

**PPA 207 – QUANTITATIVE METHODS**

**MASTER'S PROGRAM IN PUBLIC POLICY AND ADMINISTRATION  
MASTER'S PROGRAM IN URBAN LAND DEVELOPMENT**

**CALIFORNIA STATE UNIVERSITY, SACRAMENTO**

**SPRING 2017**

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Home Page: <http://www.csus.edu/indiv/w/wassmerr>

Class Location, Time, and Day: ARC 3009, 6:00 - 8:50 pm, Monday

Office: Room 3037, Tahoe Hall

Office Phone: (916) 278 – 6304

Office Hours: Monday and Thursday, 4:00 - 5:30 p.m. and by appointment if necessary.

Texts:

Please purchase all texts and complete the assigned reading for our first meeting. I expect you to do all of the assigned reading before each meeting. Also, bring the appropriate text(s) to class on the dates covered and your laptop with STATA loaded on it.

(1 - Required) *Real Stats: Using Econometrics for Political Science and Public Policy*, First Edition (2016), M. Bailey, Oxford University Press; purchase at Sac State Bookstore or [Amazon](#) (\$65 used).

(2 - Required) *Naked Statistics*, (2011), Charles Wheelan, Norton Press; purchase at Sac State Bookstore or [Amazon](#) (\$10 used).

(3 - Required) *STATA/IC 14 Grad Plan Statistical Package* available for purchase at <http://www.stata.com/order/new/edu/gradplans/campus-gradplan>, based upon being a Sac State student. Prices are 75.00/6 months and 198.00/perpetual; use the download version so you can get it in time for first class. If planning to do a thesis using data and/or a pursuing a career that uses data, I strongly recommend the perpetual version. **You will also need a laptop computer upon which STATA and EXCEL are loaded.**

(4 – Should have from PPA 200 or 240A) *Writing Literature Reviews: A Guide for Students of the Social and Behavioral Sciences*, Jose Galvin, 4<sup>th</sup> Edition or later, Pycszak Publishing; purchase at [Amazon](#) (\$7 Used).

Prerequisites:

If you have not taken a previous course in statistics, or it has been awhile since doing so, please review this tutorial web link:

<http://www.cpp.edu/~djmoriarty/b211/b211%20Basic%20Statistics%20Review%20-%20Part%20One.pdf> . I will also review this material through *Naked Statistics* and an appendix in *Real Stats*.

This class also requires the use of Excel spreadsheets. If you are weak in this area, please review this tutorial web link: <http://www.baycongroup.com/el0.htm> .

Data Sources:

Type	Date Set Name	Description	Location
Education	*California Academic Performance Index (API) Data	The cornerstone of California's <i>Public Schools Accountability Act of 1999</i> ; measures the academic performance and growth of schools on a variety of academic measures.	<a href="http://www.cde.ca.gov/ta/ac/ap">http://www.cde.ca.gov/ta/ac/ap</a>
Health	*California Health Interview Survey (CHIS)	Info on health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury.	<a href="http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx">http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx</a>
State and Local Government	Rand State Statistics  Government Financial Reports	Social Science data from the nation's leading think tank. More than 200 databases covering all 50 states plus 162 additional detailed databases on CA, TX, NY Data at national, state, and local level.  Raw data provided by CA cities, counties, special districts, and pensions.	<a href="http://randstatestats.org/index.php?view=all">http://randstatestats.org/index.php?view=all</a>  <a href="https://bythenumbers.sco.ca.gov">https://bythenumbers.sco.ca.gov</a>
Housing Sales	*Multiple Listing Service (MLS) Data for Sac, El Dorado, and Placer County Sales	Data on characteristics and selling price of all homes that sold in Sacramento Metro Area.	@ SacCT
Various	Inter-University Consortium for Political and Social Science	Not a data set, but a data bank of multiple sources that are all accessible for no charge if entered through a Sac State Web Portal.	<a href="http://www.icpsr.umich.edu/icpsrweb/ICPSR/index.jsp">http://www.icpsr.umich.edu/icpsrweb/ICPSR/index.jsp</a>

Research (ICPSR)			
Statista		Subscription data service that Sac State belongs.	<a href="http://xerxes.calstate.edu/sacramento/new-databases/database/340">http://xerxes.calstate.edu/sacramento/new-databases/database/340</a>
* <i>Real Stats</i>		Access to all the data used in the text.	<a href="http://global.oup.com/us/companion.websites/9780199981946/stu">http://global.oup.com/us/companion.websites/9780199981946/stu</a>
<i>STATA</i>		Data sets imbedded in the STATA interface.	<a href="https://www.youtube.com/watch?v=qEkd-_c">https://www.youtube.com/watch?v=qEkd-_c</a>

The final assignment for this class is a regression-based research paper. Such a paper requires a data set with at least 500 or more observations on a dependent variable, and the various explanatory variables that you expect to cause variation in the dependent variable. The table above contains a description of data sets we will examine in class (with \*) and others you may look at on your own.

By the sixth week of class (February 27), at the very latest, you will need to have discussed with me the data set that you wish to use for your course paper. See the list above for potential databases. I suggest you begin exploring these databases immediately. This is also a great opportunity to start the basis for an empirically-based thesis. You may also use your own private data, but be sure to get my full approval on this because it can be difficult to access, incomplete, and even inappropriate for the type of study you are to complete here.

### SacCT:

You must have an account that allows access to the World Wide Web and SacCT. On SacCT, I will post a PowerPoint of material covered in each meeting and a description of any supplemental homework that is due at the following meeting. These will be available, at the latest, the Friday evening before the class meets. All your grades will be accessible through SacCT.

### Learning Objectives:

At the end of PPA 207, for a student attending all classes, and completing all assignments, my expectation is competency in these five learning goals:

- |   |
|---|
| (1) Learn to apply the analytic tool of regression analysis to offer insights into a particular policy or administration concern. |
| (2) Learn how the knowledge and skills necessary to produce and interpret a credible regression analysis.                         |
| (3) Learn how to access relevant data and literature to complete a  |

credible regression analysis.
(4) Effectively review empirically based literature to assist in the creation of a regression analysis.
(5) Practice writing a regression-based research study in a manner that is theoretically sound and understandable to a non-statistical audience.

The purpose of this course is to expose the master’s level MPPA or MSULD to some of the empirical methods used in the analysis and formulation of government policies. These include: (1) types and sources of data, (2) descriptive statistics, (3) regression analysis and interpretation, (4) how to review the relevant empirical literature before beginning a study of this type, (5) some of the basic issues/problems that can arise in regression analysis, and (6) how to write up empirical results.

My goal is not to turn you into an expert on statistics and regression analysis, but I do wish to provide you with a working knowledge of the most basic applied techniques in these areas. Even if you never expect to apply these techniques directly in your anticipated career path, it is very likely you will be required to interpret and comment on reports that contain policy analyses based on these techniques.

Method:

Pedagogy includes in-class lectures, discussions, and STATA-based exercises. In addition, each week students will be required to complete written answers to HW exercises. **Look for the following week’s HW assignment at the end of the PowerPoint presentation.** No HW is due the first night we meet.

Each class meeting will begin with a discussion of HW in student groups, coming together as a class to share answers, and then collection of the previous week’s HW assignment. Type all HW answers (except graphs) and no changing of answers in class. Only the student who completed the assignment can turn it in (my method of attendance). After 90 minutes of class time, we will take a 15-minute break.

Some in-class time will be devoted to covering the use of the Excel and STATA computer packages using the installation you must purchase and put on your laptop computer. **Please purchase and install STATA (and Excel if you do not have it) before our first meeting and bring your laptop to class the first night (and every night).** There are limited outlets, so please keep it charged or bring a power strip to share outlet. There is the option of using the STATA program installed in SSIS Computer Labs, but they have limited hours and you would need to share a laptop with someone in class.

Academic Honesty

When you do any writing for this class, or any class at Sacramento State, it is important that you are aware of what plagiarism is, and how its practice can become grounds for dismissal from the university. Details are available at the [University Policy Manual](#). The following is also helpful:

*Plagiarism is a form of cheating. At Sacramento State plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution. Regardless of the means of appropriation, incorporation of another's work into one's own requires adequate identification and acknowledgement. Plagiarism is doubly unethical because it deprives the author of rightful credit and gives credit to someone who has not earned it. Acknowledgement is not necessary when the material used is common knowledge. Plagiarism at Sacramento State includes but is not limited to:*

*1. The act of incorporating into one's own work the ideas, words, sentences, paragraphs, or parts thereof, or the specific substance of another's work without giving appropriate credit thereby representing the product as entirely one's own. Examples include not only word-for-word copying, but also the "mosaic" (i.e., interspersing a few of one's own words while, in essence, copying another's work), the paraphrase (i.e., rewriting another's work while still using the other's fundamental idea or theory); fabrication (i.e., inventing or counterfeiting sources), ghost-writing (i.e., submitting another's work as one's own) and failure to include quotation marks on material that is otherwise acknowledged; and*

*2. Representing as one's own another's artistic or scholarly works such as musical compositions, computer programs, photographs, paintings, drawing, sculptures, or similar works.*

Paper:

In order to receive anything but a failing grade in this course, each student is required to complete a regression-based paper on the topic of his/her choosing (subject to my approval). I offer details below on what needs to be included in the paper.

Grades:

You are required to participate in class discussions and should complete all the homework assigned on the night it is due in person. Failure to do this will result in a zero on that HW averaged in with the grades received on other HW. I will assign a grade to each of your written answers to HW and derive an overall average grade on homework from that. **Label all HW answers with your name, date turned in, question asked, and type the answer – with the exception of requested graphs or diagrams that can be hand drawn.**

I will calculate your final grade based upon the following proportions:

Classroom and Office Hour Participation	15%
Midterm Literature Review Assignment	20%
Final Regression Paper Assignment	30%
Average of Weekly HW Grades	35%

Scoring for Homework:

<u>Percent Correct</u>	<u>Letter Grade</u>	<u>Number Grade</u>
100-97	A+	4.3
96-93	A	4.0
92-89	A-	3.7
88-85	B+	3.3
84-81	B	3.0
80-77	B-	2.7
76-73	C+	2.3
72-69	C	2.0
68-65	C-	1.7
64-61	D	1.0
<61	F	0.0

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Schedule:

I strongly suggest that you attend all Monday meetings. If you do not attend, you will not be able to turn in your homework due at that meeting (**no exceptions!**). I will drop two of your lowest HW grades to provide some flexibility. By March 6 (preferably earlier), each of you will also need to visit my office or call me for a private 15-minute discussion of the plan for your paper and the progress you have made on it.

There will be no midterm exam. Instead, I ask that you turn in by March 30 the six-page literature review that is part of your paper. Some details on this are below, more will be forthcoming in class. I will also use the homework exercises that are due at the start of each class meeting (except the first) to judge your progress throughout the semester. The HW due the following week will be included at the end of each week's posted Power Point notes. The final is a paper that is due no later than May 18.

The readings out of Bailey, Galvin, and Wheelan are below. I reserve the right to add additional readings/videos accessed by the internet.

***Note that I will not talk about the Galvin (LIT) book; instead, you will break into groups to discuss. In the PowerPoint notes I will indicate the last names of student responsible for being the "go to" for whom I will direct discussion questions to during classroom presentation if others not participating. Thus, make sure you are well versed in this reading.***

**Meeting 1 – Monday, January 23**

Syllabus Review

Wheelan (Introduction) (Chapter 1: What's the Point)

Bailey (Preface for Students)

API Data ( <http://www.cde.ca.gov/ta/ac/ap/documents/apiexecsummary.pdf> )

### [Tour of STATA](#)

### [Import EXCEL Spreadsheet into STATA](#)

“The Impact of Learning Time on Academic Achievement,” Su Jin Jez and Robert Wassmer, *Education and Urban Society* 47(3), 2015, pp. 284-306 ( @SacCT )

### **Meeting 2 – Monday, January 30**

Wheelan (Chapter 2: Descriptive Statistics) (Chapter 3: Deceptive Description)

CHIS Data ( <http://healthpolicy.ucla.edu/chis/about/Pages/about.aspx> )

### [Descriptive Statistics in STATA](#)

“The Importance of Both Supply and Demand to Policymaking Designed to Alter Preschool Attendance,” Robert Wassmer, *California Journal of Politics and Policy* 8(4), 2016, ( <http://escholarship.org/uc/item/4pm042cb> )

### **Meeting 3 – Monday, February 6**

Bailey (Chapter 1: The Quest for Causality)

Wheelan (Chapter 4: Correlation)

### [Ionica Smeets on TED: The danger of mixing up causality and correlation](#)

Spurious Correlations ( <http://tylervigen.com/spurious-correlations> )

Multiple Listing Service Data ( @SacCT )

### [Pearson Correlation Coefficient in STATA](#)

“The Recent Pervasive External Effects of Residential Home Foreclosure,” Robert Wassmer, *Housing Policy Debate* 21, 2011, pp. 247-265, ( @SacCT )

### **Meeting 4 – Monday, February 13**

Wheelan (Chapter 5: Basic Probability, Chapter 5.5: The Monty Hall Problem, Chapter 6: Probability Problems)

Galvan (Chapters 1 – 3)

What is Probability? ( <http://ed.ted.com/lessons/the-last-banana-a-thought-experiment-in-probability-leonardo-barichello> )

“Literature Review of Research Done on the Influence of Short-Term (Vacation Home) Rentals on Local Economics, Community Stability, and Neighborhood Character,” Robert Wassmer ( @SacCT )

**Meeting 5 – Monday, February 20**

Wheelan (Chapter 7: Data Importance)

Bailey (Chapter 2: Good Data Practices)

Galvan (Chapters 4 – 7)

Fooled by Statistics ( [http://www.ted.com/talks/peter\\_donnelly\\_shows\\_how\\_stats\\_fool\\_juries](http://www.ted.com/talks/peter_donnelly_shows_how_stats_fool_juries) )

**Meeting 6 – Monday, February 27**

Wheelan (Chapter 8: Central Limit Theorem, Chapter 9: Inference)

Bailey (Appendix: Math and Probability Background)\

Galvan (Chapters 8 – 10)

Kahn Academy, Central Limit Theorem ( <https://www.khanacademy.org/math/statistics-probability/sampling-distributions-library/sample-means/v/central-limit-theorem> )

**Meeting 7 – Monday, March 6**

Wheelan (Chapter 11: Regression Analysis)

Bailey (Chapter 3: Bivariate OLS)

Galvan (Chapters 11 – 12)

**Simple Linear Regression in STATA**

**Meeting 8 – Monday, March 13**

Bailey (Chapter 4: Hypothesis Testing)

Galvan (Chapters 13 – 14)

Review of Literature Review Requirements



**Meeting 9 – Monday, March 27**

Bailey (Chapter 5: Multivariate OLS)

Wheelan (Chapter 12: Common Regression Mistakes)

[Multicollinearity in Regression, Part 1](#) and [2](#)

[Heteroskedasticity in Regression, Parts 1](#) and [2](#)

**Meeting 10 – Monday, April 3**

Bailey (Chapter 6: Dummy Variables, Chapter 11: Regression Discontinuity)

Wheelan (Conclusion: Five Questions that Statistics Can Help Answer)

**Meeting 11 – Monday, April 10**

Bailey (Chapter 12: Dummy Dependent Variables)

“Does Perception of Gas Tax Paid Influence Support for Funding Desired Highway Improvements?” Rob Wassmer and Ron Fisher, forthcoming in *Public Finance Review*, 2017, ( @SacCT )

**Meeting 12 – Monday, April 17**

Bailey (Chapter 7: Transforming Variables, Chapter 16: How to Be a Statistical Realist)

**Meeting 13 – Monday, April 24**

Bailey (Chapter 9: Instrumental Variables)

[John Antonakis on Endogeneity: An Inconvenient Truth](#)

**Meeting 14 – Monday, May 1**

Bailey (Chapter 8: Panel Data, Chapter 15: Advanced Panel Data)

[Panel Data Regression](#)

“Further Empirical Evidence on Residential Property Taxation and the Occurrence of Urban Sprawl,” Rob Wassmer, *Regional Science and Urban Economics* 61(4), 2016, ( @SacCT )

**Meeting 15 – Monday, May 8**

Bailey (Chapter 13: Time Series Data)

Consulting Paper, “Cost of State Regulations on California Small Business Study” (@SacCT)

Remainder of Class Devoted to Review Necessary to Complete Your Paper

**Final Due – Monday, May 15 at 6 pm**

**PPA 207**  
**Spring 2017**  
**Midterm**  
**Literature Review Assignment**  
**Preliminary**

Your assignment is to write a six-page, typed literature review that is double-spaced, 11 font and one-inch margins all around. It is due in electronic form to me by no later than 6 p.m. on Monday, March 27. Each day late will result in a one-grade deduction. Please submit as a WORD attachment to an e-mail to me ( [rwassme@csus.edu](mailto:rwassme@csus.edu) ). I describe below the requirements for the paper. I also list the points earned by satisfying each of the requirements. I will use this grading rubric for the assignment. All references to Galvin below refer to the fourth edition.

<b>Required Element</b>	<b>Points Available</b>	<b>Points Earned</b>
(1) Use a <b>minimum of seven regression based articles</b> drawn from academic and preferably refereed journals. You may use more articles that are not regression based.	<b>10</b>	
(2) Include a <b>reference list</b> at the end of the literature review (that does not count toward your page limit of six) that is in <b>APA style</b> . References made throughout the review should also follow APA style.	<b>10</b>	
(3) Read all of your articles in the manner described in Chapter 4 in Galvin for “General Guidelines for Analyzing Literature” and organize your literature review around <b>three different themes designated as separate sections in your review</b> .	<b>10</b>	
(4) Review Chapter 5 in Galvin on “Analyzing Quantitative Research Literature.” Note particularly <b>Guidelines 4 (cause and effect issues covered), 9 (differences in variable measurement), 10 (sampling issues), 12 (magnitude and statistical significance of regression coefficients), and 13 (flaws in studies observed) and incorporate these suggestions into your analysis and write up</b> .	<b>10</b>	
(5) Review Chapter 7 in Galvin “Building Tables to Summarize Literature.” You are to <b>include a well-crafted table of the type described here</b> in your review. If you put it in an appendix, it need not count against your six-page limit.	<b>20</b>	
(6) As discussed in Chapter 8 of Galvin “Synthesizing Literature Prior to Writing a Review,” your <b>literature review’s “voice” is suitable for academic writing and differences among studies are noted (Guideline 5), obvious gaps discussed (Guideline 1), relevant theories discussed and how studies advance them (Guidelines 7 and 8), summaries are offered after each section and at end (Guideline 9), conclusions/implications, and suggestions for future research [your own PPA 207 paper] are included (Guidelines 10 and 11)</b> .	<b>20</b>	
(7) You have a coherent essay according to Chapter 10 in Galvin. This means an <b>overview at start (Guidelines 1 and 2), annotations avoided (Guideline 4), subheadings used (Guideline 5), conclusion at end (Guideline 8), and argument flows well (Guideline 9)</b> .	<b>10</b>	
(8) Style and mechanics follow Galvin’s suggestions in Chapter 11. In particular <b>Guideline 3 (no overuse of direct quotations), Guideline 4 (correct APA use of citations), Guideline 6 (spell out acronyms), Guideline 9 (avoid slang), Guideline 11 (check your draft using Microsoft Grammar Editor, avoid passive voice), Guideline 12 (concise and descriptive title), and Guideline 14 (absolutely no plagiarism)</b> .	<b>10</b>	
<b>TOTAL</b>	<b>100</b>	

## PPA 207 CHECKLIST FOR FINAL PAPER

**Professor Rob Wassmer, Public Policy and Administration, Sacramento State  
Spring 2017  
Preliminary**

Your grade on the final paper comes from how well you satisfy the items on this list. You must turn in a paper (in PPA Office or under my office door) and an electronic copy (to [rwassme@csus.edu](mailto:rwassme@csus.edu)) by 6 pm on May 15, 2017. Each partial day after this time and date, it is late and will result in a one lower grade deduction (that is, at 6:05 pm on May 19, it is one day late).

*A one after a criterion means that you satisfied it 100%. A decimal value means that you satisfied it at that level. A zero indicates not done; while an "X" indicates not relevant. These indicators are the basis of my assignment of your overall grade. Also, see my comments on the electronic version of your paper.*

### OVERALL

- There is a cover page with title, your name, and date handed in. \_\_\_\_
- There are seven major sections in your paper, marked by roman numerals and section titles. \_\_\_\_
- First paragraph of section is an introductory paragraph that briefly describes what is in it. \_\_\_\_
- Sub-sections used within your seven sections and they contain headings. \_\_\_\_
- There are no spelling errors. \_\_\_\_
- There are no grammatical errors. \_\_\_\_
- Transitions between paragraphs are smooth. \_\_\_\_
- One inch margins, 11 Times Roman font, and double-spaced. \_\_\_\_
- Paper includes a list of references at end of paper in APA style. \_\_\_\_
- Style issues follow the APA style given in Hacker's *A Pocket Style Manual* (described at <https://owl.english.purdue.edu/owl/resource/560/01>). \_\_\_\_
- Paper written in manner that educated layperson working in public policy can follow. \_\_\_\_

### I. EXECUTIVE SUMMARY (1 – 2 pages)

- Follows the suggestions offered in “Executive Summaries Complete the Report,” – <http://www.csun.edu/~vcecn006/summary.html> \_\_\_\_

### II. INTRODUCTION (2 - 3 pages)

- The first paragraph clearly contains your research question. What are you trying to discover through regression analysis? What is the dependent variable? What is (are) the key explanatory variable(s)? \_\_\_\_

- The remainder of your introduction motivates the reader to continue by placing your question in the context of current events and public policy. \_\_\_\_
- Cite at least two newspaper or magazine articles that point out the populist importance of determining the impact of your key explanatory variable(s) on the dependent variable. Use search engines like <http://www.sacbee.com/> , <http://www.latimes.com/> , and/or <http://www.sfgate.com/> . \_\_\_\_
- Include at least one “Tufte-like” figure/diagram (not a numeric table) that helps the reader understand patterns in your dependent variable and/or relationship(s) with you key explanatory variable(s). \_\_\_\_
- The last paragraph contains a description of what is contained in the remaining five sections of your paper. A one-sentence description for each section is appropriate. \_\_\_\_

### **III. LITERATURE REVIEW (5 - 6 pages)**

- It must contain a description of at least at least seven regression-based research articles in the area of your policy topic. You can find this research by searching the Sacramento State Library’s Web Page of literature bases <http://library.csus.edu/databases> . I would suggest using ECONLIT and EBSCOhost as two literature sources that will have regression studies in them. Search using keywords that include "regression" and your topic. \_\_\_\_
- Divide your literature review into at least three labeled themes (or subsections). \_\_\_\_
- **Attach a copy of your midterm to the back of paper with my comments included and your note on each as to how handled.** \_\_\_\_
- Address all of the comments I offered on your midterm in a new draft of the lit review that you contain in the paper. (If you wish to ignore something, write a note next to the comment as to why.) \_\_\_\_

### **IV. MODEL (2 - 3 pages)**

- Offer a motivation for your choice of a dependent variable. How does it relate to your research question? \_\_\_\_
- Specifically describe where your dependent and explanatory variables come from (units of observation, dates) and any concerns that arose in using this data. \_\_\_\_
- Include a description of the factors expected to cause variation in your dependent variable. The factors should first be listed as broad causes (say causes A, B, C, etc.) and the specific variables which represent broad causes {  $A = f(x_1, x_2, x_3)$ ,  $B = f(x_4, x_5)$ ,  $C = f(x_6, x_7, x_8)$ , etc.} \_\_\_\_
- What variables do you use to specifically proxy for each of the broad causes? Justify your choices. \_\_\_\_
- Write out the regression model as described on p. 291 in Miller. \_\_\_\_
- Do not use acronyms anywhere in your paper to describe  $x_1, x_2$ , etc., instead write out a short 3 to 5 word description. \_\_\_\_
- What is the expected direction of effect for each of the specific causes (positive, negative, uncertain)? Justify with a verbal cause and effect table and description. \_\_\_\_

### **V. DATA (2 - 3 pages)**

- Create a Table 1 that provides description and source for each variable used. (No direct STATA results allowed for any tables. Create tables in your own form and be consistent throughout. Place title on all tables.) \_\_\_\_
- Create a Table 2 that provides descriptive statistics for all variables used (name, mean, standard deviation, maximum, and minimum). \_\_\_\_
- Create a horizontal Table 3 that provides simple correlation coefficients between all explanatory variables. If large, place this in an appendix. \_\_\_\_
- Describe in paragraph form what is in Tables 1 – 3. \_\_\_\_

## **VI. REGRESSION ANALYSIS (3 - 4 pages)**

- List your regression results in table form. (No direct STATA results allowed.) \_\_\_\_
- First, give your starting OLS results with no corrections. This should begin with the lin-lin, then quadratic, log-lin, and then lin-semilog (if possible) forms. \_\_\_\_
- Pick the “best” functional form based upon the number of statistically significant regression coefficients and use it in remaining corrections. \_\_\_\_
- Discuss how you checked for multicollinearity. Was it an issue, and if it was, how you corrected for it? Be sure to include VIF values and refer to partial correlation coefficients. \_\_\_\_
- Include relevant location or other relevant dummy variables. Discuss your findings. \_\_\_\_
- Include an interaction terms using your key explanatory variable(s). Discuss your findings. \_\_\_\_
- Check for heteroskedasticity in your regression by presenting and describing the Breusch-Pagan Test. If heteroskedasticity is present in your regression analysis, provide the appropriately corrected results. \_\_\_\_
- If your dependent variable is dichotomous (0 or 1), report both OLS (lin-lin and quadratic which represent linear probability models) and Logistic regression results. Describe what both mean and which of the two is more appropriate. \_\_\_\_
- It is possible to use panel data techniques for your analysis. If not, justify why you believe so. If it can, use it throughout. \_\_\_\_ (*Extra Credit*)
- Is endogeneity an issue for any of your casual variables? If not justify why you believe so. If it is, tell why and describe how you would correct using 2SLS. Report these results. \_\_\_\_ (*Extra Credit*)

## **VII. CONCLUSION (2-3 pages)**

- Considering your final regression result (with all the appropriate corrections), turn statistically significant regression coefficients into 90% confidence intervals and equivalent elasticities. Report them in a table that lists the explanatory variables in an order from largest positive influence to largest negative influence. (Alternatively, chose the appropriate measure if using logistic.) \_\_\_\_
- For your significant coefficients, how do they compare to the expected signs you described in model section? If findings are different, give a reason why it may be the case. \_\_\_\_

- For your significant coefficients, describe the relevance of variable based upon the magnitude of its elasticity. \_\_\_\_
- Interpret the R-Squared (OLS) or hit ratios (Logit). \_\_\_\_
- What does your regression results indicate as an answer to your research question? \_\_\_\_
- What is the specific policy lessons learned from your results? Offer responses to the policy questions you raised in your introduction. \_\_\_\_
- Suggest improvements that you would undertake if you had the time. Is potential here for a Master's thesis? \_\_\_\_