A reexamination of the engine of economic growth in southeast Texas

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ABSTRACT

This article is a sequel (2003-2008) to a case study on the engine of economic growth in Southeast Texas (1997-2002). It sought to determine what industries (3-digits NAICS) are the engines of economic growth in Southeast Texas that expanded over the five-year time period while also engaged in exports. Thus, the industies brought in new money/income and jobs to the area, with higher multiplier effect. Shift-share and location quotient analyses were applied to data available from the Texas Workforce Commission. The findings determined which industries: (1) continued as the major employers in the area, (2) lost ground as employers to other more competitive industries, (3) continued as engines of economic growth in the region, or (4) have been replaced by new engines of economic growth that clearly showed to have comparative advantages. Finally, policy and research implications are derived for economic development planning.

INTRODUCTION

"Identifying Your Engine of Economic Growth: A Southeast Texas Model," (Montano and Bacdayan 2006) is the previous study using a broader definition of Southeast Texas to encompass an eight-county area under the purview of POST (Partnership of Southeast Texas). This follow up paper focuses mainly on the tri-county area commonly referred to as "The Golden Triangle" or technically, the Beaumont-Port Arthur MSA (Metropolitan Statistical Area). This study using a five year time frame picks up (2003-2008) where the previous one left off (1997-2002).

OBJECTIVES OF THE STUDY

Our objectives in undertaking this follow-up study were: (1) To determine which industries continued to be the major employers in the area; And of those that did not, if any, what new/old industries replaced them; (2) To determine which of the previous major employers expanded and which declined, along with which expanded to replace those that declined; (3) Using a shift-share analysis, to determine the region's sectors of comparative advantages; (4) Use location quotients to determine the exporting and importing industries; and (5) Determine the industries that serve as the engine of economic growth of the region because they are expanding and exporting industries.

THE SOUTHEAST TEXAS REGION

The authors limited the geographical scope of this sequel to the traditional definition of the Southeast Texas Region as composed of Jefferson, Hardin, and Orange Counties of Texas. The practical reasons for this change of geographical focus were: (1) The regional economic development planning body called Partnership of Southeast Texas (POST) no longer exists, but local Chambers of Commerce continue to be involved in economic development planning; (2) Employment data are readily available at the MSA level, but have yet to be aggregated at the multi-county level; and (3) Analytical tools for MSA-level analyses (i.e., shift-share and location quotient) are available from the government statistical agencies supplying the data.

DATA SOURCES

Employment data for the Beaumont-Port Arthur MSA were obtained online from the Texas Workforce Commission, Labor Market & Career Information Department (LMCI). The five-year time span of this study ranged from 1st Quarter 2003 to 1st Quarter 2008. Data for both beginning and ending quarters were filtered from the Quarterly Employment and Wages (QCEW) series down to 3-Digit NAICS (North American Industrial Classification System). The Public Sector (or Government) was purposely included in the data as the authors were curious to see if local government projects such as the Jefferson County Entertainment Complex (later named Ford Park) contributed much to employment in the area.

SHIFT-SHARE AND LOCATION QUOTIENTS ANALYSES

The shift-share analysis of the Southeast Texas region of Texas (or the Beaumont-Port Arthur MSA) over the 2003-2008 period was conveniently made possible using the online Career Development Resources (CDR) SOCRATES (Standardized Occupational Components for Research and Analysis of Trends in Employment System) software system of the Texas Employment Commission. A shift-share analysis complete with Analysis Narrative and Shift-Share tabular results was generated.

The Location Quotients of the various industries of interest to us were determined using the online Location Quotient Calculator of the Bureau of Labor Statistics (BLS) of the United States Department of Labor (DOL). This software is provided along with the Quarterly Census of Employment and Wages (QCEW) statistical series.

FINDINGS

Major Employers in the Region (Beaumont-Port Arthur MSA), 2003 and 2008 are presented in Tables 1 and 2. They are sorted in descending order, thereby showing which industries were the major employers in Southeast Texas in 2003 and 2008. In 2003, the top twelve (12) employing industries in Southeast Texas, with more than 4,000 employees each, were (Table 1):

Table 1. Top Employers in Southeast Texas, 2003		
3-Digit NAICS Code	**Industry**	**Bmt-PA MSA**
611	Educational services	14,114
722	Food services and drinking places	11,533
621	Ambulatory health care services	9,601
325	Chemical manufacturing	6,577
622	Hospitals	6,475
238	Specialty trade contractors	6,211
236	Construction of buildings	5,921
561	Administrative and support services	5,529
541	Professional and technical services	5,304
922	Justice, Public Order, and Safety Activities	5,142
452	General merchandise stores	4,591
324	Petroleum and coal products manufacturing	4,315

Five years later, the top employing industries in Southeast Texas, with more than 4,000 employees each (Table 2) became thirteen (13), with NAICS 332 (Fabricated metal product

manufacturing) having been added to the previous set of twelve (12). Collectively, these thirteen industries are the mainstay of the Southeast Texas economy in terms of jobs.

Table 2. Top Employers in Southeast Texas, 2008		
3-Digit NAICS Code	**Industry**	**Bmt-PA MSA**
611	Educational services	14,409
722	Food services and drinking places	12,122
621	Ambulatory health care services	9,985
541	Professional and technical services	7,328
236	Construction of buildings	7,155
238	Specialty trade contractors	7,018
561	Administrative and support services	5,988
325	Chemical manufacturing	5,618
622	Hospitals	5,549
452	General merchandise stores	5,070
922	Justice, Public Order, and Safety Activities	5,015
324	Petroleum and coal products manufacturing	4,559
332	Fabricated metal product manufacturing	4,288

It is important to note that by including the Public Sector employment data in this study, two other industries (within the Public Sector) appeared at the top: NAICS 611 (Educational services), and NAICS 922 (Justice, Public Order, and Safety Activities). This indicates that the local school districts and Lamar University, as well as the County, State, and Federal Prisons (collectively referred to by others as the "Incarceration Industry") have significant contributions to employment, and perhaps industrial diversification, in this region.

The top expanding industries from 2003 to 2008, which created over 200 jobs each, are presented in Table 5 below. There are a total of 24 industries in all, double that reported in the 1997-2002 study. Two (2) of these industries belong to the Public Sector [i.e., Educational Services (NAICS 611) and Administration of Human Resource Program (NAICS 923)], since Public Sector data were purposely included. Nevertheless, this trend and the almost doubling of the number of Private-Sector expanding industries bode well for diversification of the Southeast Texas economy.

3-Digit NAICS Code	Industry	Q12003	Q12008	Increase or Decrease (-) in Employment
	Table 3. Top Expanding Industries in Southeast Texas, 2003-2008			
541	Professional and technical services	5,304	7,328	2024
336	Transportation equipment manufacturing	851	2,531	1680
332	Fabricated metal product manufacturing	2,750	4,288	1538
236	Construction of buildings	5,921	7,155	1234
238	Specialty trade contractors	6,211	7,018	807
213	Support activities for mining	382	1,140	758
423	Merchant wholesalers, durable goods	2,594	3,184	590
722	Food services and drinking places	11,533	12,122	589
333	Machinery manufacturing	845	1,340	495
488	Support activities for transportation	1,609	2,101	492
443	Electronics and appliance stores	707	1,197	490
452	General merchandise stores	4,591	5,070	479
561	Administrative and support services	5,529	5,988	459
237	Heavy and civil engineering construction	2,908	3,311	403
621	Ambulatory health care services	9,601	9,985	384
331	Primary metal manufacturing	554	893	339
611	Educational services	14,114	14,409	295
721	Accommodation	843	1,115	272
324	Petroleum and coal products manufacturing	4,315	4,559	244
551	Management of companies and enterprises	535	770	235
562	Waste management and remediation service	1,060	1,268	208
211	Oil and gas extraction	125	331	206
486	Pipeline transportation	254	460	206
923	Admistration of Human Resource Program	295	498	203

The worse declining industries from 2003 to 2008, which lost over 200 jobs each, were (Table 4): (1) Truck transportation, (2) Nursing and residential care facilities, (3) Credit intermediation and related activities, (4) Motor vehicle and parts dealers, (5) Telecommunications, (6) Clothing and clothing accessories stores, (7) Hospitals, and (8) Chemical manufacturing.

It is interesting to note that the biggest job losers during the 2003-2008 period [i.e., Hospitals (NAICS 622) and Chemical manufacturing (NAICS 325)] were also among the worst declining industries during the 1997-2002 period. A shift-share analysis will be done next to look further into the comparative advantages of these industries and find some explanations why.

Meanwhile, all the other industries below that lost jobs in 2003-2008 are not the same ones that encountered the same fate in 1997-2002. All of the above job losses could very well be the consequence of the 2008-2009 recession which began in December 2007.

Table 4. Worst Declining Industries in Southeast Texas, 2003-2008				
3-Digit NAICS Code	Industry	Q12003	Q12008	Increase or Decrease (-) in Employment
484	Truck transportation	1,103	888	-215
623	Nursing and residential care facilities	3,375	3,150	-225
812	Personal and laundry services	1,517	1,289	-228
522	Credit intermediation and related activities	2,701	2,354	-347
441	Motor vehicle and parts dealers	3,017	2,669	-348
517	Telecommunications	1,062	710	-352
448	Clothing and clothing accessories stores	1,910	1,502	-408
622	Hospitals	6,475	5,549	-926
325	Chemical manufacturing	6,577	5,618	-959

The first group of industries in Table 5 are those with *Greatest Likelihood for Potential Job Opportunities.* These are the industries that may have comparative advantages in Southeast Texas. "It is important of identify what factors have contributed to the local area in outperforming the nationwide growth. This wide range of factors is very diverse and often includes elements such as: (a) Local raw materials or local inputs, (b) Transportation methods, (c) Local wage rates, (d) Influence of local industries, (e) University influences, (f) Local consumption and savings, and (f) Other comparative advantages." (SOCRATES, Shift-Share Analysis Narrative).

One other (2003-2008) expanding industry that appeared to have comparative advantage in Southeast Texas – although not included in Table 5 because the job increase was less than 200 – is Transit and Ground Passenger Transportation (NAICS 485).

Table 5. Shift-Share Analysis Results in Southeast Texas, 2003-2008			
3-Digit NAICS Code	**Industry**	**Q12003**	**Q12008**
Greastest Likelihood for Potential Job Opportunities			
541	Professional and technical services	5,304	7,328
236	Construction of buildings	5,921	7,155
238	Specialty trade contractors	6,211	7,018
213	Support activities for mining	382	1,140
443	Electronics and appliance stores	707	1,197
488	Support activities for transportation	1,609	2,101
237	Heavy and civil engineering construction	2,908	3,311
551	Management of companies and enterprises	535	770
562	Waste management and remediation service	1,060	1,268
211	Oil and gas extraction	125	331
713	Amusement, Gambling & Recreation	707	811
485	Transit and Ground Passenger Transport	172	272
531	Real Estate	854	952
425	Electronic Markets and Agents, Brokers	219	300
Potential Comparatuive Advantage			
336	Transportation equipment manufacturing	851	2,531
332	Fabricated metal product manufacturing	2,750	4,366
423	Merchant wholesalers, durable goods	2,594	3,184
333	Machinery manufacturing	845	1,340
331	Primary metal manufacturing	554	893
721	Accommodation	843	1,115
324	Petroleum and coal products manufacturing	4,315	4,559
486	Pipeline transportation	254	460
511	Publishing industry	499	631
929	State Gov't	2540	2639

811	Repair and maintenance	1873	1,968
532	Rental and Leasing services	1,056	1,114
311	Food manufacturing	356	389
334	Computer and Eletronic Product Mfg	499	531
447	Gas Stations	1,238	1,257
339	Miscellaneous manufacturing	239	250

The second group of industries in Table 5 are those with *Potential Comparative Advantage*. Regarding these industries, it is important to identify why Southeast Texas may have some comparative advantage despite sub-par national performance (SOCRATES 2010).

The region's engine of economic growth expanding industries (Table 3) that are also exporting industries are collectively the engine of economic growth in Southeast Texas, because they bring in new money/income and jobs to the area. Potentially, their multiplier effects are larger than non-exporting industries (Table 6).

Table 6. The Engine of Economic growth in Southeast Texas, 2003-2008			
3-Digit NAICS Code	Industry	Increase in Employment	Exporting Industries (LQ > 1.25)
332	Fabricated metal product manufacturing	1538	2.32
236	Construction of buildings	1234	4.13
238	Specialty trade contractors	807	1.56
213	Support activities for mining	758	2.74
488	Support activities for transportation	492	2.71
452	General merchandise stores	479	1.45
237	Heavy and civil engineering construction	403	2.86
621	Ambulatory health care services	384	1.74
331	Primary metal manufacturing	339	2.08
324	Petroleum and coal products manufacturing	244	31.49
562	Waste management and remediation service	208	2.39
211	Oil and gas extraction	206	1.79
486	Pipeline transportation	206	9.73

It is interesting to note that all the five (5) industries which were identified in the 2006 study as the engine of economic growth in Southeast Texas -- broadly defined as an eight-county area -- are included in Table 6 above, and therefore, continued to play that role in the Southeast Texas region (or the Beaumont-Port Arthur MSA) over the 2003-2008 period. These are: Fabricated metal product manufacturing (NAICS 332), Construction of buildings (NAICS 236), Heavy and civil engineering construction (NAICS 237), Ambulatory health care services (NAICS 621), and Waste management and remediation service (NAICS 562).

It is curious to see from Table 6 that eight (8) other industries (out of a total of 13) have emerged in the 2003-2008 period as contributors to the engine of economic growth of Southeast Texas. Majority of these industries are reflective of this region as an "energy country" – the hub of energy production of the United States, namely: Oil and gas extraction (NAICS 211), Support activities for mining (NAICS 213), Pipeline transportation (NAICS 486), Petroleum and coal products manufacturing (NAICS 324), and Support activities for transportation (NAICS 488).

CONCLUSIONS AND POLICY/RESEARCH IMPLICATIONS

Thirteen (13) industries constitute the top employers in Southeast Texas throughout the 2003-2008 period -- ranging from Educational Services to Fabricated Metal Product Manufacturing – with more than 4,000 employees each. Two (2) of these thirteen industries belong to the Public (or Government) Sector: Educational Services (NAICS 611) and Justice, Public Order, and Safety Activities (NAICS 922). Since Public-Sector data were not included in the 2006 study, for the first time, the authors have verified that the Government Sector industries do contribute significantly to employment in Southeast Texas. These include the Local School Districts, Lamar University, Lamar Institute of Technology, Lamar State College Port Arthur, and Lamar State College Orange.

The number of expanding industries in 2003-2008 (24) – creating more than 200 jobs each -- was about double that in 1997-2002, two (2) of which are in the Public Sector, namely: Educational Services (NAICS 611) and Administration of Human Resource Program (NAICS 923). From this result,the authors see a trend towards diversification of the Southeast Texas economy. And once again, the Government Sector is contributing towards this diversification.

As in the 2006 study, the authors noted sadly that two top employing industries in the area declined during the 2003-2008 period. The biggest job losers, Hospitals (NAICS 622) lost 926 jobs and Chemical Manufacturing (NAICS 325) lost 959 jobs. It is puzzling why these industries do not appear to have comparative advantages locally, as shown by the shift-share analysis. Development planners should view this trend with alarm, especially considering that both are exporting industries, with Location Quotients (LQ) of 1.37 and 7.60, respectively, in 1997. Further research on this disturbing trend is clearly called for.

Thirteen (13) industries constitute the engine of economic growth in Southeast Texas, in that they are the top expanding, as well as exporting, industries. They bring in new jobs/incomes into the region with a potentially higher multiplier effects. Of this group, only six (6) are also among the top employers in the area. Five (5) of the thirteen industries have been sustaining their roles as engine of economic growth since the 1997-2002 study, a period of 10 years. Majority of the eight (8) newly-emerged engine of economic growth are related to the oil and gas industry, thus reflective of this region as the "energy country" of the United States.

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