

“hard (eco) theory”
economic regional development theories
why do cities exist?

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outline

a quick and general intro to eco theory

general development theories (Blakely and Leigh, 2009, ch3)

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why cities exist? (O'Sullivan, 2009, ch3)

city size (O'Sullivan, 2009, ch4)

urban growth (O'Sullivan, 2009, ch5)

NECESSARY readings

◇ Friedman (1970)

◇ Wirth (1938)

- <http://www.economist.com/node/18111592>

- [http:](http://www.economist.com/blogs/prospero/2011/11/triumph-city)

- [//www.economist.com/blogs/prospero/2011/11/triumph-city](http://www.economist.com/blogs/prospero/2011/11/triumph-city)

- <http://www.governing.com/>

- [is-it-time-to-retire-jane-jacobs-vision-city.html](http://www.governing.com/is-it-time-to-retire-jane-jacobs-vision-city.html)

- BARRO, R. (1991): "Economic growth in a cross section of countries," The Quarterly Journal of Economics, 106, 407–443.
- (1999): "Determinants of democracy," Journal of Political Economy, 107, 158–183.
- BERRY, B. AND A. OKULICZ-KOZARYN (2012): "The city size distribution debate: Resolution for US urban regions and megalopolitan areas," Cities, 29, Supplement 1, S17–S23.
- BERRY, B. J. L. AND A. OKULICZ-KOZARYN (2009): "Dissatisfaction with City Life: A New Look at Some Old Questions," Cities, 26, 117–124.
- BETTENCOURT, L. AND G. WEST (2010): "A unified theory of urban living," Nature, 467, 912–913.
- BETTENCOURT, L. M., J. LOBO, D. HELBING, C. KÜHNERT, AND G. B. WEST (2007): "Growth, innovation, scaling, and the pace of life in cities," Proceedings of the National Academy of Sciences, 104, 7301–7306.
- BETTENCOURT, L. M., J. LOBO, D. STRUMSKY, AND G. B. WEST (2010): "Urban scaling and its deviations: Revealing the structure of wealth, innovation and crime across cities," PloS one, 5, e13541.
- BLAKELY, E. AND N. LEIGH (2009): Planning local economic development: Theory and practice, Sage Publications, Beverly Hills CA.
- CHRISTENSEN, C. (1997): The innovator's dilemma: When new technologies cause great firms to fail, Harvard Business Review Press.
- FLORIDA, R. (2008): Who's your city?, Basic Books, New York NY.

- FRANK, R. H. (2005): "Does Absolute Income Matter," in Economics and Happiness, ed. by L. Bruni and P. L. Porta, Oxford University Press, New York NY.
- FRIEDMAN, M. (1970): "The social responsibility of business is to increase its profits," The New York Times Magazine.
- GLAESER, E. (2011): Triumph of the City: How Our Greatest Invention Makes Us Richer, Smarter, Greener, Healthier, and Happier, Penguin Press, New York NY.
- GREEN, G. AND A. HAINES (2012): Asset building & community development, Sage Publications, Beverly Hills CA.
- JACOBS, J. ([1961] 1993): The death and life of great American cities, Random House, New York NY.
- MANKIW, N., D. ROMER, AND D. WEIL (1992): "A contribution to the empirics of economic growth," The quarterly journal of economics, 107, 407–437.
- O'SULLIVAN, A. (2009): Urban economics, McGraw-Hill.
- SCHKADE, D. AND D. KAHNEMAN (1998): "Does living in California make people happy? A focusing illusion in judgments of life satisfaction," Psychological Science, 9, 340–346.
- STUTZER, A. AND B. FREY (2003): "Stress That Doesn't Pay Off: The Commuting Paradox," IZA Discussion Paper.
- WIRTH, L. (1938): "Urbanism as a Way of Life," American Journal of Sociology, 44, 1–24.

- ◇ i post comments in sakai's dropbox as comments.txt
- ◇ you may want to ask me questions about my comments

ps1 comments

- ◇ be specific; eg instead of saying that there is Whites flight from Camden, show numbers...
- ◇ think about the phenomenon—is it big or small?
- ◇ maybe there are fewer Whites everywhere ?
 - lower fertility than other races...
 - lots of Asian and Hispanic immigration, etc

ps1 comments

- ◇ is a number big or small ?
- ◇ it depends on the comparison
- ◇ all numbers mean nothing without a comparison/base case/yard stick
- ◇ say, is my income of \$40,000 big or small?
 - yes in Camden, not in NYC (given median)
 - yes for a HS dropout, not for a PhD (given median)
 - yes for a person in 20s, not in 40s (given median)
 - yes in rural China, not in Beijing (given median)
 - yes in 1870, not in 2012 (given median)
- ◇ and you can repeat the above given your family, given your field, etc

show most meaningful quantities

- ◇ number of single-parent families, number of people in poverty etc
- ◇ should be adjusted for population!
- ◇ all dollar values should be adjusted for inflation!
 - when you present something ask yourself “so what?”
 - why does it matter ? how it matters? how i can rephrase/redo it so it's more meaningful
- ◇ what's new ? what's unexpected ? otherwise, what's the point of creating n-th document that reiterates what everybody knows
- ◇ surprise me; in-depth analysis, or broad approach (several disciplines), unique data, etc

show me some sophistication

- ◇ do something that only a PhD can do
- ◇ eg a basic impact analysis of, say a policy enacted, eg govt takeover of Camden—may start with a graph
 - eg 1918 pandemic is an “intervention” <https://www.stata.com/features/overview/i/graph-editor-life-graph.png>
- ◇ RD
 - <http://www.socialresearchmethods.net/kb/quasird.php>
 - http://changingminds.org/explanations/research/design/regression_discontinuity.htm

quality trumps quantity

- ◇ i'd rather have two very meaningful, careful, to the point pages
- ◇ than 20 pages of everything that comes to your mind...

general notes on theories

- ◇ don't forget data: connect data and theory/literature
- ◇ theories need to be tested in different settings
- ◇ may get some counterintuitive results
- ◇ whatever you believe in, you'll find a theory to support it
- ◇ so important to test! paper: test theories
- ◇ i try to be impartial, and present a range:
- ◇ O'Sullivan (2009): economics: market forces
- ◇ Green and Haines (2012): sociology, public policy: social forces
- ◇ Blakely and Leigh (2009) somewhere in the middle
- ◇ today we'll focus on economics, later on others

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opinion slide: my problem with economics

- ◇ economic theories are wrong much of the time
- ◇ some are wrong most of the time
- ◇ still, most eco theories are somewhat useful
 - they clarify thinking
- ◇ the main problem though is that economists think that they and their theories are best in soc sci

some key modern economics papers on dev

- ◇ Barro (1991)
- ◇ Mankiw et al. (1992)

Adam Smith

- ◇ “invisible market hand”, oversimplifying: pub pol/adm should not exist
- market regulates itself...
 - http://tutor2u.net/economics/gcse/images/demand_supply_excess_demand1.gif
 - <http://www.pcecon.com/notes/noteimages/equilibrium/incrdemsup2.jpg>
- ◇ division of labor:
 - if you just do one thing, you get better at it and can do it faster
 - pin factory
 - but less creativity, numbness
 - Smith lived in 18th century...had he lived now he could put

John M Keynes

- ◇ no, we actually need government
- ◇ market won't regulate itself perfectly
- ◇ need government intervention
- ◇ eg increase public spending when economy is down to stimulate it
(see also Paul Krugman, Joseph Stiglitz)
- [interestingly, trump is up for public spending on infrastructure!]

division of labor is great!

- ◇ still, division of labor is a must !
- ◇ think about it...
- ◇ you cannot produce everything you need yourself...
- ◇ even simple stuff, like a pen, or a car seat
- ◇ you're better off doing whatever you do, getting paid for it
- ◇ and paying other people for other things
- ◇ everyday things like a car, or a train—think how many people worked on them

problems with division of labor

- ◇ you become like an automated machine, and you don't get the whole picture
- ◇ in research, too
- ◇ eg in medical research people work on very specific specialized tasks
 - the research teams are big: dozens or hundreds of people
 - and then the PI, who is more of a manager than a scientist, puts everything together and gets credit
- ◇ we still need great specialization to push research forward
 - but at the same time we need interdisciplinary people with broad (but shallow knowledge)

within and among

- ◇ division of labor happens within firms
 - different employees specialize in different things
- ◇ and among firms
 - different firms specialize in different things

economies of scale=bigger can do more

- ◇ bigger companies can produce cheaper and provide cheaper services
- ◇ think local grocery store vs Walmart
 - “everyday low prices” “save money, live better”
- ◇ but problems: monopoly/oligopoly
 - destroying diversity (local groceries), driving profits for suppliers down
 - outsourcing health insurance to Medicaid
- ◇ yes, everyday low prices, but is life better?

Something Wall-Mart This Way Comes

<https://www.hulu.com/watch/250057>

how economic growth happens?

- ◇ you need several things:
- ◇ physical capital
- ◇ labor
- ◇ technology
- ◇ and human capital
- ◇ (later we will talk about other capitals)
- ◇ for more discussion see Barro (1999)

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neoclassical economic theory (M. Friedman)

- ◇ also called “the invisible hand”, based on Adam Smith
- ◇ equilibrium of economic systems
- ◇ mobility of capital
 - if capital can flow without restrictions, all economic systems will achieve equilibrium
 - it would mean that ghettos would attract capital because of low cost; but they don't
- ◇ if the model worked, all areas would have about the same level of development; obviously, it doesn't work...
- ◇ but still it influenced deregulation in banking, utilities, etc
- ◇ and still an useful theory

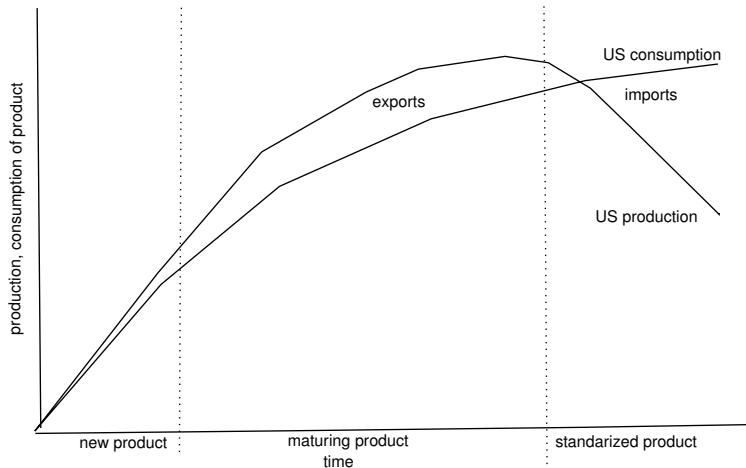
economic base

- ◇ localities should use local labor and materials and export it outside
- ◇ provide incentives (tax breaks, subsidies) for firms to start export-based businesses
- ◇ useful for hi-tech (it can be exported anywhere; eg ipad)
- ◇ but it risks being solely reliant on export and hence sensitive to demand fluctuations
- ◇ [but most things are produced globally (eg ipad)]

product cycle

- ◇ production of a product goes through cycles
 - first, it is expensive to produce, and finds demand among educated and rich
 - then it matures and starts to find buyers in the larger scales, also production process becomes more widely available and less expensive
 - finally product declines

product cycle



location

- ◇ how firms chose location? and hence how places grow and decline
- ◇ firms chose location that minimizes costs of production and transport
- ◇ if a final product weights less than inputs, firm would locate at inputs source
- ◇ they are called weight loosing or input oriented
 - e.g steel, ore refining, fruit canning

location

- ◇ if a final product weights more than its inputs firm would locate close to the market
 - eg auto assembly, baking
- ◇ but transportation costs declined so it makes more sense to think in terms of logistics rather than transport

location

- ◇ other things matter too: cost of energy, education, local government, weather, etc
- ◇ and other things matter more and more—World is changing fast...
- ◇ eg data centers would locate where energy is cheap and where it is cold
(computers like cold, otherwise need to use A/C)

central place

- ◇ most relevant to retail activity
- ◇ each urban center is supported by series of smaller places that provide resources (industries and raw materials) to the central place which is more specialized and productive
- ◇ and these smaller places are surrounded by even smaller places, and so on

central place

- ◇ the urban center contains specialized stores and services that serve the entire region
 - corporate lawyers, investment bankers, heart surgeons, symphony orchestra
 - haircuts and car repairs are everywhere
 - ◇ theory says that the development of the central place will improve the whole region
- more about central theory later today...some graphs etc

theory in practice-attraction models

- ◇ to attract people and businesses...
- ◇ ...by offering incentives and subsidies
- ◇ it used to be about attracting businesses
- ◇ now also attracting population, e.g the creative class (Florida, 2008)
- ◇ people bring buying power and skills that attract employers
- ◇ there was an ad on Cooper st: become a homeowner in Camden, get \$15k in incentives
- ◇ R faculty were encouraged during the orientation to live locally

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the axioms...

- ◇ ... are self-evident truths
 - actually, they are not that self-evident, but still useful when thinking about regional development
- ◇ economists are like physicists – they're pretty sure they know the truth
- ◇ the five axioms of urban economics follow

prices and locational equilibrium

◇ prices adjust to achieve locational equilibrium

it happens when no one has an incentive to move

◇ prices for better spots are higher

- eg you'll pay \$1,500 rent for a 1 bdrm in Philly, and \$200 in Camden
- had the prices been the same, everybody would move out of Camden
- (yes, Camden is losing population, but there are also other reasons, and if the housing prices were higher it would lose much more people)

self-reinforcement→extremes

- ◇ self-reinforcing effects generate extreme outcomes
- ◇ like a vicious(virtuous) cycle
- ◇ self-reinforcing effect is a change in something ...
that leads to additional changes in the same direction
- ◇ eg many artists may locate in some city
 - then they will share ideas, collaborate, compete
 - share studios, tool suppliers, etc
- ◇ and all of the above would attract more artists and so forth...

externalities→inefficiencies

- ◇ externalities cause inefficiencies
- ◇ (for economist an inefficiency means that not only the buyer/seller gets benefits/costs)
- ◇ externality is something external to a transaction
 - eg driving a car produces air pollution, and its cost is borne not only by you, but by everybody else
 - eg paying for education not only improves myself, but also my social network, community, etc
- ◇ [probably there's no transaction with exactly zero externalities]

economies of scale

- ◇ production is subject to economies of scale: cost decreases as output increases (think Walmart); 2 reasons:
 - indivisible (lumpy) inputs that cannot be scaled down
eg to produce a CPU, you need a bunch of equipment, whether you produce 1 or 1,000 per day
 - factor specialization: the more people you employ, the more they specialize and the more efficient they become:
 - continuity: you don't spend time switching from one task to another; proficiency (experience and learning)
 - “ A jack of all trades is master of none”
- ◇ it's critical for urbanization; if not economies of scale (and division of labor), there would be no cities

competition and profit

- ◇ competition generates zero economic profit
- ◇ when there are no restrictions on the entry into a market, firms would enter until profit is zero
(there are always some restriction on the entry)

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regional development vs cities

- ◇ much of regional development is about cities
- ◇ over 80 % of the US population is urban
- ◇ even more of production, R&D and innovation is urban

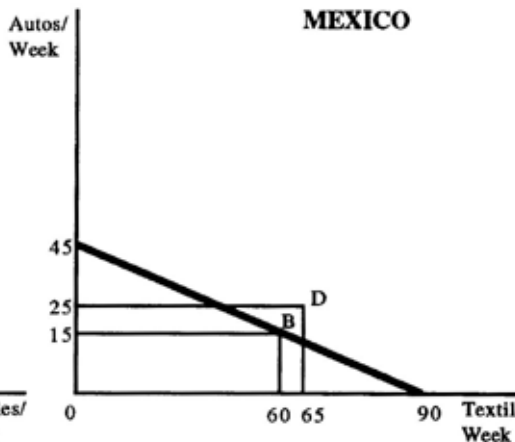
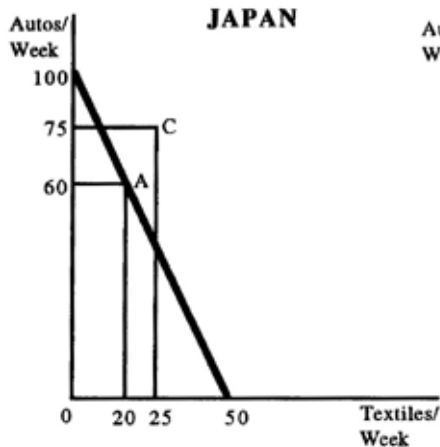
why do cities exist?

- ◇ because people are not self-sufficient
(Smith's labor specialization)
- and production, consumption and exchange are easier done
in cities
- ◇ think of everyday things you use, even the simple ones like
a coffee table...

...coffee table

- ◇ grow a tree, cut the tree, process it, paint it, ship it from China,
- and you need some equipment that somebody else needs to produce (axe, saw, chemicals for paint, etc)
- how about a car, airplane, washing machine, etc etc
- in everyday life we rely on work of thousands of other people
- and the know-how accumulated over centuries

comparative advantage



[//wps.aw.com/aw_miller_econtoday_13/29/7556/1934379.cw/content/index.html](http://wps.aw.com/aw_miller_econtoday_13/29/7556/1934379.cw/content/index.html)

comparative advantage

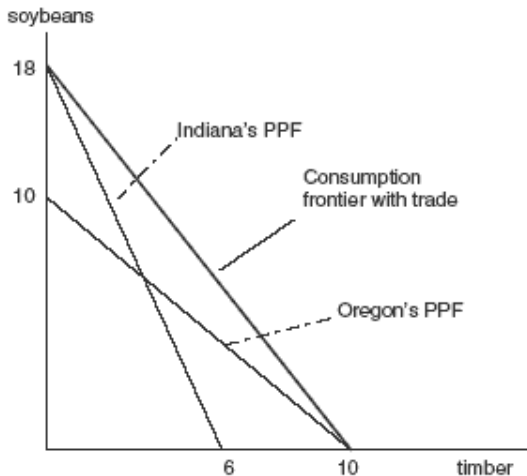


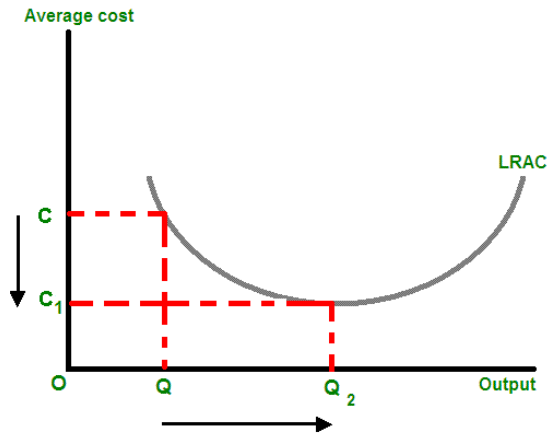
Figure 17.3

[http:](http://www.education.com/study-help/article/comparative-advantage-gains-trade/)

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economies of scale

- ◇ increasing returns to scale
- ◇ think Walmart vs your neighborhood store



http:

clustering

- ◇ businesses cluster...
- ◇ counterintuitive, you would imagine competitors to locate far apart in order not to steal customers
- ◇ competing firms may cluster to share inputs:
 - labor, raw materials, capital (machines, equipment, etc)
 - eg if you want to start producing movies, you may want to locate in Hollywood for easy access to actors, camera operators etc
 - if you are an IT startup, Silicon Valley would provide you with an unparalleled opportunities for venture capital

reasons for clustering (O'Sullivan, 2009, p 62)

- ◇ to share a supplier of an input that is subject to economies of scale
- ◇ to share labor pool
- ◇ large cities provide better skill matches leading to higher productivity and wages
- ◇ large cities facilitate knowledge spillovers, learning and social opportunity
- ◇ agglomeration economies cause self-reinforcing changes in location: the movement of a firm to a city increases incentives of other firms to move, and you end up with NYC, Tokyo, etc

agglomeration (dis)economies

- ◇ agglomeration economies=productivity rises with density
 - ◇ because of: economies of scale + network effects
 - ◇
 - ◇ a term stressing (dis)advantages of economies of scale/clustering
 - input sharing, labor pooling, skills matching, knowledge spillovers
 - crowding, congestion, noise, pollution, alienation, crime
- (Wirth, 1938)

trading countries/regions/cities

- ◇ and you observe comparative advantage economies of scale and clustering all around
- ◇ China with cheap labor produces much of the simple goods
- ◇ Iowa is producing lots of agricultural output
- ◇ Silicon Valley produces much of the software
- ◇ Detroit used to produce lots of cars
- ◇ Many stores are located in malls

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laws

- ◇ interesting! some laws governing the city size
 - now we're talking science, like Physics! eg [Berry and Okulicz-Kozaryn \(2012\)](#)
- ◇ few big cities, some medium, and lots of small
- ◇ Zipf's Law:
 - the number of people in a city is inversely proportional to the city's rank among all cities
 - the biggest city 2x size of 2nd biggest; 3x size of 3rd biggest, and so on
- ◇ there are more laws, eg 1.15: "the city constant" (Bettencourt et al., 2010, Bettencourt and West, 2010, Bettencourt et al., 2007)
- double size and everything greater by 15perc: crime rd

are big cities good or bad?

- ◇ where do you live ? Philly ? Rural NJ ?
- ◇ apart from agglomeration dis(economies):
- ◇ most of the economic growth, innovation, R&D happens in the cities (Glaeser, 2011)
- ◇ but people are less happy in big cities (Berry and Okulicz-Kozaryn, 2009), and there's alienation, impersonality, shallow soc capital (Wirth, 1938)
- ◇ but it's even worse in the suburbs (?)
- ◇ towns and villages are the best for non-homo-oeconomicus

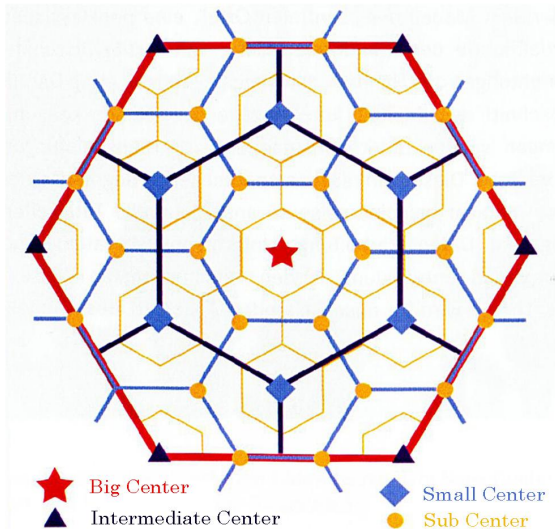
happiness research

- ◇ people are most unhappy when commuting (Stutzer and Frey, 2003, Frank, 2005)
- ◇ and they overestimate utility from big houses in suburbs (Stutzer and Frey, 2003, Frank, 2005)
- ◇ and underestimate costs of congestion, think California (Schkade and Kahneman, 1998)

central place theory (O'Sullivan, 2009, p86)

- ◇ market size of businesses vary by industries
- ◇ eg brain-surgery per capita demand is low
and equipment for it generates large economies of scale
so brain surgeons will be in big cities serving people from
smaller areas all around
- ◇ with haircuts it's the other way round

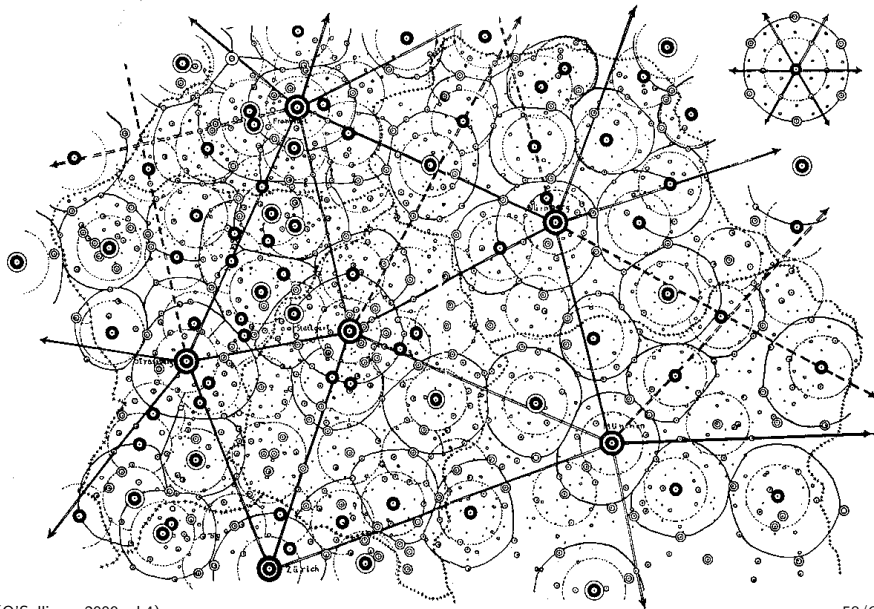
central place hierarchy



central place hierarchy



Rationales Schema der zentralen Orte



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economists see two kinds of growth

- ◇ economic growth: increase in per capita income
- ◇ employment growth: increase in employment

economic growth comes from:

- ◇ capital deepening: more physical capital per worker
(Obama: we have fewer horses and bayonets)
- ◇ increase in human capital: knowledge, skills from education and experience
- ◇ technological progress (innovation [Christensen \(1997\)](#))
- ◇ agglomeration economies (input sharing, labor pooling, labor matching, knowledge spillovers)

human capital

- ◇ lots of talk about it everywhere...
- ◇ politicians talk about headstart, community colleges
- ◇ lots of talk everywhere, eg TED

human capital and other capitals

- ◇ it not only increases person's knowledge
- ◇ but also persons learn from each other
so there are network effects
(one reason you're on campus, not in online class)
- ◇ also it increases technological innovation
 - HS dropouts don't innovate
 - on the other hand, Jobs and Gates are both college dropouts
- ◇ and we will talk more later about creative class (Florida, 2008)

but wait, innovation is key...

- ◇ there is a lot of talk about innovation these days especially among business people
- ◇ an important term is a disruptive innovation
- ◇ it's an innovation that disrupts the industry like Netflix for Blockbuster
- and Blockbuster spent millions fighting traditional competition only to find out it fought the wrong war
- ◇ see [Christensen \(1997\)](#) and <http://www.claytonchristensen.com/>

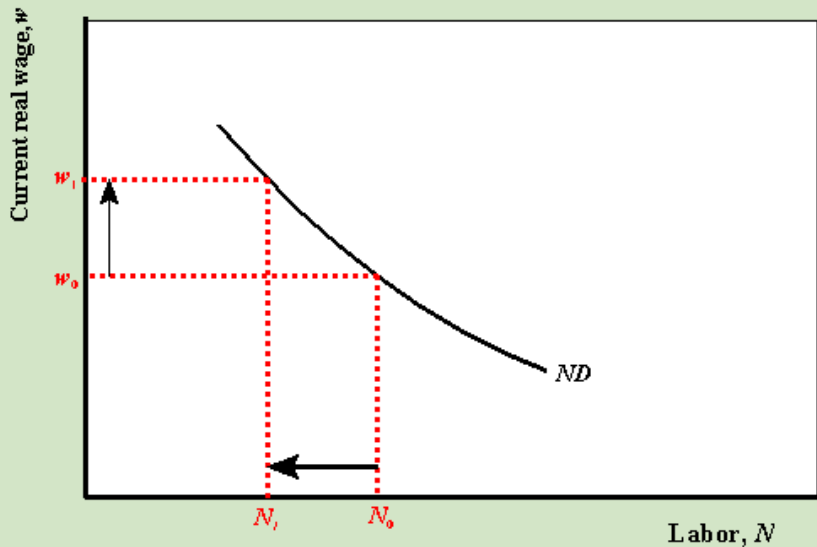
production and employment (O'Sullivan, 2009, p96)

- ◇ local: haircuts, bakery
- ◇ export: steel, software...etc
- ◇ multipliers: increase in export employment is great for local employment

labor demand curve

- ◇ labor demand is negatively sloped:
- ◇ substitution effect: increase in wages leads to firms to substitute capital, land, materials for relatively expensive labor
 - and computers!(drones, etc)
 - again, better become a friend with computers (learn programming)
- ◇ output effect: wage increase leads to product's price increase

labor demand curve



◇

◇ http://faculty.washington.edu/ezivot/econ301/labor_demand.htm

next week...

◇ let's have a look at next week...