

IMPACT OF UNEMPLOYMENT
ON COMMUNITY COLLEGE
ENROLLMENT

ESRI EdUC
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Acknowledgement

John Roach, Foundation for California Community
Colleges

Objective

- Determine factors that account for community college enrollment
- Focus: economic variables (e.g., unemployment rate)

How is GIS Used in Addressing This Issue?

The main factors determining enrollment in community colleges have an inherent spatial component:

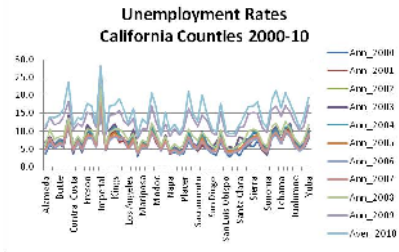
- Community college programs are predominantly offered on campuses
- Prospective students are affected by local factors such as the unemployment rate *in the county of residence* (rather than the *national* unemployment rate)
- The analysis of the interaction of the local factors with the location of community colleges is more readily done using GIS

Geographic Order of Presentation

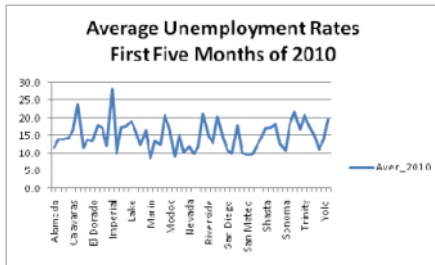
- Statewide
- San Francisco Bay Area
- Santa Clara County



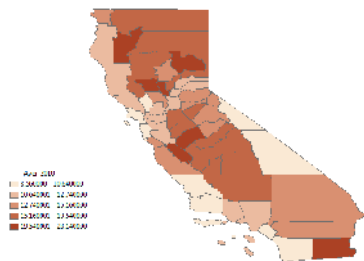
Unemployment and Geography

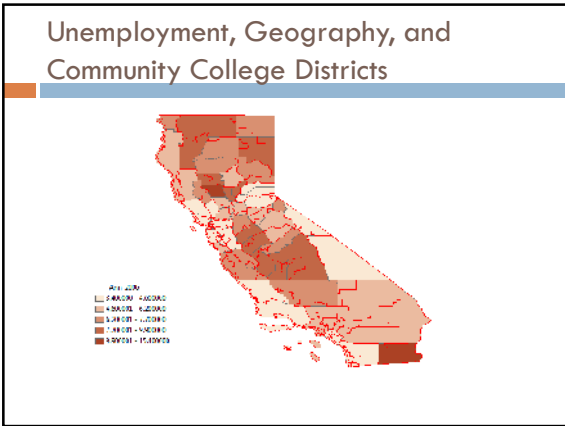


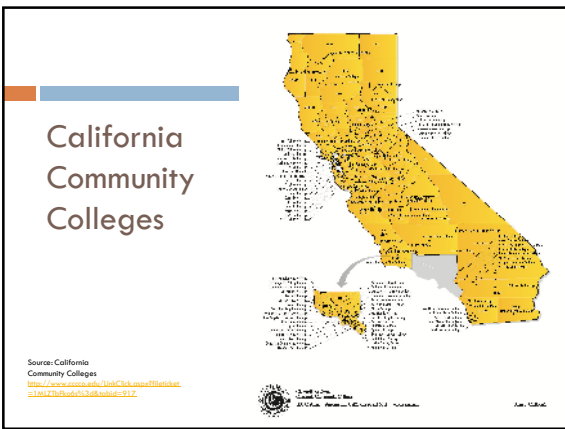
Unemployment and Geography



Unemployment and Geography



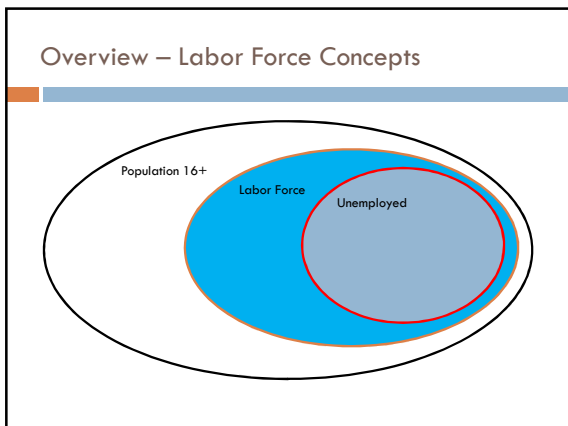




A Theory of the Geography of Enrollment

Why is enrollment related to age and distance from campus?

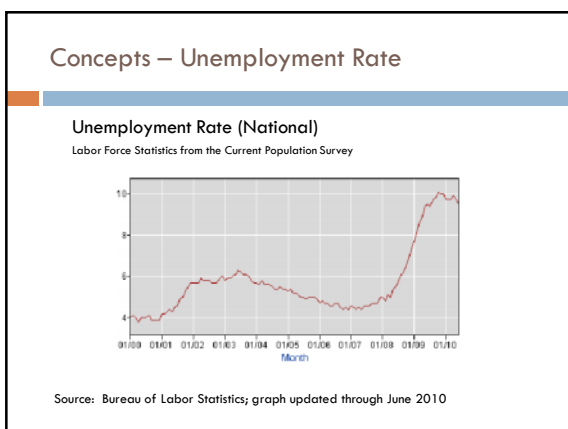
- Older people who enroll in community colleges are more likely to come from the immediate area
- Higher opportunity cost of time



Overview – Labor Force Concepts

- **Labor Force (LF)**
those working (full- or part-time) and those “seeking work”
- **Unemployment Rate (UR)**
percent of Labor Force that is unemployed
- **Labor Force Participation Rate (LFPR)**
proportion of the civilian population 16 years + in the LF

A smaller version of the Venn diagram showing Population 16+, Labor Force, and Unemployed.



Concepts: Labor Force Participation Rate (LFPR)

Labor Force Participation Rate (National)

Labor Force Statistics from the Current Population Survey



Source: Bureau of Labor Statistics; graph updated through June 2010

Literature: Geography of Community College Enrollment

- Christopher Jepsen and Mark Montgomery, "Miles to Go Before I Learn: The Effect of Travel Distance on the Mature Person's Choice of a Community College," *Journal of Urban Economics*, 65 (2009) 64-73
- Gregory D. Packin, "California Community Colleges: Student Transportation and Carbon Emissions," MS Thesis, University of Redlands (CA) December 2009

Jepsen-Montgomery "Miles to Go"

- 150,000 observations in Greater Baltimore area of "working aged" students
- Possible selection bias because only about 50% of target population geocoded
- One group of "middle aged" students

Gregory D. Packin: "California Community Colleges"

- Similar data to Pogodzinski-Kos but at campus level
- Only one year (2007)
- No age breakdown
- Drive-time analysis
- Focus on "carbon footprint"

Our Data About Community Colleges

- 2003-2006 Fall enrollment (headcount) by Community College District:
 - ZIP Code
 - Age ranges
 - 0 - 17
 - 18 - 19
 - 20 - 24
 - 25 - 29
 - 30 - 34
 - 35 - 39
 - 40 - 49
 - 50 - 64
 - over 64

Travel Distances to Selected CCDs by Selected Age Groups

NAME	YEAR	AGE 0-17	AGE 18-19	AGE 20-24
Southwestcoll	2003	5.07	5.52	6.20
Southwestcoll	2004	5.90	5.71	6.32
Southwestcoll	2005	5.96	5.54	6.28
Southwestcoll	2006	5.37	5.58	6.28
Los Rios	2003	19.19	22.20	18.89
Los Rios	2004	18.16	21.59	18.29
Los Rios	2005	18.00	22.74	18.97
Los Rios	2006	18.45	21.78	18.47
State Center	2003	20.18	19.88	18.58
State Center	2004	18.17	18.90	18.77
State Center	2005	18.05	19.29	19.56
State Center	2006	15.17	20.00	17.19
Los Angeles	2003	15.08	16.07	16.85
Los Angeles	2004	12.65	16.30	16.23
Los Angeles	2005	12.41	16.26	16.80
Los Angeles	2006	12.49	16.25	16.52

Santa Clara County
Community College Districts

Total Enrollment

Year	District				INDEX Total (Base=Fall 2003)	District			
	420	430	470	490		420	430	470	490
Fall 2003	45,553	11,357	23,514	23,233	Fall 2003	100.00	100.00	100.00	100.00
Fall 2004	41,267	9,956	20,270	22,180	Fall 2004	90.13	87.85	103.71	94.62
Fall 2005	41,433	10,966	20,501	21,181	Fall 2005	90.96	95.89	101.42	93.17
Fall 2006	41,555	11,355	19,615	22,650	Fall 2006	91.16	101.12	97.19	95.53

Santa Clara County
Community College Districts

Age 18-19

Age Range 18-19	District				INDEX 18-19 (Base=Fall 2003)	District			
	420	430	470	490		420	430	470	490
Fall 2003	1,540	1,940	3,217	3,075	Fall 2003	100.00	100.00	100.00	100.00
Fall 2004	1,422	1,386	3,436	3,784	Fall 2004	92.31	71.42	91.44	101.69
Fall 2005	1,252	1,000	3,450	3,574	Fall 2005	81.44	51.25	90.25	97.50
Fall 2006	1,075	2,027	3,611	3,116	Fall 2006	100.13	105.51	105.51	93.00

Santa Clara County
Community College Districts

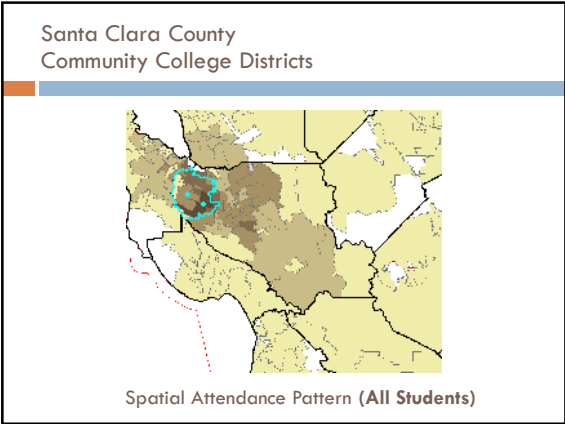
Age 35-39

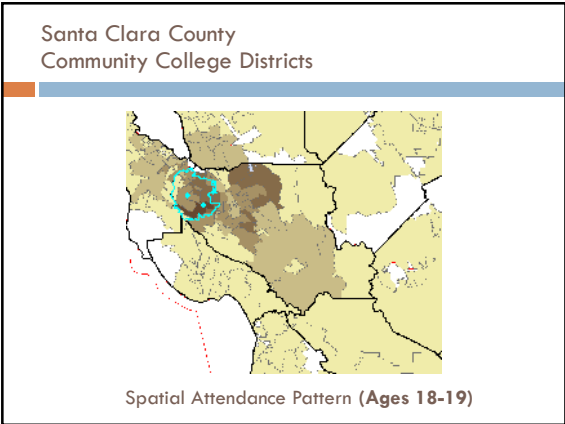
Age Range 35-39	District				INDEX 35-39 (Base=Fall 2003)	District			
	420	430	470	490		420	430	470	490
Fall 2003	2,973	805	1,436	1,710	Fall 2003	100.00	100.00	100.00	100.00
Fall 2004	2,521	616	1,390	1,532	Fall 2004	84.83	69.63	80.30	89.12
Fall 2005	2,126	812	1,510	1,365	Fall 2005	71.51	59.73	90.73	80.00
Fall 2006	2,293	829	1,201	1,525	Fall 2006	77.51	52.63	92.50	87.70

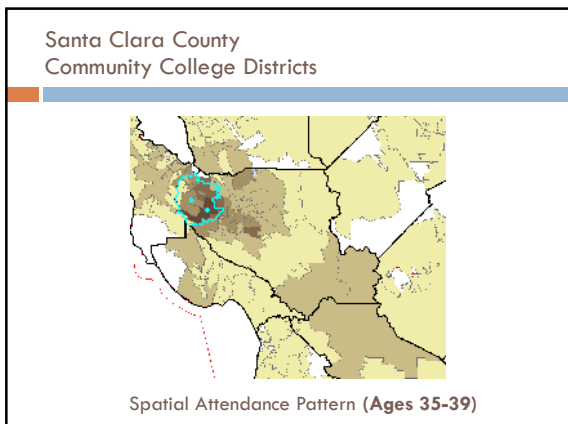
Santa Clara County
Community College Districts

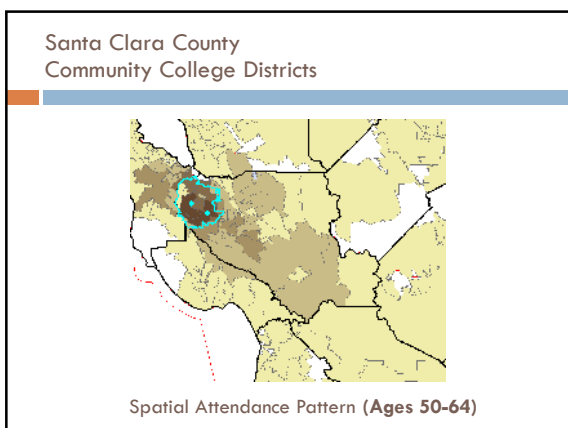
Age 50-64

Year	Age Range 50-64				Year	INDEX 50-64 (base=Fall 2003)			
	District 420	District 430	District 470	District 490		District 420	District 430	District 470	District 490
Fall 2003	3,017	666	1,154	1,557	Fall 2003	100.00	100.00	100.00	100.00
Fall 2004	2,589	515	1,103	1,355	Fall 2004	86.17	85.30	85.30	91.51
Fall 2005	2,930	701	1,315	1,350	Fall 2005	92.32	105.25	105.25	94.15
Fall 2006	2,731	706	1,213	1,500	Fall 2006	90.82	106.01	106.01	109.17









Zip Code Centroids within Given Distances

Campus 421 (95011)	distance in miles from campus		
	1	3	5
Zip Code Centroids within given distance			
	4418.7	4418.4	
	95014	94040	
	95110	04041	
		01065	
		91087	
		45174	
		95051	
		95070	
		95117	
		95129	
		45180	

Public Policy Implications

- Maintain broad distribution of campuses and resist the temptation to consolidate. Why? Mid-career job-changers not willing to travel as far as younger students.
- Concentrate programs in fields likely to attract younger students (biotech) onto fewer campuses since younger students are willing to travel farther.
- **Consolidate programs, not campuses!**

Questions or Comments?



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