final project

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this version: Tuesday 17th April, 2018   20:41

outline

how do i produce a final project for this class?

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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, dont'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 <u>in the text of the final project</u>, 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

$\diamond$ study something that is of interest to you

$\diamond$ say crime if you live in high-crime area

$\diamond$ or agriculture if you live in high-agriculture area

$\diamond$ eg I study income inequality, because my family is unequal

$\diamond$ 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
   demonstarting 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)

outline

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

$\diamond$ instead of rephrasing what i have learned by reading other people description of good academic work

$\diamond$ i am just linking their writings

$\diamond$ following their advice should help you producing a good final project for this class

$\diamond$ we'll quickly scan through them

$\diamond$ i also list some points in slides

$\diamond$ 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 untill 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

/creativeness/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 prodicted 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

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 hypothses by regressing the outcome (Y) on your main X, controling 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 Rsq

· do *not* pick the models based on the Rsq !

· 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 privilige

◇ 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

$\diamond$ again collinearity is just a correlation between independent vars

$\diamond$ you can see it with `corr`

$\diamond$ some people say that you have collinarity if say correlation $> .9$

$\diamond$ you really have collinearity most of the time

$\diamond$ you can also use `vif`

$\diamond$ www.nd.edu/~rwilliam/stats2/l11.pdf

yet another note on BLUE

$\diamond$ what BLUE really means ?

$\diamond$ how estimators compare ?

$\diamond$ lets compare efficient/inefficient and unbiased/biased
  estimators

$\cdot$ draw a picture (based on Kennedy)

paper

◇ 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 hardrive 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 <u>Opening the black box of editorship</u>, ed. by Y. Baruch, A. M. Konrad, H. Aguinis, and W. H. Starbuck, Palgrave Macmillan, 1–12.