1)    log of Initial GDP

* We can get initial GDPs for each county from the **Census**, and want to try to get it by industry as well
* This variable, regressed on the average growth of GDP per capita, accounts for convergence or divergence of regional income
* Testing the hypothesis that poorer regions farther away from their steady-state level will tend to grow faster and thus converge
* A negative sign – lagging regions are catching up and convergence is taking place
* Positive sign – higher growth rates in already richer regions and thus, divergence would be present

2)    log of motorway density

* From **Census of Government**, we can get county information on motorway density
* Miles per person
* Neo-classical theory: Capital is the main determinant of economic growth
* Infrastructure in roads as a proxy for physical capital
* Problem 1: motorways are only one part of infrastructure, and other types of investment with direct impact on productive activities – either by enabling them or reducing costs – such as energy or telecommunications, rail or airports, are not accounted for
  + Include energy, telecommunications, rail and/or railroad numbers?
  + Make an index that includes all?
  + If we can get that, we want to include it—anything that has to do with physical infrastructure
  + Physical capital includes education system
* Problem 2: public investment does not take into account private stocks of capital – this data is not available at the regional level

3)    employment rates

* **Bureau of Labor Statistics** has employment rates by county
* A proxy for the proper functioning of labor markets
* Does not show to affect growth
* Should maybe try to do average wage data by age group (is already in the data set we’ve been given)
* We also have unemployment rates (with all its complications)

[2007 County Business Patterns

* County Business Patterns presents data on the total number of establishments, mid-March employment, first quarter payroll, and annual payroll. Geographic coverage includes the U.S., states, counties, and county-based metropolitan areas.
* http://factfinder.census.gov/servlet/DatasetMainPageServlet?\_program=EAS&\_tabId=EAS2&\_submenuId=datasets\_5&\_lang=en&\_ts=240824924822]

Educational attainment

* Meant to capture human capital
* Why log?
* Why primary and tertiary? Why not secondary education?
* We like doing attainment instead of years of education because attaining the degree is more highly correlated with wage
* Educational attainment can come from the Census, but there’s a lot of reporting error (Dan Black taught us about this one day last year)
* Collected in the American Community Survey (ACS) and the Current Population Survey (CPS)
* Since we’re dealing with 1998 – 2008 we don’t need to worry about changing the wording of educational attainment in 1992

Youth unemployment (under 25)

* Apparently mean to proxy for the proper functioning of labor markets
* But are youth supposed to be employed, or adults?
* Would this correlate with schooling rates? Is it youth seeking jobs or all youth?
* I would argue that we shouldn’t use this variable because it may covary with educational attainment, and I’m not sure if we capture this in a uniform way across the country
* It’s not in the census. Where would it be? I guess we could get unemployment and youth… it would be more difficult

7) Log of patent applications

8) Log of domestic expenditures in business activity

9) Log of domestic expenditures in government activity

Measure of intellectual capital. Important in reference to analyzing innovation and how that connects to growth. They also include employment in knowledge intensive sectors and employment in high tech. We think we need to use them.

The way Enrique analyzes innovation is through input-output linkage/knowledge production function. Patent application is the output measure and expenditures is the input measure. Didn’t really understand the knowledge production function model (page 25). We found that the knowledge production function is justifying using patents as a proxy for R&D and high tech manufacturing.

US patent and trademark office with database. Issued patent vs. patent application (wants to focus on patent applications). Data only dates back to 2001.

Does the EDA’s “innovation index” replace this?

R&D expenditures in US: National Science Foundation. Have data from 1953 to 2007. Not by county, but just by sector and state. Sector and state is only back to 2005.

Tried to explore census for expenditures at the state and local level, but there wasn’t much.

Is patenting really what we want? Lots of things not captured: trade secrets, data and knowledge and research in the public domain.

Public libraries?

1. log of agglomeration economic activity in the agriculture and fishing sector
2. log of agglomeration economic activity in financial intermediation

Meant to capture dynamics of concentration and dispersion—meant to take into account new economic geography theory. But what was the actual information he used for these? He tells us the variable but not what it means. Specialization? Using Herfindahl index?

If you’re heavy in agriculture you’re less agglomerated.

What would we use as analogous measures? Need to read more IO literature, sure there’s commonly used measured that capture degree of specialization.

Specialization in financial intermediation, and specialization in manufacturing (wasn’t in the original equation).

What is financial intermediation?

Questions for Kirsten:

* How is your innovation index constructed?

Questions for Enrique:

* What do you mean by convergence? Why not just a shrinking and growing economy? Convergence = growing?
* Is GPD a typo? All about page 16.
* Why were primary and tertiary but not secondary educational attainment included?
* Page 21: clarifying specialized manufacturing, agriculture, and finance.
* Youth unemployment—what is this telling us? How did you make this variable?
* Variables 10 and 11, what are they? What would be analogous measures? What’s a financial intermediary?

Questions for Paula:

* Why natural logs?