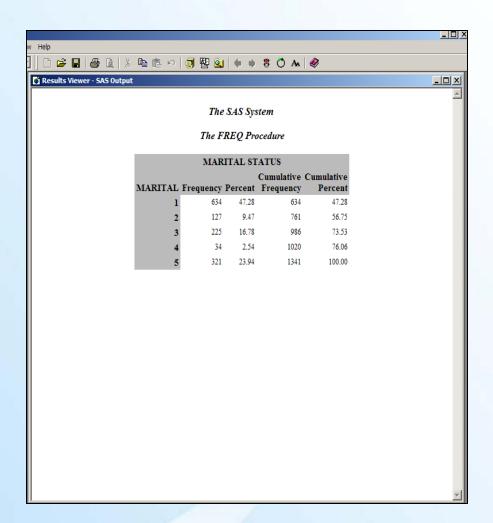
You can put your Excel output into Word

- If you still just want to copy and paste, set your SAS Results Viewer style to 'RTF'
 - SAS Tools→Options→Preferences→under 'Style' select 'RTF'



Using ODS: Transferring to Word

With the RTF
 output style,
 this is what
 output in your
 Results Viewer
 will look like





Using ODS: Transferring to Word

 Copy your output in the Results Viewer and paste into

Excel or Word

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	B4 ▼ MARITAL STATUS										
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6					Frequency						
7		1	634	47.28	634	47.28					
8		2	127	9.47	761	56.75					
9		3	225	16.78	986	73.53					
10		4	34	2.54	1020	76.06					
11		5	321	23.94	1341	100					
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Using ODS: Some Considerations

- Error warnings
 - Make sure to close your listings and quit after procedures
- May need to go to 'Results' preferences, then unclick and re-click 'Create Listing'
- Exporting ODS HTML results into XLS formats will cause leading zeros to be ignored
- Because you are telling SAS to export your output, it isn't sending it to your Results Viewer





Stata: tabout and outreg2

 tabout is a Stata program for producing descriptive and summary tables

 outreg2 is a Stata program which exports regression into Excel and other formats



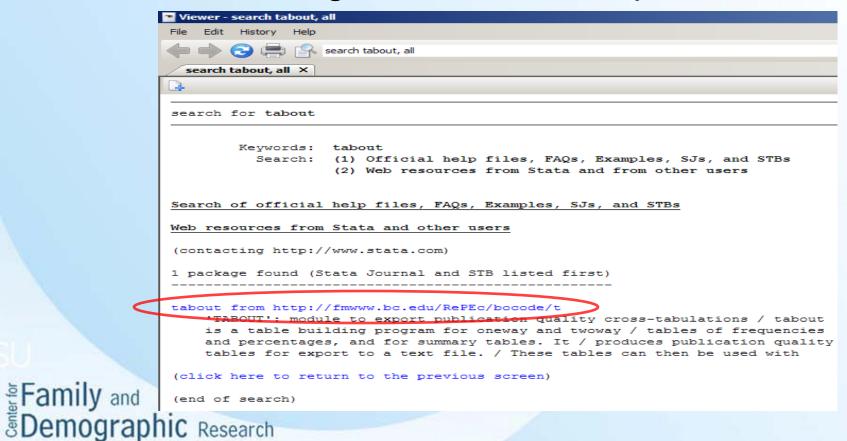
Installing tabout and outreg2

- Stata does not come preloaded with all available programs
- The simplest way to locate and install tabout and outreg2 it with the findit command
- We will outline the steps required to install tabout



Installing tabout and outreg2

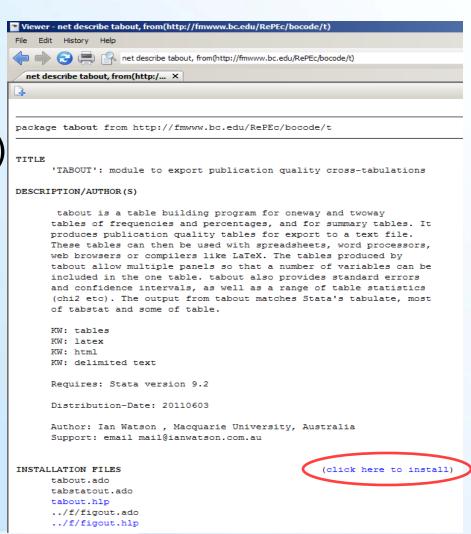
 From the Stata command window type findit tabout, the following window should open...





Installing tabout and outreg2

- Clicking on the link will open this window
- Hit (click here to install)







 We will use tabout to create and export a descriptive table to Excel

Once exported, output can be easily formatted



Select your desired variables and run the tabout command

tabout SEX RACE MARITAL03 using table1.xls, cell(row col freq) format(2p 2p 0c) clab(_ _ _) layout(row) ptotal(single) replace

- SEX & RACE
 - Our 2 row variables
- MARITALO3
 - Our main column variable
- table1.xls
 - Desired file path-name, this varies according to preference
- cell
 - Determines contents of table cells

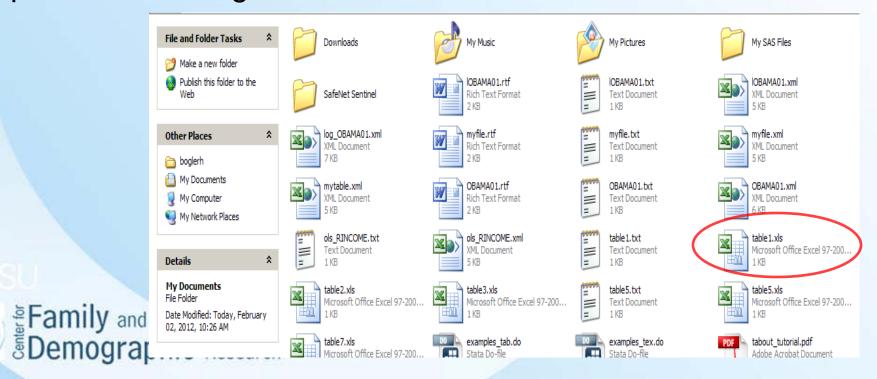


tabout SEX RACE MARITAL03 using table1.xls, cell(row col freq) format(2p 2p 0c) clab() layout(row) ptotal(single) replace

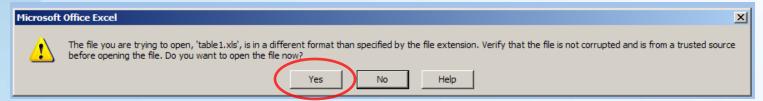
- format
 - Format of corresponding values for cell
- clab
 - Determines the row heading of corresponding cell values
- layout
 - Determines the layout of the columns
- ptotal
 - Determines how to treat totals for tables with multiple row variables



- After running the command Stata will display your output
- Your Excel spreadsheet should be located on the file path-name designated in the command



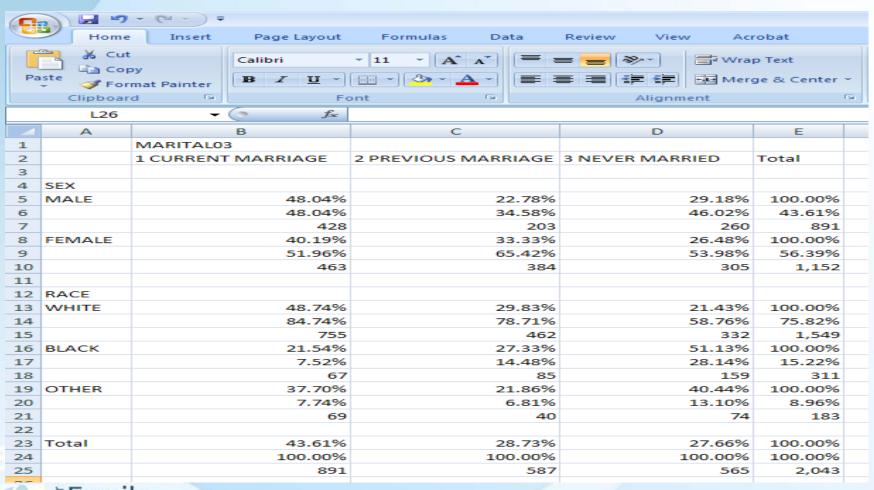
After clicking the file you will get this message



Ignore this and just click 'yes' to view your table



Using tabout: Results





Using outreg2

 outreg2 is a quick and easy way to format and export regression results

 In the following will cover both linear and logistic regression



Using *outreg2*: Linear Regression

 Select your dependent and independent variables and run the normal Stata regression command

reg RINCOME06_02 FEMALE AGE02 NEVERMAR PRIORMAR

Source	SS	df	MS		Number of obs	= 1201
					F(4, 1196)	= 31.09
Model	4383.50176	4 109	5.87544		Prob > F	- 0.0000
Residual	42161.0128	1196 35	.251683		R-squared	= 0.0942
					Adj R-squared	= 0.0911
Total	46544.5146	1200 38.	7870955		Root MSE	= 5.9373
RINCOME06_02	Coef.	Std. Err.	t	P> t	[95% Conf.	<pre>Interval]</pre>
FEMALE	-2.197045	.3470346	-6.33	0.000	-2.877909	-1.516181
AGE02	.0486241	.0138276	3.52	0.000	.021495	.0757532
NEVERMAR	-2.474717	.4443484	-5.57	0.000	-3.346506	-1.602928
PRIORMAR	896815	.4408219	-2.03	0.042	-1.761685	0319447
cons	14.14219	.7225236	19.57	0.000	12.72463	15.55974
_						



Using *outreg2*: Linear Regression

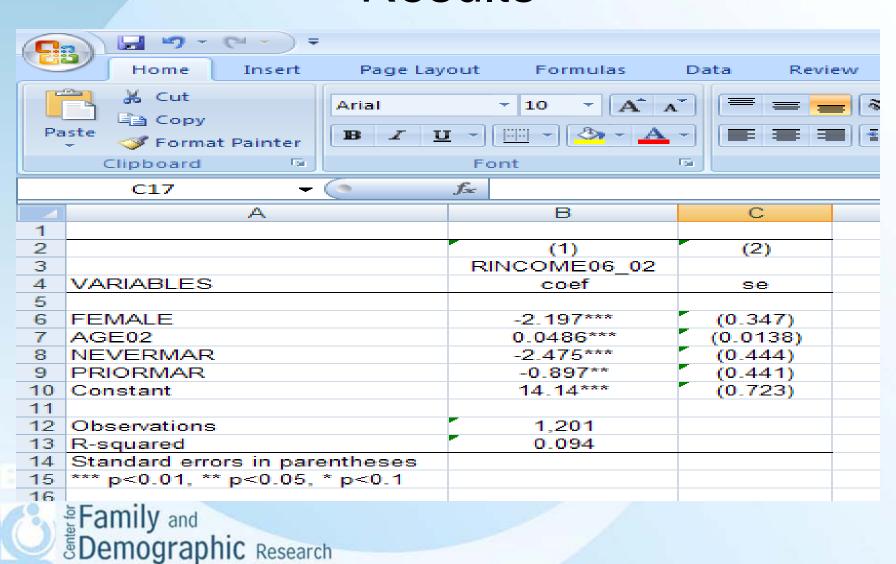
Use outreg2 to export your result into an Excel spreadsheet

```
. outreg2 using OLS_income01, excel sideway replace
OLS_income01.xml
dir : seeout
```

- OLS_income01
 - Desired file path-name, this varies with preference
- excel
 - Indicates desired export method
- sideway
 - Requests that standard errors be placed to the right of the coefficient
- Click <u>OLS_income01.xml</u> to view your table in Excel



Using *outreg2*: Linear Regression Results



Using *outreg2*: Linear Regression

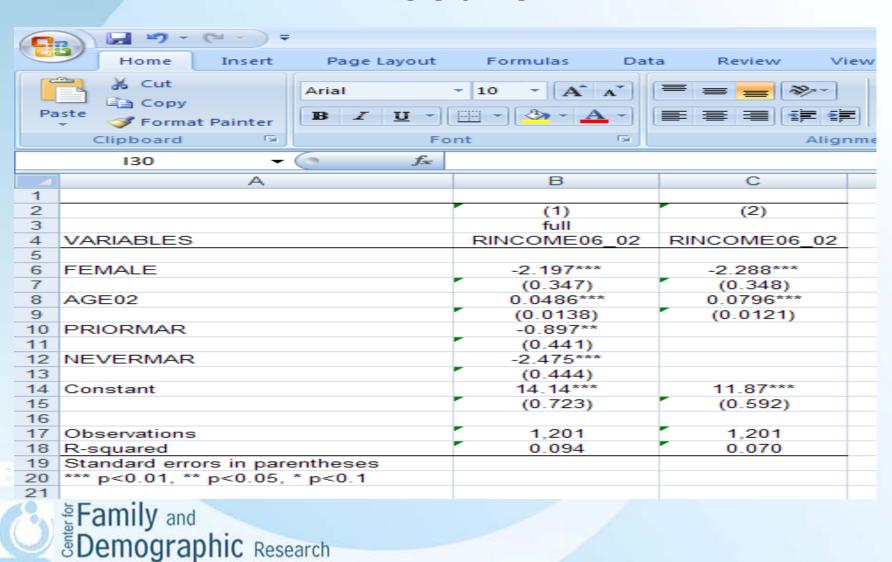
- outreg2 is great for tables with nested models
- Run and assign your full model using outreg2
- cttop
 - Labels this as the full model.
- Run your partial model(s) and export them using outreg2
- OLS_income01
 - File path-name must be the same as above
- see excel
 - Prompts Stata to export the output into Excel

Family and Demographic Research

reg RINCOME06_02 FEMALE AGE02 NEVERMAR PRIORMAR outreg2 using OLS_income01, replace cttop(full)

reg RINCOMEO6_02 FEMALE AGE02
. outreg2 using OLS_income01, see excel
Hit Enter to continue.
OLS_income01.xml

Using *outreg2*: Linear Regression Results



Using outreg2: Logistic Regression

 Select your variables and run the normal Stata logistic regression command

logistic OBAMA01 FEMALE AGE02 RINCOME06 02 NEVERMAR PRIORMAR

Logistic regr	C3310II			LR ch	r of obs = i2(5) =	78: 69.78	
				Prob :	> chi2 =	0.000	
Log likelihoo	Log likelihood = -483.30298					0.0673	
OBAMA01	Odds Ratio	Std. Err.	z	P> z	[95% Conf.	Interval	
FEMALE	1.591905	.2530749	2.92	0.003	1.165726	2.17389	
AGE02	1.003227	.0062751	0.52	0.606	.9910033	1.01560	
RINCOME06_02	.9637232	.013244	-2.69	0.007	.938112	.990033	
NEVERMAR	3.47593	.7677586	5.64	0.000	2.254544	5.35899	
PRIORMAR	1.206816	.229561	0.99	0.323	.8312379	1.75209	
_cons	1.379971	.5724394	0.78	0.438	.6120324	3.11146	



Using outreg2: Logistic Regression

Use outreg2 to export your result into an Excel spreadsheet

```
. outreg2 using Logit_Obama01, eform excel replace
Logit_Obama01.xml
dir : seeout
```

- Logit_Obama01
 - Desired file path-name, this varies according to personal preference
- eform
 - Requests that results be displayed as odds ratios
- excel
 - Indicates desired export method
- Click <u>Logit Obama01.xml</u> to view your OLS regression table in Excel



Using *outreg2*: Logistic Regression Results

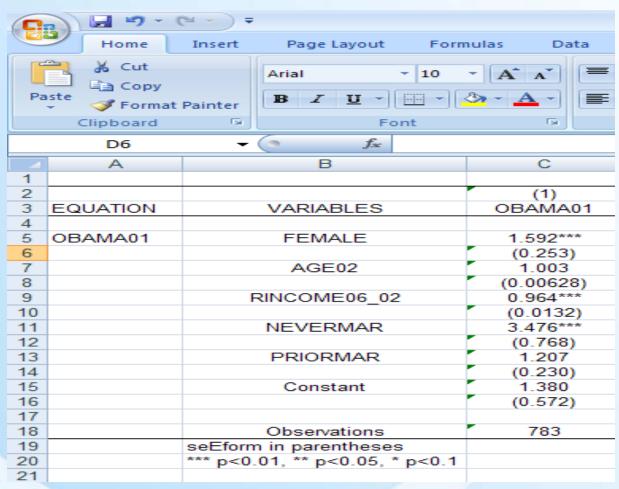




Table Making Resources

- These are some of the very simplest procedures
- For more information see the following
- SAS
 - HTML and tagsets.ExcelXp
 http://support.sas.com/rnd/base/ods/excel/index.html
- Stata
 - Enter help tabout and help outreg2 in the Stata command window





That was easy! Now what...

 Exporting your results directly into Excel saves you a considerable amount of time, all of which can now be devoted to formatting your tables!

Here are some things to keep in mind...



Think about...

Who is your audience?

What are you presenting?



Who is your audience?

- Class paper
 - Still should look professional
- Conference presentation
 - Tables have to be cut to save space
- Journal submission
 - Formats differ from journal to journal
 - Look at submission guidelines for different journals
 - Look at recent publications!!!





What are you presenting?

Format often varies according to the type of analysis

 Most journals have separate guidelines for different type of results





What are you presenting?



Table 1 Summary of Logistic Regression Analysis for Variables Predicting Decisions to Divorce by Tenth Year of Marriage for Mothers (n = 889) and Fathers (n = 989), Controlling for Background Variables

		Mother		Father			
Predictor	B	SEB	OR	\boldsymbol{B}	SEB	OR	
Mother							
Uninvolved style	.58**	.13	1.79		.27	2.34	
Permissive style	10	.08	0.90	45**	.11	.64	
Authoritarian style	.34**	.07	1.40	.58**	.18	1.79	
Satisfaction with parenting role	.10*	.04	1.11	.05*	.02	1.05	
Father							
Uninvolved style	.31**	.09	1.36	.25**	.09	1.28	
Permissive style	22**	.07	0.80	.10	.07	1.10	
Authoritarian style	.56**	.07	1.75	10*	.04	.90	
Satisfaction with parenting role	.18**	.06	1.20	.20**	.06	1.22	
Constant	-1.05			-1.21			
v^2		264.15			129.25		
		9			9		
s (Mean, Standard Deviation, O		26.5			25.6		

ation, income, and race (omitted from the table). OR = Odds Ratio. Parenting style

permissive, authoritarian) coded as 1 for yes and 0 for no. Satisfaction with parenting role

lissatisfied to 5 for very satisfied. Authoritative parenting style of both mother and father

p < .001.

Ordinary Least Squares Regression

Structural Equation Models

Confirmatory Factor Analysis

Exploratory Factor Analysis

Growth Curves for Distinguishable Partners

sameters of Sameters

What all tables should have...

- Title
- Reference
 - e.g. Table 1a., Table 13...
- Notes
 - Meaning of significant results (*)
 - Sample details when appropriate
- Be consistent!!!
 - With period/without period in title
 - Font
 - Names of variables, etc.
 - Decimal alignment



What all tables should **NOT** have...

Vertical lines

- Bold or italic lettering in the body
 - Only acceptable for titles

- Decimal places
 - Usually only require two numbers, but always check!!
 - Include the 0



Example of a good table

Education and Parental Strains and Rewards

629

Table 2. Random Effects Models of Pooled Time Series Analysis Predicting Parenting Anxiety (N = 3,345 person data)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	SE								
Education ^a										
< High school	.062	.062	.041	.062	.062	.062	.064	.062	.042	.062
Some college	119	.041**	119	.042**	116	.041**	120	.041**	116	.042**
College degree	243	.048***	246	.049***	234	.048***	239	.048***	235	.049***
Advanced degree	338	.054***	342	.056***	318	.055***	329	.055+++	319	.057***
Resources										
Nonemployeda			.089	.027***					.086	.027***
Part-time employeda			.031	.027					.030	.027
Income-to-needs ratio			.001	.005					.002	.005
Cohabitinga			002	.048					002	.049
Singlea			.021	.040					.023	.040
Progressive parenting values					010	.004*			010	.004+
Work commitment							003	.003	001	.003
Child's characteristics										
Girl	043	.029	042	.029	044	.029	043	.029	044	.029
Number of children	.031	.013+	.025	.013	.029	.013*	.029	.013*	.023	.013
Child's health	002	.013	006	.013	002	.013	002	.013	006	.013
Temperament	.145	.037+++	.137	.037***	.142	.037**	.145	.037+++	.134	.037***
Mother's characteristics										
Age	007	.003+	007	.003+	007	.003*	008	.003*	007	.003+
Blacka	005	.049	007	.051	022	.049	.005	.050	019	.052
Hispanic or othera	.135	.074	.145	.074+	.125	.074	.139	.074	.137	.074
Depression	.012	.001***	.012	.001***	.012	.001***	.012	.001***	.012	.001***
15 months ^a	047	.019**	047	.018*	047	.019**	047	.019*	047	.019*
24 months ^a	085	.018***	083	.018***	085	.018***	085	.018***	082	.018***
Intercept	1.965	.162***	1.958	.163***	2.305	.214***	2.025	.172***	2.314	.220***
R^2	.14	6+++	.14	8+++	.14	9+++	.14	7***	.15	1***

^aOmitted reference categories are high school diploma, employed full-time, married, White, and 36 months.

Source: Nomaguchi, Kei M. and Susan L. Brown. 2011. "Parental Strains and Rewards Among Mothers: The Role of Education." *Journal of Marriage and Family* 73:621-636.



p < .05. p < .01. p < .001.

THANK YOU!!!

Family and Demographic Research