

final project

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outline

how do i produce a final project for this class?

final paper/project in general [NOT resMet]

a dilemma: publishable project or student project [NOT resMet]

respond to comments on final project draft [qm*,dev]

links: a good piece of research in words of other people [NOT resMet]

the end of theory: data is enough; and airplane model [datMan]

regression [qm2]

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start early

- ◇ it's high time now you know what you'll do for the final project
- ◇ if you are not sure, email me
- ◇ if you cannot find data, email me
- ◇ I'd like to meet with each of you **at least twice per your project**

kill 2 birds with one stone

- ◇ analyze something that you study for another class
- ◇ use data from your work
- no matter where you work—they always have some data

start with good data

- ◇ representative
- ◇ easy to use
- ◇ novel/innovative (eg twitter)
- ◇ local/familiar (so that you can compare to your experience)
- ◇ long term investment (use same data for years)

treat it seriously, don't waste your time

- ◇ not only a big chunk of the final grade
- ◇ use it or lose it!
- ◇ if you don't use tools, you will lose this skill soon
- ◇ be efficient, use this class for something beyond this class
 - do something useful for your work (civic engagement)
 - it could be analysis chapter for your capstone/thesis/dissertation/journal paper
- ◇ **important!:** email me drafts and see me few times in the second half of this class

the good news

- ◇ the good news is that you already have much of it
- ◇ just reuse your problem sets
- ◇ yes, you can reuse past (future) assignments for final project
- ◇ or you can, of course, come up with something new
- ◇ you can also reuse your work from other classes/projects (eg your job)
- but in that case you need to clearly state what you are reusing
- state that in the text of the final project, eg at the beginning of it

the bad news

- ◇ there is always bad news accompanying good news...
- ◇ if you are building on your past ps
- ◇ you need to extend them very substantially
 - cannot just glue them all together
- ◇ and they need to form a logical project
- ◇ it needs to be interesting/innovative
- ◇ and discuss your findings—why they are important?
- ◇ what is new there?

consensus creation or consensus shift

- ◇ perhaps your study creates consensus or shifts it
- ◇ great if it does
- ◇ [*] Hollenbeck (2008)

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interesting to you— > fun for you

- ◇ study something that is of interest to you
- ◇ say crime if you live in high-crime area
- ◇ or agriculture if you live in high-agriculture area
- ◇ eg I study income inequality, because my family is unequal
- ◇ fun to work on something of great interest to you

be curious

- ◇ curiosity is arguably the most important reason for research
- ◇ do research about something that you are curious about
- ◇ it will be fun and you will be good at it

interesting to others

- ◇ (if interesting to you, more likely also interesting to others)
 - (if you hate your work, others won't love it)
- ◇ research must be interesting
- ◇ i am very much against typical dry research only demonstrating technical proficiency or mastery of material
- ◇ research should read like a story
 - its language should be simple
 - do not write words that you do not use when talking
- ◇ be simple and clear:
 - “person”, not “individual”
 - “explain”, not “elucidate”

the “so what” question?

- ◇ go through your final project and ask yourself “so what?”
- ◇ if what you have just read is not relevant, drop it
- ◇ this rule, as all rules here, pertain not only to text
- ◇ but also to tables, graphs, maps, etc

quality vs quantity

- ◇ do not just dump everything that you know on the topic
- ◇ in fact, the opposite is good:
 - be as brief as possible
- ◇ i will **decrease grade** for padding:
(putting irrelevant/wordy stuff into your paper)
- ◇ sure, do a lot of stats, reading, mapping
 - but give me only the best of it
 - (have to do a lot to find the best)

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like a peer-review process

- ◇ i will give you comments on your draft
- ◇ you need to respond to **all** comments
- ◇ you may disagree but you have to respond

inline response

- ◇ you need to reply inline
- ◇ that is quote my comment
- ◇ and then respond to it
- ◇ for example see my https://sites.google.com/site/adamokuliczkozaryn/gis_int/rev_ariq.pdf
- (no need for tracked changes; just inline response—if no tracked changes be specific where the change was made—page and paragraph)

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i wish i knew it when i was a student

- ◇ instead of rephrasing what i have learned by reading other people description of good academic work
- ◇ i am just linking their writings
- ◇ following their advice should help you producing a good final project for this class
- ◇ we'll quickly scan through them
- ◇ i also list some points in slides
- ◇ read them after the class—they are very useful

Greg Mankiw

- ◇ “My rules of thumb”
- ◇ http://scholar.harvard.edu/files/mankiw/files/my_rules_of_thumb.pdf
- ◇ have productive mentor(s)
 - Scott Long’s research shows that a student’s productivity depends on mentor’s productivity
- ◇ have broad interests, be interdisciplinary
- ◇ your research should be T-shaped: broad, but also deep in one area

Greg Mankiw

- ◇ http://scholar.harvard.edu/files/mankiw/files/my_rules_of_thumb.pdf
- ◇ time management is key! extremely easy to mismanage time in research:
 - ask yourself how what you are doing now gets you to your goal
 - have strategy
- ◇ write well—see other slides; essp: simple, clean

Andrew Gelman

- ◇ “Advice on writing research articles”
- ◇ http://andrewgelman.com/2009/07/30/advice_on_writi
- ◇ be clear about your story
- ◇ give your paper to other people to read
- ◇ ask for comments
-
- ◇ start with the conclusions and work back to abstract

Gary King [do it at home]

- ◇ “Publication Publication” and some notes under:
- ◇ <http://gking.harvard.edu/papers>
- ◇ if needed, criticize others, but step on their shoulders, not their face
- ◇ [note: this is about replication; still some good ideas]

great references on academic writing

- ◇ clarity, simplicity, conciseness
- ◇ <http://amzn.com/0060891548>
- ◇ <http://amzn.com/1577660633>

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wired article

- ◇ http://archive.wired.com/science/discoveries/magazine/16-07/pb_theory
- ◇ again, we have data revolution
- ◇ unprecedented amounts of data about pretty much anything
- ◇ with so much data, we can just look at basic correlations
- ◇ without being too serious about theory !
- ◇ note: this is computer science approach to data analysis
- ◇ such view is not mainstream in social science

theory

- ◇ there is no reason to be very serious about existing theory
- ◇ theories are only valid until proved wrong
- ◇ we need new theories
- ◇ remember “all models are false, some are useful”
 - our model and theory is **never** right
 - world is too complicated
 - we just want to show some useful pattern
 - that's all we can do
 - still, we want to be as close to the truth as possible

airplane model

- ◇ models replicate some of the useful features of real objects
- ◇ think of an airplane model
- ◇ there are airplanes models without windows
- ◇ and models that are too heavy to ever fly
- ◇ yet they are useful eg to test airflow in a wind tunnel
- ◇ but these models are not the same as airplanes
- ◇ (and nobody claims they are “true”)
- ◇ but social scientists behave as if they have “true” models
- ◇ your regression model is always false, but hopefully useful

build new theories and models...

- ◇ because all theories and models are wrong, be creative
- ◇ come up with new theories in models
- ◇ don't take well established theories and models for granted just because they are out there for a long time and everybody uses them

...but do your homework

- ◇ cannot produce new theories if don't know the old ones
 - your new theory/model may already be old
 - (reinventing the wheel)
 - rather invent the new given the old—build on other's work
- ◇ you have to defend your theory/model
 - why is it important ? “so what ?”
 - how come millions of other soc sci did not get?
 - why they got it wrong ?
- ◇ again, all models/theories are wrong, some are useful
- ◇ also, some are better than others in terms of
/creativity/logic/argument/robustness

conclusion: theory and modeling

- ◇ think out of the box
- ◇ be creative
- ◇ do not use models only because everybody else uses them
- ◇ defened your approach

and remember that no model works all the time

- ◇ eg famous now professor couldn't get into PhD
- ◇ because his GPA was low,
- ◇ and model predicted that people with low GPA cannot do well in PhD
- ◇ model works probably well most of the time, but as any model
- ◇ it sometimes fails

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what next?

- ◇ now you know the basic and powerful tool of multiple OLS
- ◇ what next ?
- ◇ use it !
- ◇ turn your ideas into new theories and hypotheses
- ◇ and test those hypotheses by regressing the outcome (Y) on your main X, controlling for other X's
- ◇ do data support your hunch ? find out ...
- ◇ be creative ! being social scientist you don't have to study economic development or income inequality
- ◇ you can study happiness, culture, religion, terrorism, facebook relationships, and so forth

theory, logic, explanation

- ◇ again, you need to have some theory that makes sense and that is interesting for public policy/business/philosophers, etc...
- and be as clear and simple as possible
- eg “Wage is a function of education and experience; it is based more on merit than on privilege, such as race and gender.” [see also Alesina’s paper in few slides]
- ◇ do not say that you expect that “gender affect wage” etc...
- why ? how ? so what ?

regressions

- again, do not overemphasize R^2
- do **not** pick the models based on the R^2 !
- use beta coeff to compare magnitude!
- see code in 1.4 Multiple Regression

https:

`//stats.idre.ucla.edu/stata/webbooks/reg/chapter1/
regressionwith-statachapter-1-simple-and-multiple-regres`

regressions

- ◇ e.g.: “When controlling for union membership, experience is not statistically significant; and even if it were statistically significant, it’s practical significance is negligible.”
- This is great ! The coeff on exp is $< .1$ depending on specification; with .1 it means that 10 more years of experience (a lot !) would produce only 1 more \$ per hour

regressions

- ◇ produce alternative models , eg merit v privilege
- ◇ but then always have a combined model with both to see which one is more important
 - is privilege affecting wages controlling for merit ?
 - is merit affecting wages controlling for privilege ?
- ◇ if both merit and privilege affect wages
 - (they do—we know it from theory and models)
 - then if you run separate models, you have LOVB !

yet, another note on collinearity

- ◇ again collinearity is just a correlation between independent vars
- ◇ you can see it with **corr**
- ◇ some people say that you have collinearity if say correlation $>.9$
- ◇ you really have collinearity most of the time
- ◇ you can also use **vif**
- ◇ www.nd.edu/~rwilliam/stats2/l11.pdf

yet another note on BLUE

- ◇ what BLUE really means ?
- ◇ how estimators compare ?
- ◇ lets compare efficient/inefficient and unbiased/biased estimators
- draw a picture (based on Kennedy)

- ◇ let's have a look at Alesina's "Public Goods and Ethnic Divisions"

<http://www.google.com/search?sourceid=chrome&ie=UTF-8&q=public+goods+and+ethnic+divisions>

- ◇ note:

- nice elaboration/sequential models, eg TABLE III
- well-developed theory–alternative explanations
- multiple models
- sensitivity analysis

another example

- ◇ `http://theaok.github.io/qm2/CassPortfolioPaper-FinancialLiteracy.pdf`
- ◇ skip nonlinear logit models!
- ◇ by a former student in this class
- ◇ note that it tells a story, it is interesting, engaging
- ◇ it contributes—we learn something new
- ◇ theory first, descriptive statistics second
- ◇ then regressions, interpretation and discussion
- ◇ last but not least, this paper looks polished and “publishable”

more examples

- ◇ <https://link.springer.com/article/10.1007/s11205-011-9812-y>
- ◇ <https://link.springer.com/article/10.1007/s12232-015-0223-2>
- ◇ <http://journals.sagepub.com/doi/abs/10.1177/0042098016645470>
- ◇ go through at least some of them and do ask questions if anything unclear
- ◇ also do read literature with OLS in your field, practice practice
- ◇ MQE is mostly about interpreting regressions!

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do something useful

- ◇ do not just merge, loop, reshape, etc
 - for the sake of doing it
 - eg first split dataset, and then merge it back again
- ◇ playing is fine for learning and exploration
- ◇ but the final project must do something useful!

one-on-one

- ◇ again, let's work more one-on-one in second part of the class
- ◇ the idea is that by the end of the semester you will
 - develop a great dataset
 - understand your data really well (des stats, graphics)
 - and be able to change/expand your data easily
 - also be able to manage output (tables, coeff, graphs) easily

how do i cite data

◇ the most proper way

- <http://www.bu.edu/datamanagement/background/cite/>
- <http://libguides.lib.msu.edu/citedata>
- <https://www.icpsr.umich.edu/icpsrweb/ICPSR/curation/citations.jsp>

◇ the quick way way: just give url

- you can also then load it directly into stata
- but keep it on harddrive as well!
- data on websites change and disappear

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HOLLENBECK, J. R. (2008): "The role of editing in knowledge development: Consensus shifting and consensus creation," in Opening the black box of editorship, ed. by Y. Baruch, A. M. Konrad, H. Aguinis, and W. H. Starbuck, Palgrave Macmillan, 1–12.