Shatterproofing

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OVERVIEW

AGENDA

Research Questions

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Research Plan + Conclusion

Research Questions

RESEARCH QUESTIONS

ARE MUNICIPALITIES WITH RESOURCE EXTRACTION BASED ECONOMIES EXPOSED TO MACROECONOMIC COMMODITY RISK?

WHAT FORMS OF FINANCIAL PRODUCT COULD BEST AND MOST AFFORDABLY MITIGATE THIS RISK?

WHAT RESPONSIBILITY SHOULD CIVIC AND STATE ACTORS ASSUME FOR THE FINANCIAL RISKS OF THEIR CONSTITUENTS?

RESEARCH QUESTIONS

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WHAT FORMS OF FINANCIAL PROTECTION WOULD BEST AND MOST AFFORDABLY MITIGATE THIS RISK?

WHAT RESPONSIBILITY SHOULD CIVIC AND STATE ACTORS ASSUME FOR THE FINANCIAL RISKS OF THEIR CONSTITUENTS?

Blah, Blah, Blah.

My questions are simple.

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WHY DO SMALL TOWNS GO BUST?

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HOW CAN THEY BE SAVED FROM GOING BUST?

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WHY DO SMALL TOWNS GO BUST?

HOW CAN THEY BE SAVED FROM GOING BUST?

WHO DOES THE SAVING?

Hypothesis

HYPOTHESIS I

NULL: ANY EFFECT OF COMMODITY PRICES ON TOWNS IS BY CHANCE.

Alt: Commodity prices have a significant effect on small towns with extraction based economies, which can be seen in Unemployment, Tax Revenue, and Population data.

NULL: EVEN IF IT EXITS, THIS RISK IS UNHEDGEABLE.

Alt: Derivative positions taken on by the towns would have benefitted from the demise of the local economy, thus helping the town survive the economic shift.

OKAY, SO, WHAT?
WHAT'S THE POINT?

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My Theory:

Rural boomtowns are exposed to a **hedgeable** and **tangible** commodity risk stemming from **their** local economy.

HYPOTHESIS II

WHICH OUTCOME IS MOST SEVERE?

Unfortunately, not just "What's largest?"

NULL: NO OUTCOMES MEANING-FULLY PREDICT EACH OTHER.

Alt: Unemployment precedes loss in tax revenue, OR population migration precedes tax revenue loss, OR tax revenue declines leading to migration from a bleeding town OR something else, to be discovered.

Research Methods

RESEARCH METHODS PART I

ECONOMETRIC ANALYSIS

Checking for a statistically significant relationship between futures data and outcomes of concern (unemployment, tax revenue, and population).

MULTIVARIATE TIME SERIES LINERAR REGRESSION

Controlling for seasonality, parallel pretends, omitted variable bias, and location.

RESEARCH METHODS PART II

STREAMLINED CODE

Matters for two reasons.
1.) For Reproducibility. Open code is honest code.
2.) For generalizability. Open code is useful to not only myself, later, but others, too.

PREDICTING OUTCOMES WITH OUTCOMES

Answering the "what's most severe?" question, to better inform policy. Done by switching what's my x's and y's.

Data

Data I

FUTURES

Quantopian, a backtesting platform, for futures data. Their data derives from the CME and CBOT (as well as other) exhcanges.

EMPLOYMENT

bls.gov, or the Burea of Labor Statistics, for unemployment data.

POPULATION

data.gov for population, migration, and relevant census data. Particuarily, comparing job occupation shifts and town population.

TAX

irs.gov, or the Internal Revenue Service, for tax realted data.

Data II

COAL

Looking into the rural east, where futures data is extant and the sweep of the decline has been swift.

TIMBER

Shocks from the pine beetle in the west. Little effect on futures, devastating local effect on timber towns.

NATURAL GAS

Dakotan drilling and the rise of boom towns in otherwise empty plains. Most seasonal, due to ease of turning drills on/off thus perhaps most sensitive to price moves.

OIL

Texan migration data from town to town as oil fields are found and depleted. Length history, so extensive data and multiple shocks to regard.

Political Questions

"ANTIFRAGILITY IS BEYOND RESILIENCE OR ROBUSTNESS. THE RESILIENT RESISTS SHOCKS AND STAYS THE SAME; THE ANTIFRAGILE GETS BETTER."

NASSIM TALEB

Political Questions

HOW DO YOU HEDGE THIS?

How do you turn a local catastrophe into a boon? What financial products might you use?

WHO SHOULD HEDGE THIS?

Is it the state? The town? The individual? The company? Fundamentally, who's responsible?

SHOULD WE HEDGE THIS?

What's the point of a post-boom town? Should it exist? Should this procession even be stopped?

Ethical Considerations

ETHICAL CONSIDERATIONS

WHO AM I TO SAY

My level of statisitc, academic, and philisophic erudition isn't incredible. I'm a student researching questions, not a PhD in Econ or a Policy Advisor.

DATA AIN'T PEOPLE

Looking at data won't tell anything about what watching your hometown, a town once brimming with commerce, lose its people and fill with ghosts.

MAY BE OUT TOUCH

Even if I find a problem which I beleive can be solved with finaincial products, it might be a moot and insulting intellectual point to the people any policy may effect.

NO DIRECT DEALING

I won't be studying any people directly. This is good in that my data's anyomized, bad in that I have no anecdotal story. The problem will inherently come off as abstract.

Research Plan + Conclusion

RESEARCH PLAN

NOW

Polish and hone the research questions.

SUMMER 2019

Grapple with data. Pick a starting set (timber, coal, gas, etc.). Build initial model.

FALL 2019

Hone model, flesh out stance on political questions, submit thesis.

QUESTIONS?

Plus an intriguing quote.

"A DERIVATIVE IS LIKE A RAZOR. YOU CAN USE IT TO SHAVE, OR YOU CAN USE IT TO COMMIT SUICIDE."

JAMES MORGAN, FINANCIAL TIMES