

Center for Economic & Business
Research
Donald L. Harrison College of
Business

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Center Pages: Special profile of
Fredericktown, MO

Executive Summary

Fourth quarter growth in Gross Domestic Product decreased to 0.6%. Given unfavorable trends (credit difficulties, rising energy, housing problems), the economy's growth will falter in the next 2-3 quarters. Unemployment will rise, while inflation must remain a concern.

Southeast Missouri saw employment decline under the weight of a slowing economy. Personal income growth also slowed.

Southeast Missouri Business Indicators

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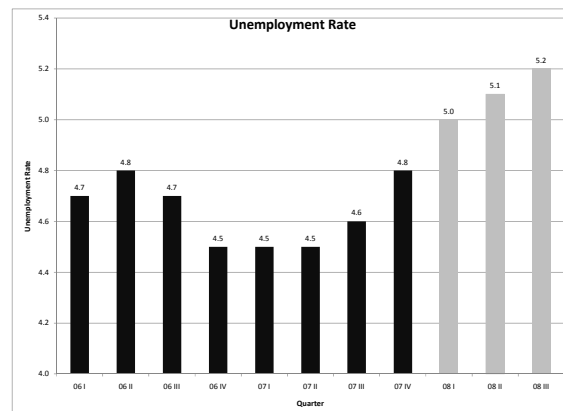
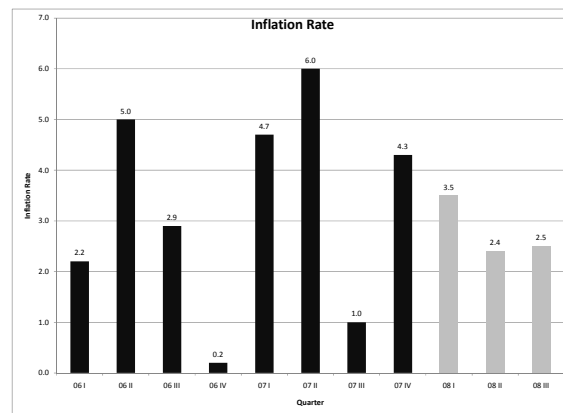
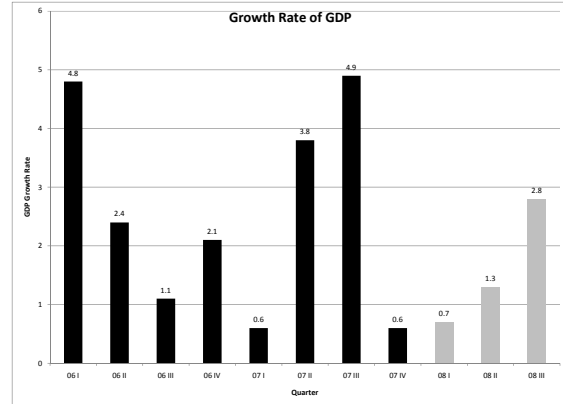
Who Stepped on the Brakes?

After growing at a red-hot average annual rate of 4.9% in the third quarter of 2007, the economy slowed to a crawl in the last quarter, barely managing a 0.6% growth rate in Gross Domestic Product (GDP). Such a slowdown is equivalent to racing along at 75 MPH and then slamming on the brakes. What caused such a decline in our growth rate and what does it augur for the future?

The economy's big three problems, rising energy prices, falling home prices, and a full-blown credit crunch, appear to have finally taken their toll. The U.S. consumer has had no choice but to cut back in spending. With reduced spending comes a much slower economy. While it may not actually slide into a recession, growth will be weak for the next two quarters at least.

The unemployment rate is starting to edge up, reaching 4.9% in January and is likely to top 5.0% in the near future. Job creation has ground to a halt with the slowing economy such that new entrants into the labor market will have difficulty finding employment. However, even an unemployment rate of 5.5% would be relatively low by postwar standards. Of course, that is not much comfort to those who lose their jobs.

As the economy slows and policymakers act to stem the decline through demand stimulation (tax rebates, lowering interest rates), one has to keep a careful watch on inflation. While the core inflation rate (taking out energy and food prices) remains manageable, there has to be concern about the possibility of laying the foundation for future increases in inflation.



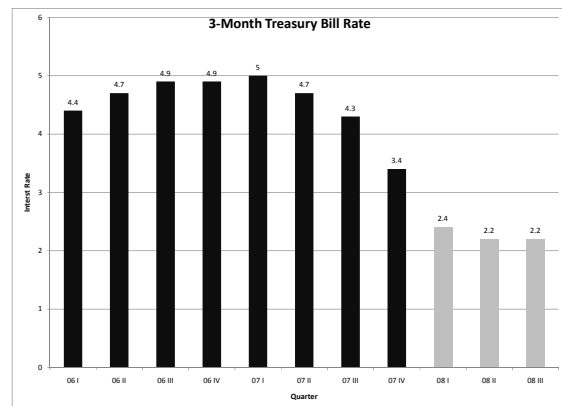
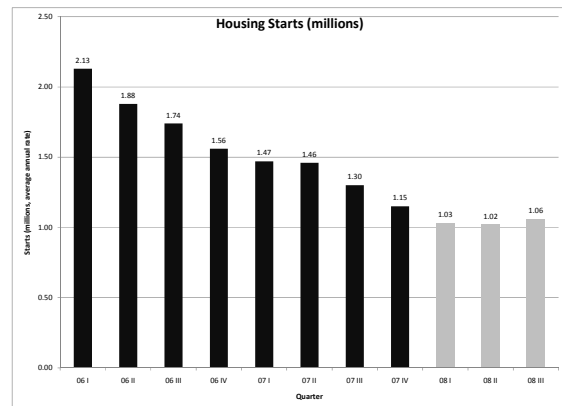
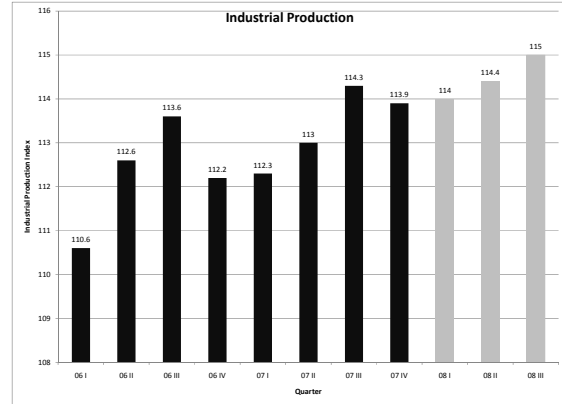
The slowing economy has been felt in industrial production as the index fell in the last quarter of 2007. Going forward, industrial production is likely to be buoyed by exports; therefore, some improvement is expected going forward.

The housing sector cannot be labeled anything but bleak. Housing starts have been cut in half (from over 2 million units per year to about 1 million units) and there is no sign of any improvement soon. In fact, the housing sector is likely to continue to experience falling prices, slow sales through all of 2008 and maybe most of 2008.

In the face of the slowing economy, the Federal Reserve has lowered interest rates aggressively bringing its target rate (the Fed Funds Rate) to 3.0% (from 5.25% just last June). The Fed chief, Ben Bernanke, has already signaled that further cuts in the rate are forthcoming. Analysts expect another cut to 2.5% in March and perhaps an additional cut after that.

The Federal Government has already passed a tax rebate, with checks slated to go out as early as May. The thinking is that with lower interest rates and money to spend, the economy will start to recover in the second half of the year, with growth getting closer to 3%.

Mention must be made of the fact that with all the economic problems, the value of the dollar is falling to a new low (it now takes \$1.50 to purchase a euro). While a lower dollar helps our exports, it does increase the cost of imported goods, which can lead to more inflation.



Which Way Southeast Missouri?

It is always more difficult to get an early read on the southeast Missouri economy when the national economy is transitioning to a new growth rate. Some data are only available with a lag and other data are subject to later revisions, which are frequently quite substantial. That is the case today.

We have the employment data for the fourth quarter and they show a very slight decline in total employment in the fourth quarter for the region (-0.1%). Of significance is the fact that the counties in the St. Louis area (Jefferson, Franklin, Washington) registered actual declines in employment. Counties just south of Jefferson County (St. Francois, Ste. Genevieve and Perry) also saw declines in employment. But south and west of those counties, employment generally increased (with the exception of Butler).

Therefore, the economic slowdown appears to have started in urban areas and will likely be transmitted to the more rural regions in the state as economic growth continues to slow. The other point of interest is that due to seasonal factors, employment in southeast Missouri almost always increases in the fourth quarter. Therefore, an actual decline in employment is indicative of a serious economic problem.

We are unable to make estimates of personal income yet due to data limitations, but after strong growth in the third quarter of 2007, it is likely we will see a slowdown in personal income growth in the last quarter of the year.

When we look at the meager data that are available, it seems likely that the region is

going experience a slowdown, if it has not already happened. This means that employment will probably not increase for the year, unemployment may approach 6% and retail sales will grow slowly (less than 3%).

Research on the Southeast Missouri Economy

Starting on page 11, there are summaries of research that will be presented at the April 11 conference in Glenn Auditorium, Dempster Hall, Southeast Missouri State University Campus.

Mike Devaney, "Deregulation and Rural Banking in Southeast Missouri".....11

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Southeast Missouri Summary

	2006 III	2006 IV	2007 I	2007 II	2007 III	2007 IV
Bollinger						
Employment	5,594	5,703	5,743	5,758	5,598	5,643
Change (%)	-2.1	1.9	0.7	0.3	-2.8	0.8
Unemployment (%)	5.3	5.3	5.9	4.4	5.0	5.6
Personal Income	271,862	275,614	281,568	285,017	288,334	
Change (%)	5.8	5.4	5.6	5.3	6.1	
Retail Sales	15,833	13,108	15,806	16,084	15,437	
Last 4 Quarters	59,619	59,189	60,003	60,831	60,435	
Butler						
Employment	19,862	19,920	20,044	20,315	20,040	19,869
Change (%)	-2.5	0.3	0.6	1.4	-1.4	-0.9
Unemployment (%)	5.5	6.2	7.1	6.1	6.5	6.4
Personal Income	1,163,749	1,176,550	1,200,730	1,214,941	1,228,658	
Change (%)	5.7	4.7	4.9	4.6	5.6	
Retail Sales	143,724	130,371	146,507	146,943	141,055	
Last 4 Quarters	562,383	559,031	566,509	567,545	564,876	
Cape Girardeau						
Employment	37,000	37,717	37,985	38,082	37,025	37,319
Change (%)	-2.1	1.9	0.7	0.3	-2.8	0.8
Unemployment (%)	4.2	3.7	4.3	3.9	4.4	4.3
Personal Income	2,159,238	2,189,688	2,239,161	2,267,016	2,291,102	
Change (%)	5.9	5.6	5.7	5.4	6.1	
Retail Sales	301,354	296,007	338,446	330,377	317,947	
Last 4 Quarters	1,224,761	1,228,614	1,246,212	1,266,184	1,282,776	
Carter						
Employment	2,784	2,863	2,714	2,848	2,894	2,961
Change (%)	4.2	2.8	-5.2	4.9	1.6	2.3
Unemployment (%)	6.1	6.1	7.2	5.4	5.5	5.8
Personal Income	135,921	137,803	140,654	142,369	144,204	
Change (%)	5.7	5.3	5.6	5.3	6.1	
Retail Sales	11,908	8,972	9,134	11,294	11,780	
Last 4 Quarters	41,043	40,891	40,348	41,308	41,180	
Crawford						
Employment	11,299	11,120	11,034	11,425	11,327	11,149
Change (%)	-0.3	-1.6	-0.8	3.5	-0.9	-1.6
Unemployment (%)	5.6	6.1	7.5	6.2	7.0	7.2
Personal Income	652,015	663,066	678,984	689,552	700,641	
Change (%)	7.2	6.8	7.0	6.7	7.0	
Retail Sales	53,260	45,520	47,677	46,518	54,694	
Last 4 Quarters	193,422	193,389	195,610	192,975	194,679	

(Note: Personal Income & Retail Sales are in thousands of dollars.)

	2006 III	2006 IV	2007 I	2007 II	2007 III	2007 IV
Dent						
Employment	5,993	6,105	6,062	6,253	6,013	6,062
Change (%)	-2.9	1.9	-0.7	3.2	-3.8	0.8
Unemployment (%)	6.2	6.0	7.0	5.9	6.9	7.5
Personal Income	355,119	360,174	367,792	372,601	377,143	
Change (%)	5.9	5.6	5.8	5.5	6.2	
Retail Sales	40,090	34,228	37,660	37,892	36,093	
Last 4 Quarters	148,281	147,995	151,186	149,870	145,873	
Dunklin						
Employment	12,868	12,964	12,845	12,947	12,495	12,639
Change (%)	-3.6	0.8	-0.9	0.8	-3.5	1.2
Unemployment (%)	7.7	7.0	8.8	7.9	8.2	8.2
Personal Income	838,701	849,988	867,481	877,965	889,878	
Change (%)	5.8	5.4	5.6	5.4	6.1	
Retail Sales	NA	NA	NA	NA	NA	NA
Last 4 Quarters	NA	NA	NA	NA	NA	NA
Franklin						
Employment	50,635	50,698	50,384	50,911	51,012	50,529
Change (%)	0.2	0.1	-0.6	1.1	0.2	-0.9
Unemployment (%)	5.3	4.9	5.9	5.0	5.9	4.9
Personal Income	3,335,254	3,387,387	3,466,263	3,512,934	3,466,357	
Change (%)	7.1	6.5	6.6	6.2	6.9	
Retail Sales	278,682	244,137	262,472	280,621	279,406	
Last 4 Quarters	1,050,839	1,038,706	1,054,435	1,065,912	1,066,636	
Gasconade						
Employment	7,523	7,614	7,564	7,774	7,652	7,758
Change (%)	-1.7	1.2	-0.7	2.8	-1.6	1.4
Unemployment (%)	6.0	4.8	5.6	5.1	6.1	5.2
Personal Income	423,580	429,876	439,118	444,931	450,786	
Change (%)	6.1	5.8	6.0	5.7	6.4	
Retail Sales	44,899	41,793	43,363	43,552	44,351	
Last 4 Quarters	161,370	165,527	172,006	173,607	173,059	
Iron						
Employment	4,519	4,567	4,619	4,674	4,535	4,561
Change (%)	-2.4	1.0	1.1	1.2	-3.0	0.6
Unemployment (%)	5.6	5.5	6.5	5.5	5.9	5.9
Personal Income	243,247	246,353	251,312	254,245	257,314	
Change (%)	5.5	5.1	5.3	5.0	5.8	
Retail Sales	17,008	16,011	18,004	18,396	20,026	
Last 4 Quarters	67,633	65,902	69,505	69,419	72,437	

(Note: Personal Income & Retail Sales are in thousands of dollars.)

	2006 III	2006 IV	2007 I	2007 II	2007 III	2007 IV
Jefferson						
Employment	112,149	112,288	111,593	112,670	112,983	111,915
Change (%)	0.2	0.1	-0.6	1.1	0.3	-0.9
Unemployment (%)	4.9	4.5	5.5	4.7	5.2	4.7
Personal Income	6,300,082	6,390,623	6,526,023	6,608,892	6,695,928	
Change (%)	6.0	5.6	5.8	5.5	6.3	
Retail Sales	533,085	451,010	509,214	538,713	539,456	
Last 4 Quarters	2,054,373	2,015,286	2,031,343	2,032,022	2,038,393	
Madison						
Employment	5,451	5,595	5,561	5,618	5,533	5,598
Change (%)	-2.8	2.6	-0.6	1.0	-1.5	1.2
Unemployment (%)	5.5	5.3	6.3	5.3	5.8	5.7
Personal Income	277,061	281,695	288,354	292,587	296,940	
Change (%)	7.2	6.6	6.8	6.4	7.2	
Retail Sales	24,726	23,504	25,170	27,823	25,394	
Last 4 Quarters	97,871	97,973	99,148	101,223	101,891	
Mississippi						
Employment	5,269	5,407	5,232	5,325	5,096	5,212
Change (%)	-4.0	2.6	-3.2	1.8	-4.3	2.3
Unemployment (%)	7.0	6.6	7.0	6.5	7.4	7.0
Personal Income	294,666	296,599	299,538	300,550	299,935	
Change (%)	2.0	1.7	1.9	1.4	1.8	
Retail Sales	24,241	19,169	22,069	23,255	26,362	
Last 4 Quarters	84,726	84,775	86,827	88,734	90,855	
New Madrid						
Employment	7,772	7,904	7,908	7,978	7,637	7,830
Change (%)	-3.5	1.7	0.1	0.9	-4.3	2.5
Unemployment (%)	6.9	6.8	7.7	6.9	7.5	7.3
Personal Income	475,667	482,941	494,113	501,203	506,846	
Change (%)	5.4	5.7	6.3	6.1	6.5	
Retail Sales	73,891	69,044	75,335	75,540	70,075	
Last 4 Quarters	293,828	293,225	292,434	293,810	289,994	
Pemiscot						
Employment	7,269	7,413	7,449	7,512	7,239	7,385
Change (%)	-2.8	2.0	0.5	0.8	-3.6	2.0
Unemployment (%)	7.2	6.2	7.0	6.2	7.1	7.1
Personal Income	472,209	479,325	489,706	494,159	496,201	
Change (%)	6.0	5.6	4.7	4.5	5.1	
Retail Sales	37,646	32,340	38,066	46,601	37,212	
Last 4 Quarters	137,572	139,346	144,320	154,653	154,219	

(Note: Personal Income & Retail Sales are in thousands of dollars.)

	2006 III	2006 IV	2007 I	2007 II	2007 III	2007 IV
Perry						
Employment	9,846	9,906	9,882	9,911	9,869	9,858
Change (%)	-0.6	0.6	-0.2	0.3	-0.4	-0.1
Unemployment (%)	3.7	3.3	4.0	3.6	4.1	4.0
Personal Income	490,386	497,794	508,695	515,268	522,423	
Change (%)	6.3	5.9	6.1	5.8	6.5	
Retail Sales	59,035	54,497	59,823	59,976	59,323	
Last 4 Quarters	225,281	226,505	231,563	233,331	233,619	
Reynolds						
Employment	2,396	2,359	2,332	2,538	2,424	2,536
Change (%)	3.6	-1.5	-1.1	8.8	-4.5	4.6
Unemployment (%)	6.4	7.2	7.7	6.0	6.6	7.7
Personal Income	150,882	152,929	156,073	157,931	159,921	
Change (%)	5.7	5.2	5.5	5.2	6.0	
Retail Sales	NA	NA	NA	NA	NA	NA
Last 4 Quarters	NA	NA	NA	NA	NA	NA
Ripley						
Employment	5,920	6,124	6,081	6,197	5,921	6,183
Change (%)	-3.3	3.4	-0.7	1.9	-4.5	4.4
Unemployment (%)	6.1	6.2	6.8	6.3	7.1	6.8
Personal Income	298,703	303,204	309,888	314,026	318,430	
Change (%)	6.3	5.9	6.1	5.8	6.6	
Retail Sales	NA	NA	NA	NA	NA	NA
Last 4 Quarters	NA	NA	NA	NA	NA	NA
Scott						
Employment	18,869	19,115	19,070	19,295	18,738	18,775
Change (%)	-2.8	1.3	-0.2	1.2	-2.9	0.2
Unemployment (%)	5.6	5.7	6.0	5.2	5.9	6.0
Personal Income	1,116,741	1,131,721	1,154,817	1,168,371	1,182,460	
Change (%)	5.6	5.2	5.4	5.1	5.9	
Retail Sales	91,367	76,347	85,967	105,050	87,791	
Last 4 Quarters	329,757	328,781	337,959	358,967	355,391	
Ste. Genevieve						
Employment	9,179	9,167	9,096	9,261	9,194	9,118
Change (%)	-1.0	-0.1	-0.8	1.8	-0.7	-0.8
Unemployment (%)	4.8	4.5	5.5	4.4	4.9	4.7
Personal Income	483,167	491,021	502,579	510,237	518,035	
Change (%)	6.8	6.9	6.8	6.5	7.2	
Retail Sales	43,037	36,211	38,846	43,195	40,844	
Last 4 Quarters	151,683	155,210	157,885	161,289	159,096	

(Note: Personal Income & Retail Sales are in thousands of dollars.)

	2006 III	2006 IV	2007 I	2007 II	2007 III	2007 IV
St. Francois						
Employment	25,710	26,011	26,162	26,730	25,987	25,909
Change (%)	-2.7	1.2	0.6	2.2	-2.8	-0.3
Unemployment (%)	6.0	5.7	6.4	5.4	6.2	6.2
Personal Income	1,465,834	1,486,127	1,520,790	1,544,060	1,560,634	
Change (%)	6.4	6.0	6.1	5.8	6.5	
Retail Sales	173,832	161,573	173,091	184,315	180,197	
Last 4 Quarters	682,229	684,317	688,230	692,811	699,176	
Stoddard						
Employment	14,257	14,656	14,551	14,627	14,222	14,537
Change (%)	-2.5	2.8	-0.7	0.5	-2.8	2.2
Unemployment (%)	5.9	5.8	7.2	6.0	6.3	6.4
Personal Income	763,954	773,834	790,092	798,868	808,241	
Change (%)	6.5	5.7	5.5	4.9	5.4	
Retail Sales	65,764	58,864	68,539	70,534	67,776	
Last 4 Quarters	262,335	255,518	262,712	263,701	265,713	
Washington						
Employment	9,350	9,362	9,304	9,401	9,420	9,331
Change (%)	0.2	0.1	-0.6	1.1	0.2	-0.9
Unemployment (%)	7.1	8.3	9.7	7.3	7.6	7.4
Personal Income	501,463	507,102	516,544	521,651	527,586	
Change (%)	5.0	4.4	4.6	4.4	5.2	
Retail Sales	39,458	33,773	39,757	39,111	39,485	
Last 4 Quarters	148,754	146,632	151,210	152,099	152,126	
Wayne						
Employment	5,139	5,156	5,120	5,250	5,117	5,107
Change (%)	-3.1	0.3	-0.7	2.5	-2.5	-0.2
Unemployment (%)	6.6	6.8	7.9	6.7	7.0	7.2
Personal Income	290,788	295,206	301,752	305,823	310,156	
Change (%)	6.4	5.7	6.2	5.9	6.7	
Retail Sales	23,897	19,728	22,041	24,414	24,172	
Last 4 Quarters	88,275	86,914	88,519	90,080	90,355	
Southeast Missouri						
Employment	396,653	399,734	398,335	403,300	397,971	397,784
Change (%)	-1.1	0.8	-0.3	1.2	-1.3	-0.1
Unemployment (%)	5.4	5.2	6.1	5.2	5.8	5.5
Personal Income	22,960,289	23,286,620	23,792,027	24,095,197	24,398,153	
Change (%)	6.1	5.7	5.8	5.5	6.2	
Retail Sales	2,096,717	1,866,207	2,076,795	2,170,204	2,118,876	
Last 4 Quarters	8,069,014	8,013,795	8,128,044	8,210,371	8,232,779	

(Note: Personal Income & Retail sales are in thousands of dollars.)

Deregulation and Rural Banking in Southeast Missouri
by
Michael Devaney

From the nation's beginning, the structure and regulation of the banking industry has been an issue in U.S. politics. Andrew Jackson's veto of the second bank of the United States reflected a Westerner's distrust of a banking establishment that was believed to be dominated by Eastern money interests and William Jennings Bryan's "Cross of Gold" speech at the 1896 Democratic Convention advocated monetary inflation as a way to ease the debt burden of Midwestern farmers.

Regardless of how it is measured, the U.S. has been the most heavily "banked" nation in the world. The large number of banks is partly attributed to a dispersed population but is also explained by legal restrictions on geographic expansion. Starting in the 1920s, each state was allowed to determine the law on bank branching. Many Midwestern states chose to restrict expansion while states in the east and west typically allowed branching without limits. States were defined as unlimited branching states, limited branching and unit banking in which every bank office was required to have a charter. Missouri was a limited branching state.

Branching restrictions were a manifestation of the lingering populist concern that if money center banks were allowed to branch into rural areas they would "upstream" deposits away from rural communities to fast growing urban areas. It became apparent by the 1970s that because of advances in information technology and data base management restrictions on geographic expansion had resulted in significant economic inefficiency in the banking system. It was believed that the efficiency benefits to banks and consumers as a consequence of relaxing restrictions would offset any equity concerns.

Accordingly, restrictions began to be lifted both within states as branching laws were liberalized and across borders as a result of reciprocal agreements among states. In 1994 the Riegle-Neal Interstate Banking and Branching Efficiency Act was passed. Much of the restructuring in the U.S. banking industry began before the law was completely phased in by 1997. As a consequence of the restructuring the number of banks has declined but the number of branch offices has increased. Studies by the Federal Reserve indicate that while concentration of deposits in metro areas has stayed about the same during the period of bank deregulation, in rural areas it has actually decreased.

The Figures 1-3 on the following pages graph the annual percentage change in the number of banks, bank offices and bank deposits during the 1997-2007 post-

interstate branching era for Missouri and each of the twenty-four counties that comprise Southeast Missouri region. Similar to the national data the number of banks in Missouri has declined slightly since 1997. Figure 1 shows that in stark contrast to the national and state data, the number of banks in most of the counties in Southeast Missouri actually increased. Iron, Pemiscot, Reynolds and St. Francois Counties experienced a decrease in the number of banks, however, it is somewhat deceptive in small counties like Iron County which had a 4% annual decline over the period but went from 3 to 2 banks. Cape Girardeau County had the largest increase in the number of banks. In 1997, six banks operated in Cape Girardeau County with the number increasing to fourteen by 2007.

Similar to the state of Missouri, Figure 2 indicates that sixteen of the twenty-four counties experienced an increase in the number of bank offices. Dunklin, Iron, Madison, Mississippi, Pemiscot, Perry, Reynolds and Ste. Genevieve counties had zero growth. The growth rate in bank offices for Cape Girardeau, Franklin, Jefferson and Stoddard Counties all increased at a rate faster than the state average. In Cape Girardeau the number of bank offices increased from twenty-one to thirty-three and in Stoddard County from fifteen to twenty-five.

Figure 3 is a graph of the annual growth rate in county bank deposits from 1997-2007. The major source of funding of bank loans to finance the local needs of businesses and consumers is deposits. Statewide bank deposit grew at about 4.4%. Bollinger, Cape Girardeau, Dent, Dunklin, Iron, Madison, Pemiscot, Ripley and Washington counties all experienced a compound annual growth rate in deposits that was below the average for the state of Missouri. Table 1 shows the ranking of the twenty-four counties when sorted by deposit size in 2007. It is reasonable to assume that two of the important factors driving deposit growth are growth in county incomes and county population. The correlation coefficient between the growth in personal county income and county bank deposits was 0.46 while the correlation between county population growth and bank deposits was 0.19 over the period.

The twenty-four county region has experienced a net increase of 35 new banking institutions and 79 banking offices from 1997-2007. When one considers that Carter, Dunklin, Iron, Mississippi, New Madrid, Pemiscot and Reynolds counties all had population declines from 1997-2005 one must conclude that the Southeast Missouri region has been adequately served by banks during the post regulation era.

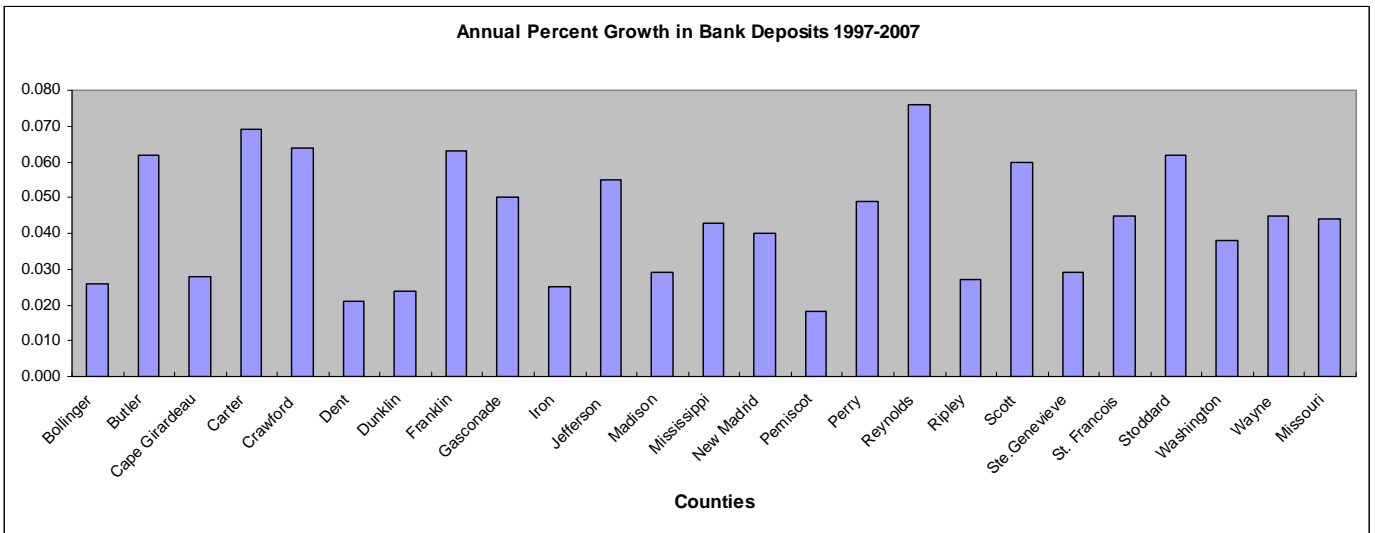
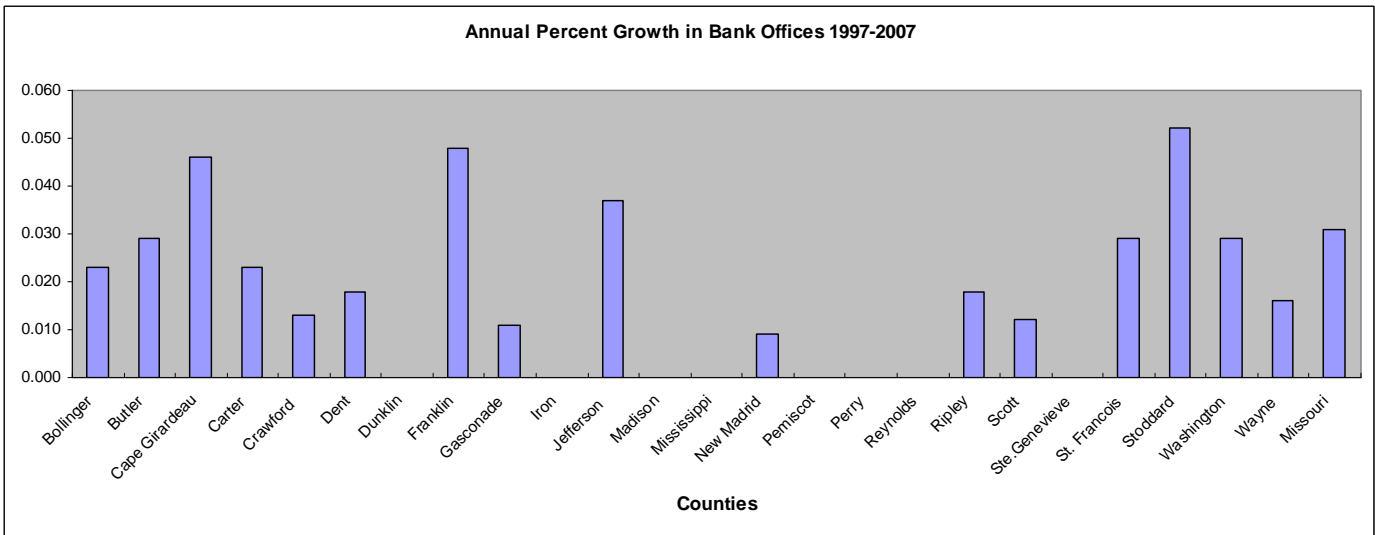
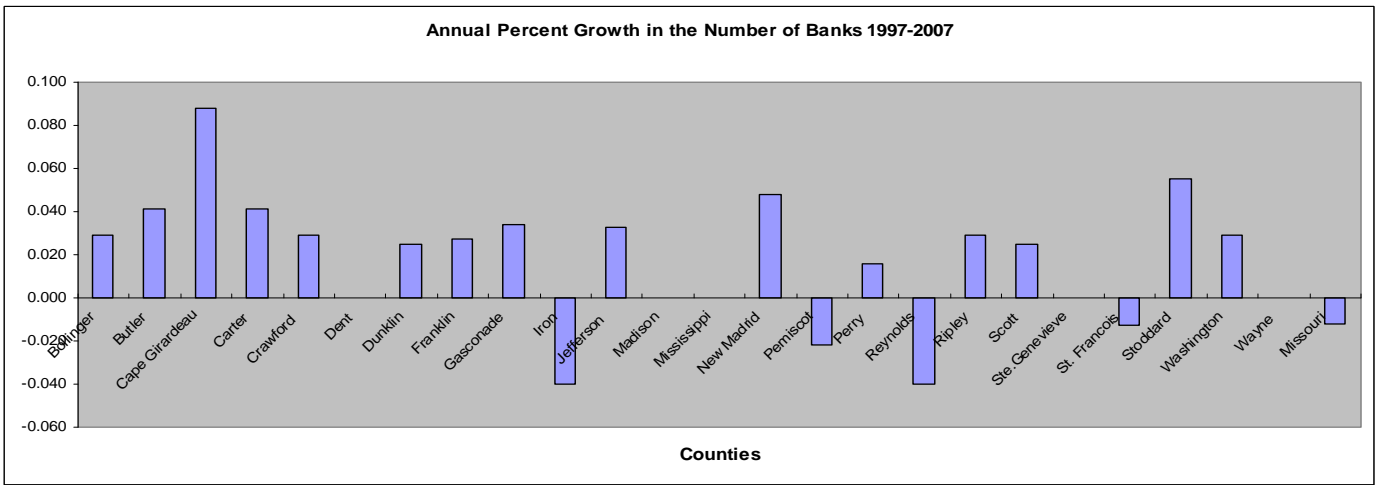


Table 1

County Banks, County Offices and County Bank Deposits in 2007
(Sorted by deposit size in millions \$)

	Banking Institutions	Bank Offices	Deposits
Missouri	366	2,263	96,447
Franklin	17	43	1,698
Jefferson	18	43	1,615
Cape Girardeau	14	33	1,282
Scott	9	18	747
St. Francis	7	24	723
Butler	9	20	715
Stoddard	12	25	527
Dunklin	9	15	452
Perry	7	9	371
Ste. Genevieve	5	8	299
Gasconade	7	10	290
Crawford	4	8	272
Pemiscot	4	7	247
New Madrid	8	12	237
Mississippi	3	6	232
Dent	3	6	182
Madison	3	6	153
Ripley	4	6	139
Wayne	3	7	117
Iron	2	6	114
Carter	3	5	88
Bollinger	4	5	84
Reynolds	2	5	71

Should We Trade Away the Southeast Missouri Worker?

By

Bruce Domazlicky

Rep. Rod Jetton recently stated that a lot of lazy Missourians could benefit from adopting the work ethic of Mexican immigrants. He mentioned a potential employer in 2004 who was considering Wayne County as a location for \$8.00 an hour jobs but was not sure he could find enough willing employees. Rep. Jetton remarked, "We have a shortage of people who want to go out and bust their tails and do the job." (Quoted in the *Southeast Missourian*, Feb. 22, 2008)

Somewhat predictably, this elicited a strong reaction from many people in the area, mostly disagreeing with Rep. Jetton's remarks. His willingness to trade some Missourians for legal Mexican immigrants was not well received.

What can we say about the southeast Missouri worker? How does s/he stack up against other workers when it comes to willingness to work? Of course, there are some people in any region who do not have interest in an everyday job and Rep. Jetton has the right to question their work ethic. But **as a group**, do southeast Missourians have the same work ethic as people in other regions?

The best and simplest evidence is given by the labor force participation rate (LFPR) in a region. The LFPR is just the number of people who are in the labor force (working or looking for work) divided by the population aged 16 and above (Census Bureau definition). The LFPR for southeast Missourians 16 years or older is 58.1%, while for the entire state of Missouri it is 64.8%.

From the data it appears that the willingness to work is lower in the southeast region. However, we need to take account of a few factors that might cause the LFPR to be lower in southeast Missouri as compared to the entire state. First, people who are 65 or older are frequently retired. Therefore, we need to consider the age profile of a region. We find that in southeast Missouri, 15.6% of the population is 65 years or older as compared to 13.5% for the state. That could account for two percentage points right there.

Second, there is the matter of disability. If work-related disability is higher in a region, the LFPR will be lower. For the southeast Missouri region, work-related disabilities affect 13.8% of the population as compared to 10.8% for the state. There's another three percentage points that could account for some of the difference.

Finally, there is the effect of the unemployment

rate. The unemployment rate is somewhat higher in southeast Missouri than in the state (6.5% v. 5.3%, 2000 Census data). This is important because higher unemployment rates lead to discouraged workers and cause them to drop out of the labor force. This is a phenomenon that is found in all parts of the United States.

To test the effects of these I constructed a simple statistical model using regression analysis. I took the labor force participation rate for twenty-four southeast Missouri counties (the service region of Southeast Missouri State University) as my dependent variable and divided it by the state's LFPR. For example, this gave a value of 0.944 for Bollinger County, 1.04 for Cape Girardeau County, etc. For the three independent variables in the model, I also divided them by the state value in 2000. The three independent variables were percent of population aged 65 years or older (Age65), the percent of the working age population with a work-related disability (DISABLE), and the unemployment rate (UR). An M after a variable means it is divided by the state value for that variable.

The results are given in Table 1 below. All three variables are statistically significant at the 6% level or better. The adjusted R-squared value of 0.86 indicates that the simple model explains most of the variation in the labor force participation rates of the 24 counties. Given the rather small sample and the limited number of variables, the model performs surprisingly well.

What does it tell us about the work ethic of the southeast Missouri worker? First, note that the signs of all three variables are negative. The interpretation is rather straightforward. As the unemployment rate rises, the LFPR falls. Similarly, the LFPR falls as the percent of the population over 64 rises. The LFPR also falls as the percent of the population with a work-related disability rises.

Suppose we assume that a county in southeast Missouri had the same unemployment rate, disability rate and percent of retired people as did the state, what would be its labor force participation rate? To determine that, we just solve the following equation:

$$LFPRM = 1.391 - (0.166 \times UR) - (0.100 \times Age65) - (0.135 \times DISABLE)$$

And we get LFPRR = 0.99. That is, the LFPR would be 99% of the state's LFPR, or basically the same. Therefore, as a group, the willingness to work in

southeast Missouri, when adjusted for the three factors mentioned above, is no different than what is found in the entire state.

Rep. Jetton also praised the work ethic of immigrant Mexicans in his remarks. How does the work ethic of southeast Missourians compare to that group? Since it is difficult to get data on Mexican immigrant and also because the sample would be too small to use in statistical analysis, I looked at the Hispanic population in Missouri as a comparison group. The Hispanic population is about 2% of the total population in Missouri (about 116,000 in 2000), so even that group is a rather small sample. We find that the LFPR of the Hispanic population in Missouri is 67.5%, which, of course, is higher than the entire state's rate. But the Hispanic population is much younger, with only 6.1% of the population over 64 years of age. The disability rate is a little higher than the state's rate at 12.5%, but lower than in southeast Missouri. The unemployment rate for Hispanics in the state was 7.6% in 2000, considerably higher than the state's rate.

I reran the regression model of before except now I used the figures for the Hispanic population as the denominators in the four variables. Therefore, the dependent variable became the LFPR of a county divided by the LFPR for all Hispanics. For example, for Bollinger County, this gave a value of 0.83, while for Cape Girardeau County it was 0.997. The results of this second regression are given in Table 2. An H after a variable means that it is divided by the value for the Hispanic population in Missouri. Once again, if we assume that a county has the same values for the three independent variables as the Hispanic population we would have:

$$LFPRH = 1.335 - (0.185 \times 1) - (0.186 \times 1) - (0.044 \times 1)$$

Solving this equation, we get 0.92. The interpretation is that the labor force participation rate in a county in southeast Missouri would equal 92.0% of the LFPR for the Hispanic population (67.5%) in Missouri or 62.1%, which is a bit lower.

The evidence indicates that the southeast Missouri worker compares favorably to the entire state and a little lower than the state's Hispanic population in terms of willingness to work. As indicated, there are always people in any region who are not interested in working. But southeast Missouri workers as a group have a good work ethic.

Table 1

Variable	Coeff.	Std. Error	t-stat	Prob.
Constant	1.391	0.052	26.774	0.0000
DISABLEM	-0.166	0.055	-3.045	0.0064
AGE65M	-0.100	0.050	-2.000	0.0592
URM	-0.135	0.026	-5.211	0.0000

R-squared = 0.862

Dependent Variable: LFPRM

No. of observations: 24

Variable Definitions

LFPRM = Labor force participation rate in county divided by LFPR for state

DISABLEM = percent of population with work-related disability divided by rate for the state

AGE65M = percent of population over 64 divided by percent for the state

URM = unemployment rate divided by state unemployment rate

Table 2

Variable	Coeff.	Std. Error	t-stat	Prob.
Constant	1.335	0.050	26.774	0.0000
DISABLEH	-0.185	0.061	-3.045	0.0064
AGE65H	-0.044	0.022	-2.000	0.0592
URH	-0.186	0.036	-5.214	0.0000

R-squared = 0.862

Dependent Variable: LFPRH

No. of Observations: 24

Variable definitions are the same as above except they are now divided by the corresponding rate for the Hispanic population.

Labor Productivity and Efficiency in Southeast Missouri Counties

William L. Weber

Labor productivity equals the amount of output produced per worker and is an important measure of economic well-being. After remaining stagnant in the 1970s, labor productivity growth began to increase in the mid 1990s. In addition to its contribution to prosperity, labor productivity growth helped hold inflation in check. Moreover, increases in labor productivity tend to be negatively correlated with other welfare indicators, such as infant and maternal mortality rates, and poverty rates, and positively correlated with adult literacy and school enrollment rates.

In this short paper we examine labor productivity in Missouri counties. Counties generate income (Y) using labor (L) and physical capital (K) which includes the value of buildings, equipment, and machines. Although the two input model might seem simplistic, the income generated by labor and capital comprises more than 98% of national income.

We focus on counties that are primarily rural and delete St. Louis City, St. Louis County, Greene County, and Jackson County. Missouri counties use labor (L) and capital (K) to produce personal income (Y). We follow the work of Färe, Grosskopf, and Lovell (1994) and Domazlicky and Weber (1997) and estimate the output technical efficiency and scale efficiency of the 111 Missouri rural counties using linear programming methods. The linear programming method constructs the best-practice technology frontier using the observed inputs and outputs of the 111 Missouri rural counties and then measures how far each county is from the technological frontier. Labor productivity equals the amount of income produced per worker (Y/L) and depends on the amount of capital each worker has to work with (K/L). Counties that are efficient have the highest labor productivity given capital per worker. Output technical efficiency equals the ratio of actual labor productivity to maximum potential labor productivity.

Table 1 presents the estimates of labor productivity in terms of income per worker (Y/L), capital per worker, pure technical efficiency, and the range of scale returns the county operates in for twenty-four Southeast Missouri Counties and for the other Missouri counties. Workers in Southeast Missouri use more capital and generate slightly more income than in other Missouri rural counties. Pure technical efficiency is about two percent higher in Southeast Missouri counties than other Missouri

counties. Mercer and Shelby counties are efficient and produce on the technological frontier. Figure 1 graphs the labor productivity and capital/labor ratios for Missouri counties.

Economies and diseconomies of scale refer to any size advantage or disadvantages in production. Increasing returns to scale (IRS) exist when there are advantages to being large. For instance, in some production processes firms (or counties) might need to be large to take advantage of assembly line processes with highly specialized labor. In other cases, decreasing returns to scale (DRS) exist when there are size disadvantages. Counties produce in the range of constant returns to scale (CRS) when there are no size advantages or disadvantages. Most Missouri counties operate in the range of decreasing returns to scale. Not surprisingly, most of these counties are also shrinking in size. For instance, eleven out of the twenty counties in Southeast Missouri that produce in the range of decreasing returns to scale also saw their population shrink during the period 2000 to 2005.

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Figure 1. Labor Productivity

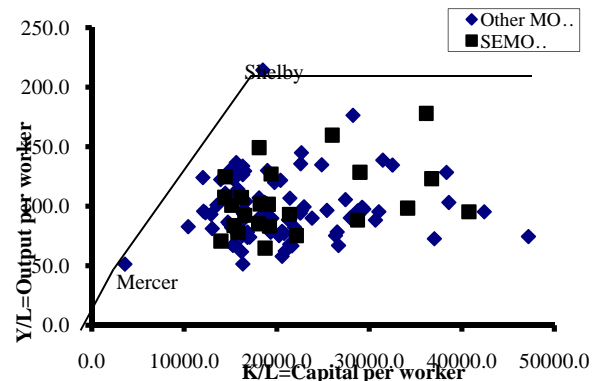


Table 1. Labor Productivity, Efficiency, and Scale Returns

	Y/L=income per worker (\$)	K/L=capital per worker (\$)	Efficiency	Scale Returns
Bollinger	75258	22145	0.35	CRS
Butler	107180	16186	0.78	DRS
Cape Girardeau	107450	14392	0.91	DRS
Carter	124655	14428	0.95	IRS
Crawford	101764	18220	0.65	DRS
Dent	126976	19394	0.69	DRS
Dunklin	92270	16550	0.63	DRS
Franklin	128564	28997	0.91	DRS
Gasconade	93125	21380	0.54	DRS
Iron	159675	26006	0.82	DRS
Jefferson	98414	34128	0.71	DRS
Madison	83138	19222	0.42	DRS
Mississippi	77766	15801	0.48	DRS
New Madrid	178089	36153	1.00	DRS
Pemiscot	83618	15377	0.56	DRS
Perry	149271	18101	0.96	DRS
Reynolds	95293	40771	0.53	CRS
Ripley	70549	13975	0.43	IRS
Ste. Genevieve	123135	36739	0.66	DRS
St. Francois	85211	18035	0.60	DRS
Scott	100611	15140	0.76	DRS
Stoddard	101496	19085	0.68	DRS
Washington	88264	28732	0.45	DRS
Wayne	64631	18752	0.33	DRS
Southeast MO Counties	105000	21988	0.66	IRS=2, CRS=2, DRS=20
Other MO Rural Counties	98300	20803	0.64	IRS=3, CRS=14, DRS=70

Local Tax Revenues and the Tax Base

William L. Weber

Local Missouri governments raised 58% of their revenues from sales taxes and property taxes in 2002, relative to a nationwide average of 55%. The tax revenues go to finance local schools, police and fire protection, road maintenance, hospitals, public welfare, capital outlays, justice, and parks and recreation. Tax revenues depend on the state of the macro-economy, local income and property wealth, and on tax rates in neighboring jurisdictions. From 1992 to 2005, general revenues of local governments from their own sources grew 124%, from \$5.3 billion to \$11.8 billion, while tax revenues grew 122% from \$3.5 billion to \$7.8 billion. During the same period the share of general revenues derived from property taxes remained relatively constant at about 38%, but the share of tax revenues from sales taxes grew from 14% of general revenues in 1992-93 to 21% in 2004-05.

Local government revenues in Missouri expanded in relative terms during 1992-2005 as the growth rate of personal income in the US was only 85%. A big reason why government grew more rapidly than personal income can be attributed to differences in productivity growth between the private and public sector. Much productivity growth in the private sector is due to capital/labor substitution. Baumol (1967) argued that it is difficult to substitute capital for labor in the production of government services, because many services, like school teaching or police protection are labor intensive. Public school classrooms still require 1 teacher per twenty students, and public safety is thought to be enhanced by police walking a beat, rather than patrolling in a car. Thus, as the overall economy grows, the public sector suffers a "cost-disease" where providing the same service becomes more and more expensive, since

public sector workers must be paid a wage equal to what they can earn in the private sector.

Taxes affect business location decisions, consumer shopping choices, and household residential choice. In 1956 Charles Tiebout proposed a model of local government where citizen taxpayers choose localities based on their preferences for public services. Some citizens, who prefer high quality schools, roads and highways, and police and fire protection, match themselves with high tax/high spending cities, counties, and states. Other citizens, who prefer low taxes and/or private substitutes for public services, choose their locales that offer low levels of public services in exchange for low tax levies. However, given the relative ease and low cost of transportation, some local governments might find themselves competing with each other as tax changes in one jurisdiction cause changes in incentives in

other jurisdictions. It is easy to see economic activity mass on one side of the border between states in response to differential tax rates and similar patterns can emerge between cities or counties. Recent work by Haughwout et al. (2004) indicates that local policy-makers and citizen taxpayers are sensitive to the effects that their tax and spend decisions have on job creation, local incomes, and property values.

Table 2 presents some selected indicators of the fiscal health of twenty-four Southeast Missouri counties. On average, personal income grew by 87%, sales tax revenues grew by 93%, and the total assessed valuation of property grew by 81% from 1990 to 2005. Average sales tax revenues per \$1000 of personal income declined slightly from \$1.93 in 1990 to \$1.89 in 2007, likely due to Internet sales which are not taxed.

Table 1. Missouri Local Government Revenue from Own Sources, millions of dollars

	General Revenues	Tax Revenues (% of general revenues)	Property Taxes (% of general revenues)	Sales Taxes (% of general revenues)
1992-93	5275.9	3528.9(67%)	2026.9(38%)	732.5(14%)
1995-96	68697.1	4477(65%)	2601.4(38%)	1014.5(15%)
1999-00	9047.2	5742.3(63%)	3386.4(37%)	3201.9(15%)
2003-04	11088	7136(64%)	4282(39%)	2226(20%)
2004-05	11847	7830(66%)	4672(39%)	2433(21%)
Growth rate, 1992-2005	124%	122%	130%	232%

Table 2-Selected Indicators of County Fiscal Health

County	Growth rate of sales taxes 1990-2005	Growth rate of AV 1990-2005	Growth rate of personal income 1990-2005	County property tax rate in 2005 per \$100 AV	County sales tax per \$1000 personal income 1990	County sales tax per \$1000 personal income 2007
Bollinger	94.8%	93.6%	89.9%	\$0.919	\$1.29	\$1.13
Butler	116.5%	101.9%	107.2%	\$0.367	\$2.55	\$2.51
Cape Girardeau	113.9%	96.1%	77.0%	\$0.549	\$2.75	\$2.90
Carter	127.1%	82.2%	101.6%	\$0.680	\$1.39	\$1.45
Crawford	134.6%	114.3%	94.4%	\$0.356	\$1.63	\$1.56
Dent	85.3%	84%	72.2%	\$0.903	\$2.16	\$2.09
Dunklin		72.9%	92.4%	\$0.582		
Franklin		132.8%	80.8%	\$0.456		\$1.81
Gasconade		112.6%	73.9%	\$0.722		\$1.92
Iron	36.8%	12.5%	87.4%	\$0.509	\$1.96	\$1.84
Jefferson		97.1%	83.3%	\$0.516		\$1.67
Madison	62.4%	83.2%	72.0%	\$0.982	\$1.96	\$1.73
Mississippi	43.6%	31.6%	80.2%	\$0.800	\$1.68	\$1.42
New Madrid	106.1%	35.7%	98.6%	\$0.497	\$2.80	\$3.29

Pemiscot	50.5%	73.5%	96.1%	\$1.126	\$1.62	\$1.43
Perry	105.8%	121.9%	73.2%	\$0.929	\$2.26	\$2.45
Reynolds		10.0%	95.5%	\$0.634		
Ripley		69.3%	104.3%	\$0.612		
Ste. Genevieve	66.8%	111.6%	84.2%	\$1.122	\$1.79	\$1.53
St. Francois	92.7%	115.8%	72.0%	\$0.651	\$1.65	\$1.64
Scott	133.5%	51.5%	78.1%	\$0.549	\$2.28	\$2.41
Stoddard	84.9%	75.8%	87.6%	\$0.180	\$1.69	\$1.74
Washington	125.2%	79.8%	84.1%	\$1.057	\$1.43	\$1.48
Wayne	92.6%	91.6%	98.3%	\$0.435	\$1.91	\$1.62
means	92.95%	81.3%	86.9%	\$0.67	\$1.93	\$1.89

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Some Impacts of Industry Clusters in Missouri

Diane F. Primont

Among regional economists and economic developers, there has been considerable interest in economic growth patterns in different regions or areas across the country and within a state. Understanding the causes of disparities in economic growth rates is important because even small differences in growth rates can lead to ever larger disparities in economic performance over a long period of time, due to compounding. So, for example, if rural areas tend to grow more slowly than urban areas, then rural areas will fall further and further behind urban areas. People in rural areas will experience a lower standard of living.

Two particular questions are of interest. First, do regions or areas tend to approach each other – converge – in the long run? That is, do disparities in economic performance diminish over time or lead to even greater inequalities across areas? If poorer areas tend to grow faster than their richer counterparts, then poorer areas can catch up to richer areas in terms of economic performance, at least over a long period of time. Secondly, how diverse are areas in terms of their economic structure? Do areas have the same sort

of mix of industries? If not, what can be said about the location or clustering of industries? How do industry clusters affect economic performance? In this study, I address these questions using data on Missouri counties for the period 2000-2005.

Are Missouri counties converging?

To determine whether poorer counties in Missouri are catching up to richer ones, I begin by examining the relationship between the rate of economic growth and per capita income and "ruralness" of Missouri counties. The rate of economic growth is measured as the logarithm of the ratio of real per capita income in 2005 to real per capita income in 2000. Real per capita income, measured by per capita personal income divided by the Consumer Price Index, is per capita personal income adjusted for inflation.

A county's level of "ruralness" is measured by the index of relative rurality (Waldorf, 2006) in 2000. The index is based on four factors: population, population density, degree of urbanized area, and distance to nearest

metropolitan area. The index of relative rurality (*irr*) is a number between 0 and 1, with 0 indicating the most urban area and 1 indicating the most rural area. The logarithm of the *irr* is used in the empirical work.

Table 1 contains the summary statistics. Regression results for two models are shown in Table 2. The first model – an unconditional growth model – suggests that, overall, per capita incomes in Missouri counties are converging. The coefficient on *lnpcinc2000* is negative and statistically significant, indicating that higher income counties tend to grow more slowly.

The second model conditions the economic growth model on the county's rurality. The negative sign of the coefficient on *lnirr*, and its statistical significance, alters our initial conclusion, however. The higher the index of relative rurality, the slower is economic growth. In other words, rural counties tend to grow more slowly (after controlling for level of income) and may not catch up to more urban counties.

These conclusions are demonstrated in Figures 1 and 2. Figure 1 shows the relationship between the growth of real per capita income and the initial level of real per capita income. As the regressions indicate, there is a statistically significant negative relationship between the initial level of real per capita income and the rate of growth of real per capita income. Poorer Missouri counties typically experience higher rates of income growth than richer counties. The income disparities will diminish over time.

Figure 2 shows the relationship between the growth in real per capita income and the index of relative rurality (in logarithms, reverse scale). As can be seen, a number of rural counties have experienced zero or negative income growth in real terms between 2000 and 2005. If these growth rates persist, the rural counties will fall further and further behind other counties in terms of real per capita income.

Why might some rural counties experience slow economic growth? One possible reason could be the mix of industries in the county. For example, if the county specializes in a particular industry, poor performance of that industry nationwide would lead to poor growth in the county.

However, given data limitations and collinearity among some industry locations, it is not possible to statistically test this hypothesis. The next section examines industry clusters in Missouri.

Industry Clusters in Missouri

This study adopts the set of 17 industry clusters defined in Indiana Business Research Center (2007), which includes Agribusiness, Food Processing and Technology; Business and Financial Services; Chemical and Chemical-based Products; Defense and Security; Forest and Wood Products; IT and Telecommunications; Energy (Fossil and Renewable); and Manufacturing. See Indiana Business Research Center (2007) for a detailed list and description.

To determine if a region (county) has a comparative advantage or specialization in an industry cluster, I calculated a location quotient (LQ) based on employment:

$$LQ = (E_X/E_T)/(N_X/N_T)$$

where E_X is the county's employment in industry cluster X, E_T is the county's total employment, N_X is the national employment in industry X, and N_T is total national employment. If LQ equals 1, the region's activity in the industry cluster is similar to the nation as a whole. The greater LQ exceeds 1, the more specialized the region is in the industry cluster. The change in LQ of industry clusters over time reveals the dynamics of specialization.

Figure 3 examines the industry clusters for the entire state of Missouri. The bubble chart allows us to see the degree to which the state has specialized in each cluster (measured by LQ 2005 along the vertical axis) and whether the state has increased or decreased its degree of specialization since 2001 (measured by the percentage change in LQ along the horizontal axis). Note that the *x-axis* crosses the *y-axis* where LQ is equal to 1. The size of the bubble represents the state's employment in the industry. Following the Indiana Business Research Center (2007), industry clusters in the upper right quadrant are categorized as "stars." Since $LQ > 1$, these clusters are more specialized than at the national level and have become even more specialized in the state. The industry clusters in the lower right quadrant are categorized as "emerging," in that currently the cluster is unspecialized ($LQ < 1$) but is becoming more specialized. Industry clusters in the upper left quadrant are categorized as "mature." These clusters are highly specialized ($LQ > 1$) but have become less specialized. Finally, those clusters in the lower left quadrant are categorized as "transforming." These are unspecialized clusters

($LQ < 1$) that have become even less specialized over the period.

In Figure 3, most of the industry clusters in Missouri have a similar specialization as that in the nation as a whole. For most industries, LQ in 2005 is approximately equal to 1 and the bubbles lie along the horizontal axis. There are a few exceptions, however. The Manufacturing supercluster is a “star.” Two industries (IT and Telecommunications, and Advanced Materials) would be classified as “emerging” industries.

Figure 4 shows a bubble chart for the Manufacturing supercluster and its components. Two manufacturing industries, Transportation Equipment and Machinery, would be classified as “stars.” Electrical manufacturing is classified as “mature.”

Looking at location quotients at the county level, Figure 5 contains a frequency distribution of the number of industry clusters that counties specialize in. In this diagram, specialization is defined as the LQ for the industry cluster having a value greater than or equal to 1.2. As shown in the figure, more than 30 counties do not specialize in any of the 17 industry clusters. Most other counties specialize in only one or two industry clusters.

Figure 6 shows that 15 or more counties specialize in just four industry clusters: Agribusiness, Food Processing & Technology; Biomedical/Biotechnical (Life Sciences); Forest and Wood Products; and Mining (other than fossil fuels).

Several of the counties that are very rural and experienced zero or negative growth in Figure 2 lie in Missouri’s Northeast Region. If we examine the industry clusters in the Northeast Region, we find that the Northeast Region has no industries that are classified as “stars.” Mining is a “mature” industry. However, the Northeast Region is home to several industry clusters that are classified as “emerging,” with $LQ < 1$ but

increasing specialization over the time period in this study. These industries include Manufacturing, Chemicals and Chemical-based Products, Forest and Wood, and Glass and Ceramics. Within the Manufacturing industry supercluster, cluster analysis indicates that Transportation Equipment Manufacturing is a “star.”

Thus, although economic growth has recently been disappointing, the Northeast Region has an industry structure that could potentially lead to faster growth in the future. Economic developers might examine these clusters further to determine if they are worth targeting.

Achieving high economic growth is a challenge for any county or region, but it particularly challenging for rural counties. To this end, it may be useful for economic developers to examine their industry mix and target “star” or “emerging” industry clusters.

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Table 1
Summary Statistics for Missouri Counties

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min.</i>	<i>Max.</i>
<i>Growth in logarithm of real per capita income 2000-2005</i>					
grpcinc	115	.0239786	.0522991	-.1645754	.1558406
<i>Logarithm of real per capita income</i>					
lnpcinc2000	115	9.402412	.1647868	8.996805	10.05282
<i>Index of relative rurality</i>					
Irr	115	.5351217	.1486487	.089	.756

Table 2
Regression Results for Convergence of Missouri Counties

Number of obs = 115
 F(1, 113) = 27.48
 Prob > F = 0.0000
 R-squared = 0.1956
 Adj R-squared = 0.1885

	Coef.	Std. Err.	t	P> t
grpcinc				
lnpcinc2000	-.1403615	.0267775	-5.24	0.000
_cons	1.343715	.2518117	5.34	0.000

Number of obs = 115
 F(2, 112) = 20.82
 Prob > F = 0.0000
 R-squared = 0.2711
 Adj R-squared = 0.2580

	Coef.	Std. Err.	t	P> t
grpcinc				
lnpcinc2000	-.2203886	.0347551	-6.34	0.000
lnirr	-.0507552	.0149056	-3.41	0.001
_cons	2.061547	.3200224	6.44	0.000

Figure 1

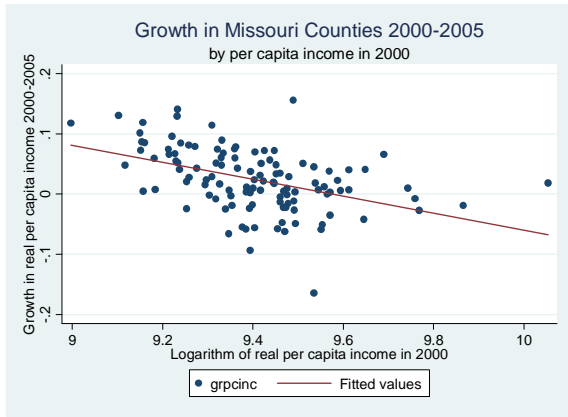


Figure 2

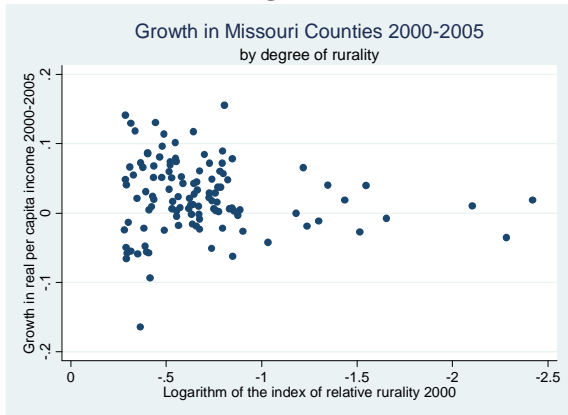


Figure 5

**Missouri Counties 2005
Frequency Distribution of Specialized Industry Clusters by County**

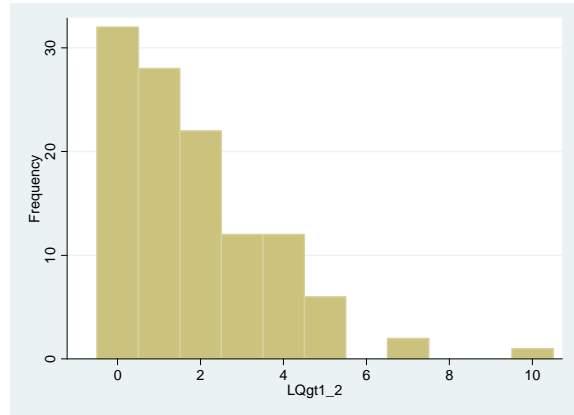


Figure 6

**Missouri Counties 2005
Frequency Distribution of Specialized Industry Clusters
by industry cluster**

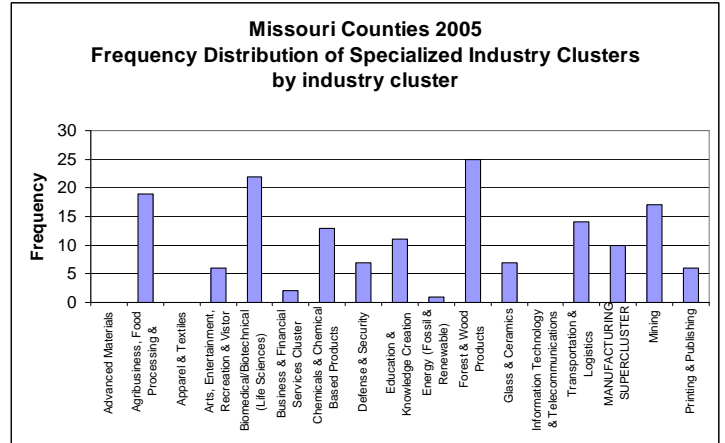


Figure 3

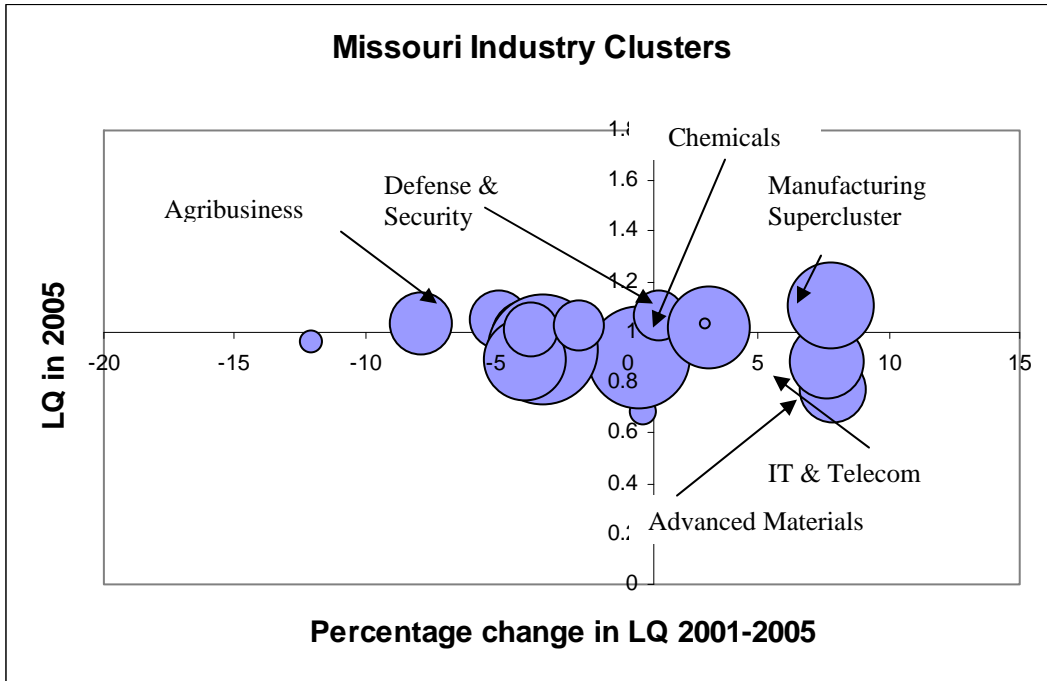
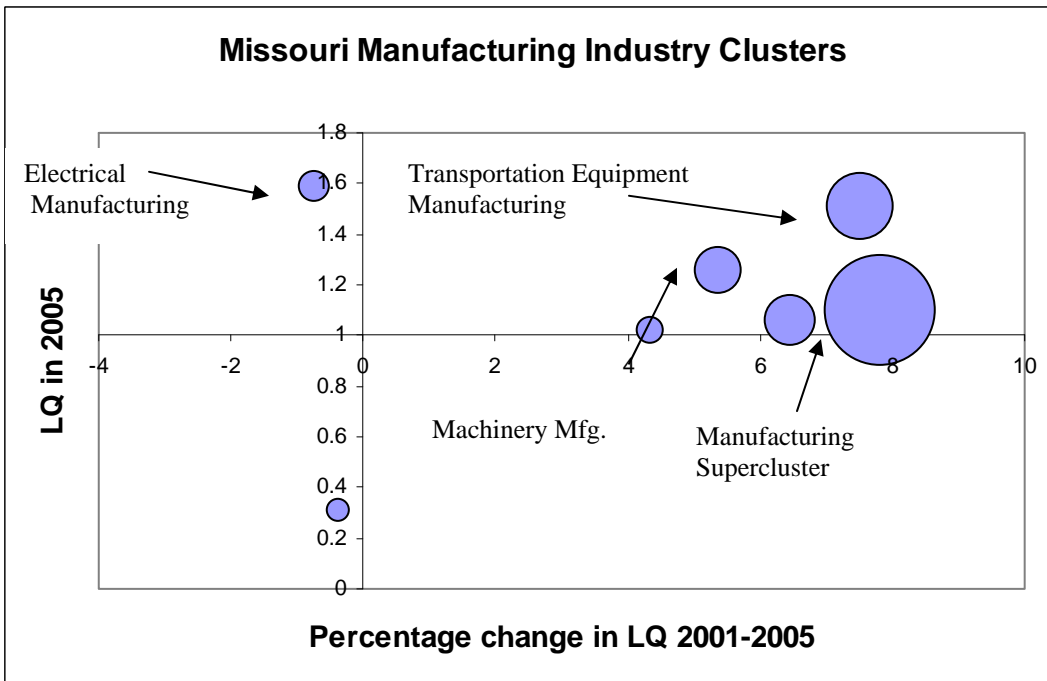


Figure 4



**Educational attainment and income inequality in
Southeast Missouri**
Kang H. Park

This study focuses on the relationship between educational attainment and income, even though there are many factors determining income and its distribution. According to the human capital theory, rooted in the work of Adam Smith and extensively developed by Gary Becker, educational spending is costly and should be considered an investment because it increases worker productivity and personal income. The human capital theory is commonly used to explain income or wage differentials. This study examines the effects of educational variables on income and income inequality using the 2000 census data covering 34 county region of Southeast Missouri.

Table 1 presents descriptive statistics on a few key education, income and income inequality variables. Average years of schooling ranges from 10.98 in Pemiscot to 12.92 in Cape Girardeau and 12.94 in Pulaski. Pemiscot with the least average years of schooling also exhibits the greatest dispersion of educational attainment. Three different ways of measuring income are used in this study: household income, family income and per capita income. Regardless of income types, Camden and

Cape are at the top of the income strata and Shannon and Pemiscot are at the bottom. The Gini index ranges from 0.336 in Pulaski to 0.481 in Pemiscot. The lower the value of the Gini index, the lesser the degree of income inequality. The average Gini index in Southeast Missouri is 0.404 which is about same as in Missouri, but less than in the United States(0.431). Pemiscot with the highest Gini index also shows the highest poverty rate.

Table 2 presents the estimated Pearson correlation coefficients among the key education, income and income inequality variables. Most of the correlation coefficients show theoretically expected signs and statistically significant relationships among the variables. For example, the poverty rate has high negative correlations with the educational level and the income level while it has high positive correlations with the Gini index and educational inequality.

In this study, it is hypothesized that (1) an increase in the level of educational attainment contributes to an increase in the income level, which

is an essence of the human capital theory, and (2) given the direct relationship between the educational attainment level and the income level, a direct relationship is expected between the relative dispersion of educational attainment and income inequality. This study tests these two hypotheses with the data from 34 Southeast Missouri counties.

Table 3 reports the estimation results of regressing income on two education variables. All the signs of the coefficients are as expected, and EDMEAN (the average years of schooling) is statistically significant at the 1% level in explaining income determination, regardless of the alternative income used for the dependent variable. However, EDSD (standard deviation of years of schooling) is not a significant variable in explaining the income level. This model predicts that one additional year of schooling contributes to an increase of \$2,690 for per capita income, \$6,597 for household income and \$7,881 for family income respectively. The explanatory power of the model measured by the adjusted R^2 statistic ranges from 0.413 to 0.466. Given the nature of cross-section data, the explanatory power of the model is pretty good.

Table 4 reports the estimation results of regressing income inequality on income and education variables. As a dependent variable, two alternative measures are used: the poverty rate (POVERTY) reported in the 2000 census and the Gini index (GINI) calculated by B. Domazlicky from income data of the 2000 census and published in "Income Inequality in Rural Southeast Missouri," *Regional Economic Development* (2005). Two different measures are used for the relative dispersion of educational attainment: standard deviation of years of schooling (EDSD) and the coefficient of variation of years of schooling (EDCV). EDCV is calculated as EDSD divided by EDMEAN. When EDCV is used as an independent variable, EDMEAN is not included in the model because of a collinearity problem.

All the variables have expected signs. A higher levels of income and education have an equalizing effect on income distribution and the dispersion of schooling has a disequalizing effect on income distribution. Both LnCapita and EDSD (or EDCV) are statistically significant in explaining the poverty rate while only EDSD(or EDCV) can explain

the Gini index well. The explanatory power of the model is very good, particularly for the poverty rate. The empirical results in this study indicate that a higher level of educational attainment of the

population has a positive effect on income level, while the larger dispersion of years of schooling among the population, the greater the income inequality.

Table 1 Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard deviation
EDMEAN	10.98 (Pemiscot)	12.94 (Pulaski)	11.79	0.388
EDSD	2.52 (Miller)	3.61 (Pemiscot)	2.90	0.260
EDCV	0.206 (Camden)	0.328 (Pemiscot)	0.247	0.029
Household Income (HINCOME)	\$28,978 (Shannon)	\$47,221 (Camden)	\$36,170	\$4,578
Family Income (FINCOME)	\$11,492 (Shannon)	\$55,283 (Cape Girardeau)	\$41,401	\$5,329
Per Capita Income (CAPITA)	\$11,492 (Shannon)	\$20,197 (Camden)	\$14,520	\$1,768
Poverty Rate (POVERTY)	8.2 (Ste. Genevieve)	30.4 (Pemiscot)	18.2	5.21
Gini Index (GINI)	0.336 (Pulaski)	0.481 (Pemiscot)	0.404	0.033

EDMEAN: Average years of schooling

EDSD: Standard deviation of years of schooling

EDCV: Coefficient of variation of years of schooling

Gini Index (GINI): measure of income inequality ranging from 0 for perfect equality to 1 for perfect inequality.

Table 2 Correlations

	EDMEAN	EDSD	EDCV	HINCOME	FINCOME	CAPITA	POVERTY	GINI
EDMEAN	1	-.492(**)	-.724(**)	.691(**)	.661(**)	.702(**)	-.653(**)	-.472(**)
EDSD	-.492(**)	1	.956(**)	-.321	-.232	-.283	.571(**)	.571(**)
EDCV	-.724(**)	.956(**)	1	-.485(**)	-.407(*)	-.460(**)	.673(**)	.613(**)
HINCOME	.691(**)	-.321	-.485(**)	1	.979(**)	.952(**)	-.844(**)	-.555(**)
FINCOME	.661(**)	-.232	-.407(*)	.979(**)	1	.952(**)	-.801(**)	-.487(**)
CAPITA	.702(**)	-.283	-.460(**)	.952(**)	.952(**)	1	-.763(**)	-.416(*)
POVERTY	-.653(**)	.571(**)	.673(**)	-.844(**)	-.801(**)	-.763(**)	1	.848(**)
GINI	-.472(**)	.571(**)	.613(**)	-.555(**)	-.487(**)	-.416(*)	.848(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 3 Regression of income on education variables

	Dependent Variable: Income		
	Per Capita Income	Household Income	Family Income
Intercept	-18816 (-2.334)*	-42875 (-2.015)*	-58864(-2.311)*
EDMEAN	2690 (5.084)**	6597 (4.723)**	7881(4.714)**
EDSD	561 (0.565)	442 (0.169)	2540 (0.809)
Adjusted R ²	0.466	0.445	0.413
F-value	15.40	14.22	12.62

Numbers in parentheses are t-values.

** The variable is significant at the 0.01 level and * The variable is significant at the 0.05 level.

Table 4 Regression of income inequality on income and education variables

	Dependent Variable			
	Poverty Rate	Poverty Rate	Gini Index	Gini Index
Intercept	289.81(6.206)**	260.21 (5.518)**	1.02 (2.305)*	0.82 (1.841)
LnCapita	-30.88 (-5.277)**	-27.10 (-5.784)**	-0.08 (-1.415)	-0.06 (-1.317)
EDMEAN	-0.149 (-0.098)		-0.003 (-0.215)	
EDSD	7.68 (3.603)**		0.059 (2.905)**	
EDCV		70.97 (3.826)**		0.58 (3.339)**
Adjusted R ²	0.719	0.720	0.354	0.371
F	29.19	43.30	7.03	10.74

LnCapita: natural logarithm of per capita income

Numbers in parentheses are t-values.

** The variable is significant at the 0.01 level and * The variable is significant at the 0.05 level.

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- Kang H. Park, "Educational Expansion and Educational Inequality on Income Distribution," *Economics of Education Review*, 15, 1996, 51-58.
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Fredericktown: Natural Beauty in the Foothills of the Ozark Mountains



Fredericktown is located near the intersection of Highways 67 and 72, in the northeastern foothills of the Ozark Mountains, about 90 miles south of St. Louis. Fredericktown is the largest city in Madison County and the county seat.

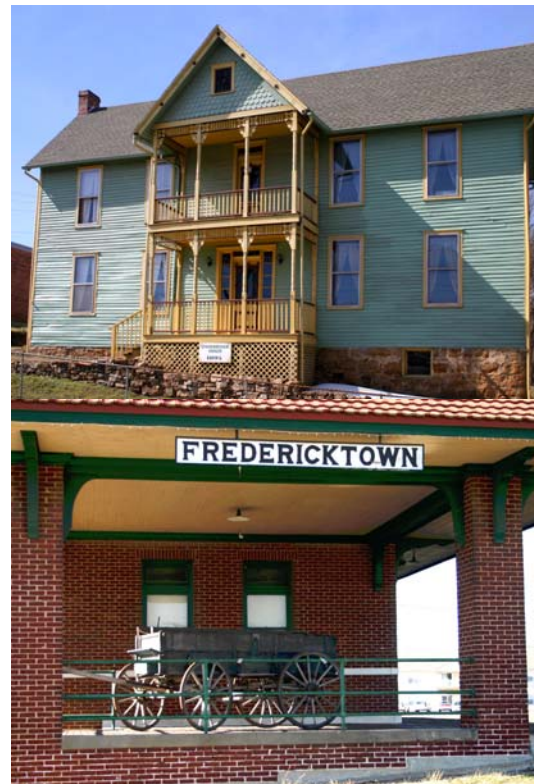
In describing Fredericktown, Mayor Karen Yates points to “its historical significance and the surrounding natural beauty.” The earliest European settlers in the area mined lead for ammunition. A precursor to Fredericktown, St. Michael’s Village was founded in 1799 by French Creole settlers. After a devastating flood in 1814, the town was moved to its current location and in 1818 was renamed Fredericktown.

To the east, west, and south of the city lies the Mark Twain National Forest offering an abundance of outdoor activities. The Silver Mines Recreation Area, just 7 miles west of Fredericktown, is located along the banks of the St. Francis River. The area was named for silver mines that were active in the 1920s but were abandoned long ago. Attractions include hiking, picnicking, camping, and canoeing. The St. Francis is the only “white water”

river in Missouri, attracting kayakers and others to the White Water Races each spring.

To the east of Fredericktown is the Amidon Memorial Conservation Area, where the Castor River flows through large boulders of pink granite. “Be sure to bring your camera,” advises Mayor Yates, “since the sunlight changes the boulders’ colors throughout the day.”

Fredericktown has preserved a number of historic buildings, and several of these are listed in the National Register of Historical Places. Examples include the Madison County Courthouse, built in 1899, and the 1859 Missouri Pacific Railroad Depot. Near the courthouse is the Battle of Fredericktown Civil War Museum to open this fall. Also near Courthouse Square are the Fredericktown City Hall and the Chamber of Commerce.



Located in the Madison County Historic District are the Underriner House, which has been restored, and the Evariste F. Pratte Trading Post, stocked as it would have been in 1837. Adjacent to the Underriner House is the Berryman Cabin (decorated as it would have been in the 1870s), Captain's Creek Log Schoolhouse (a replica of an 1870s one-room schoolhouse), and the Madison County Historical Museum and 1870s Jailhouse.



Photo Courtesy of Ronda O'Gara

Theodore C. Link, the architect that designed St. Louis' Union Station, designed the Madison County Courthouse in 1897. Courthouse Square is of the Lancaster Square design. This unusual design has the placement of streets at the sides or centers of the courthouse, rather than at the corners of the building, providing a dramatic view of the courthouse from each direction. Courthouse Square is currently undergoing an upgrade that includes new sidewalks, period lighting, benches, and trees and plants. Shops and restaurants line the streets around Courthouse Square, making the square a pleasant place to picnic or relax. The goal is a friendly, pedestrian-oriented downtown area that will attract visitors and residents

alike.



Fredericktown was home to 254 business establishments in 2005, employing 2,730 people. Major employers include Pense Brothers Drilling Co., Cap America, Madison Medical Center, Versa-Tech Inc., Fredericktown Public Schools, and Wal-Mart. Pense Brothers Drilling, a drilling and boring contractor employing about 250 people, has tripled in size over the last 2-3 years. Cap America, which produces custom embroidered headwear, operates in a 100,000 square-foot manufacturing and warehousing facility and employs about 170 people. Madison Medical Center, which employs about 325 people, is organized as a not-for-profit county governmental facility. Versa-Tech manufactures packaging materials.

In addition, the Madison County Historic District and other historical sites in and around Fredericktown have served to start up the bed and breakfast industry.

Access to higher education in Fredericktown was enhanced as a result

of the construction of an outreach center for Mineral Area College several years ago.

Although Fredericktown has some broadband access, Mike O’Gara, City Administrator, is excited about the development of a new technology center. “The new center will house servers that can be rented and will add tech jobs.” The center is being established as a not-for-profit corporation. All profits will be returned to the community. Jim Dismuke, the City’s economic development consultant, was instrumental in the establishment of the new technology center.

Other improvements in infrastructure are also underway. Highway 67 is to become a four lane road all the way south to Arkansas by 2011-12. A new Highway 72 roundabout is to be completed by 2010. In addition, the Fredericktown Regional Airport is adding five more tie-downs and its 4000 foot runway is being sealed and refinished. The city plans to construct a terminal building at the airport next year.

One challenge that the city faces is a “shortage of affordable housing within the city limits,” says Mayor Yates. Given the geography of the area around

Fredericktown, expansion and annexation are difficult, if not impossible. However, the city owns about 216 acres within the city limits. It is currently considering plans to “release a major portion for residential development of about 250 new houses,” notes Mr. O’Gara. If the plan is approved by the Board of Aldermen, it is hoped this will entice developers to build within the city limits and attract new residents to the city.

Like many small towns, Fredericktown faces the daunting task of improving and updating its infrastructure. For example, the sewerage treatment plant needs upgrading and improvement to continue to serve all the residents of Fredericktown. Finding the funds for such improvements can be a challenge.

Like cities everywhere, Fredericktown faces challenges as it moves forward in the 21st Century. But given its natural advantages, attractive outdoor lifestyle, and strong leadership, it is well positioned to meet those challenges.

--Diane F. Primont and Bruce R. Domazlicky

Fredericktown, MO, by the Numbers

Statistics

<i>Population (2005)</i>	Fredericktown	4,035
	Madison County	12,079
<i>Labor Force (2006)</i>	Madison County	5,888
<i>Unemployment Rate (2006)</i>	Madison County	5.3%
<i>Median Household income (2005)</i>	Madison County	\$30,079

Source: U.S. Census Bureau; U.S. Bureau of Labor Statistics.

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