

**Mississippi State University's Direct Economic Impact 2000-2008: A Preliminary
Assessment of Job Retention, Recruitment and Creation Programs**

Dr. Melvin C. Ray

**Associate Vice President for Economic Development
Office of Research and Economic Development
Mississippi State University
Melvin@research.msstate.edu**

February 5, 2009

Introduction

Mississippi State University, the largest university in the state, is a leader in the areas of teaching, research, and service. Drawing on its strengths in those areas, the university had traditionally worked closely with the state’s agricultural, forestry, and veterinary medicine sectors to help grow companies and create jobs. However, between 2000 and 2008, the university began promoting its engineering and science programs as catalysts for helping to grow the state’s economy by assisting existing industries, helping to recruit new industries, and encouraging spin-off companies. The remainder of this report highlights results of a preliminary study of the university’s engagement in economic development activities during the time period in question. Data were obtained from interviews with local economic developers, selected centers and institutes involved in research and outreach services, the Office of Technology Commercialization, and published reports.

Existing Industries and Job Retention

Job retention is a critical aspect of a state’s overall economic development strategy. Annually, existing industries account for more than seventy percent of new jobs in local communities. A recent report indicates that there are over 16,700 companies in the state and a little over four thousand are manufacturers.

Mississippi State University’s engagement in job retention efforts is invaluable to the state. Technical assistance provided to industries, upon request, include product testing, plant layout, new product design, six sigma and lean manufacturing training, safety and health consultations, marketing plans, and technology utilization strategies. These services are primarily provided by five units: Center for Safety and Health; Center for Advanced Vehicular Systems Extension (CAVSE); Technology Resource Institute (TRI); Industrial Outreach Service (IOS); and the Franklin Furniture Institute. As shown in Table 1, between 2005 and 2008, those units completed more than fourteen hundred (1,400) projects for over one thousand Mississippi companies. Projects were completed in approximately half of the counties in the state. See Appendix A. Moreover, it was estimated that over 130,000 employees were impacted and the economic impact of the projects exceeded three billion dollars. See Table 1.

Table 1. Mississippi State University Economic Impact and Existing Industries 2005-2008

Performance Measures	CAVS Extension	Industrial Outreach Service	Technology Resource Institute	Center for Safety and Health	Franklin Furniture Institute	Total
Projects Completed	41	84	223	920	100	1368
Companies Visited	39	66	187	665	90	1047
Average # of Counties Impacted	7	12	20	39	10	88
Employees Impacted	20,000	11,575		70,316	32,384	134,275
Impact in Dollars	\$3. Billion	\$19.57 Million	\$2.95 Million	NA	\$6.7 Million	\$3.09 Billion

*TRI impact measured via client surveys.

*CAVSE and IOS economic impacts as reported by clients and verified through a third-party independent assessment conducted by NIST-MEP

*Franklin Furniture Institute impact in dollars based on client feedback/documentation

Industrial Recruitment

It is not surprising that between 2000 and 2008 there was a dramatic increase in the university's engagement in non-agricultural, major industrial recruitment efforts. Such projects are almost always guided by the Governor, federal delegation, state legislature, and local economic development organizations. Successful recruitment of major impact projects requires state and local incentives including tax abatements, infrastructure, and work force training assistance. In return, the state and local communities acquire hundreds of direct new jobs and a significant number of indirect jobs related to the project including suppliers, restaurants, convenience stores, residential developments, and retail outlets. Some projects can literally change the landscape and quality of life of an entire county or region. Based on published reports and data gleaned from local economic developers, between 2000 and 2008, the university assisted in industrial recruitment efforts that generated a whopping \$2.69 billion in capital investments and over 7,500 jobs. See Table 2.

Table 2. Mississippi State University Engagement in Industrial Recruitment 2000-2008

Year Recruited	Company	Investment	# Jobs	Pay Rates	Product
2000	Nissan	\$1,400,000,000	5,000	NA	Cars, Trucks, and SUVs
2001	Service Zone/Site		900	\$8-\$12/Hr	In-Bound Tech Support
2003	American Eurocopter	\$14,000,000	125	\$18-\$20/Hr	Helicopters
2004	American Eurocopter Expansion				
2006	Clear Orbit	NA	11	\$45,000/Yr	Application Software
2006	International Truck/Navistar	TBD	500	\$10 -\$15/Hr	Armored Vehicles
2006	Aurora Flight Sciences	\$25,000,000	300	\$17-\$40/Hr	Unmanned Aircrafts (UAVs)
	Aurora Expansion				
2007	Harbinger/ACIOMM**	NA	10	NA	Software Engineering
2007	PACCAR	\$500,000,000	500*	\$40,000/Yr	Power Trains for Heavy Trucks
2008	Stark Aerospace	\$30,000,000	100	\$50,000/Yr	World Class Aerospace Company Part of IAI
2008	GE Aviation	\$90,000,000	50	NA	Composite Engine Components
2008	Ultralife Batteries	NA	7	NA	Batteries/Fuel Cells
Grand Total Since 2000		\$2,059,000,000	7,503		

*Projected number of employees when fully operational

Sources: Columbus-Lowndes Link, Greater Starkville Development Partnership, West Point Growth Alliance, Clarion Ledger, Clear Orbit

The news story that shocked the world's automotive industry in 2000 revealed that Nissan had chosen Canton, Mississippi for its new advanced automotive manufacturing facility. As part of the pitch made by federal and state officials to land the deal was the almost unlimited access the company would have to MSU's internationally recognized Bagley College of Engineering research centers, faculty, graduates, and student interns. That project alone generated \$1.4 billion in capital investments and created over 5,000 jobs. In 2007, the university's Center for Advanced Vehicular Systems (CAVS) and its award winning, student reengineered Challenge X Hybrid car, played a role in the successful recruitment of PACCAR. The company is the world's leader in the manufacturing of advanced, diesel-powered engines for heavy duty trucks including Peterbilt and International trucks. To help maintain strong ties to the MSU researchers, the company is currently building its manufacturing facility approximately fifteen

miles away from the university at the Golden Triangle Regional Airport. In late 2008, the company endowed a chair in the Department of Mechanical Engineering. PACCAR is projected to employ approximately 500 workers when fully operational.

In addition, Mississippi State University's Raspet Flight Research Laboratory and the Department of Aerospace Engineering have played pivotal roles in the recruitment of leading aerospace companies. As a result, the Golden Triangle Region and other parts of the state have experienced a surge in the recruitment of aerospace companies. The first to come on the scene was American Eurocopter, a subsidiary of EADS that assembles high-end helicopters for the military, Coast Guard, law enforcement, and hospitals. American Eurocopter began its manufacturing operation at the RFRL in dedicated incubation space. This pattern of providing temporary incubation space to industrial prospects at the RFRL was critical in the recruitment of Aurora Flight Sciences and Stark Aerospace. Both companies build all composite unmanned aerial vehicles. Recently, General Electric-Aviation was temporarily housed at the facility to perfect its manufacturing process for composite engine components. Aurora and Stark Aerospace now have facilities in Lowndes County and General Electric Aviation has a plant in Batesville, Mississippi. All of the aforementioned projects have at least two things in common. They have strong ties with MSU's RFRL and a growing number of MSU graduates on their payrolls.

University-Led Job Recruitment and Creation

In comparison to major industrial recruitment projects, university-led economic development activities are designed to attract small technology-based companies and facilitate spin-off companies from the university. Recruitment of small technology companies generally includes incentives such as access to strong research programs in target areas, potential for joint research contracts, temporary office space, and access to faculty, graduates, and student interns. Success stories in this area include Clear Orbit and Harbinger; both are software development companies and located in the research Park. Those companies together employed approximately two dozen workers, primarily MSU graduates. Ultralife, Inc is a New Jersey based company specializing in portable power systems and has a joint research project with MSU. The company's facility is located in West Point, Mississippi, and it recently announced intentions to hire approximately thirty new employees in early 2009.

Job Creation/Spin-Off Companies

The most promising form of university-led economic development activity for the state and nation is fueled by strong research programs in the areas of science, mathematics, engineering and technology (SMET). In recent years, university faculty members, researchers, and students have generated over \$150 million in grants and contracts annually. That level of external funding for research creates a dynamic environment for an entrepreneurial culture and what is called innovation-based economic development. The latter refers to the creation of spin-off companies and jobs based on innovations emanating from research programs.

The university's progress in the area of innovation-based economic development is notable. Key performance measures include patents, spin-offs, license agreements, and royalty income. Data from the university's Office of Technology Commercialization show that between 2000 and 2008, the university was awarded an average of seven U.S. patents annually. Concurrently, the number of license agreements and spin-off companies was 64 and 22 respectively. Moreover, the total amount of royalty income generated exceeded three million dollars. See Table 3.

Table 3. University-Led Economic Development 2000-2008: IP Disclosures, Patents, Spin-Off Companies, and Royalty Income

	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	Total
MSU Start-Up Companies	0	3	2	1	3	4	2	3	4	22
Disclosures	11	22	32	39	50	62	67	80	56	419
Provisional Applications	5	9	12	15	13	22	15	15	21	127
Patent Applications	7	9	10	13	7	8	16	8	7	85
Total Applications	12	18	22	28	20	30	31	23	28	212
Patents Issued	6	7	9	7	4	9	11	4	7	64
Licenses/Options	2	7	6	7	9	10	12	10	1	64
Licenses/Options Yielding Income	8	16	10	14	11	14	16	18	22	NA
Licenses with Running Royalties	5	4	7	5	8	9	9	12	13	NA
Royalty Income (\$K)	180	272	324	375	306	467	478	414	428	\$3,244
MSU Expenditures (\$M) (as reported to NSF)	133	147	159	166	191	180	190	206		NA

The list of spin-off companies includes SemiSouth Laboratories, Infinisat, Termisys, Dynemotion, Camgien, Spatial Technologies, MatrixMotion, and Predictive Design Technologies. Camgien specializes in the development of low powered, unattended sensors for the military. Dynemotion is using discoveries associated with the Challenge X car to transform gasoline fleets into hybrids. Termisys, Inc. is taking advantage of their research to commercialize a chemical-free termite detection, monitoring, and eradication system. Researchers in the College of Veterinary Medicine have developed a diagnostic system to identify and assess biomarkers that signal the presence of diseases including certain cancers. In addition, MatrixMotion is perfecting new sensor technologies to aid golf instructions. As the university's research programs continue to grow, a concurrent increase in the number of new discoveries and spin-off companies is projected.

Appendix A: Selected Job Retention Sites 2005-2008

Albritton Fence Company (Lumberton, MS; Lamar County)

Alply (DeKalb, MS; Kemper County)

Anel (Winona, MS; Montgomery County)

Anel Corp (Winona, MS; Montgomery County)

Ashley Furniture Industries (Ripley and Ecrú, MS, Tippah and Pontotoc Counties)

Athlex, Inc. (Kosciusko, MS; Attala County)

Bauhaus USA (Saltillo, MS; Lee County)

Choctaw County EDA (Ackerman, MS; Choctaw County)

Comfortaire, Inc. (Tupelo, MS; Lee County)

Comfortaire, Inc. (Tupelo, MS; Lee County)

Community Development Foundation (Tupelo, MS; Lee County)

Diversified Technology (Ridgeland, MS; Madison County)

Durabilt, Inc. (Jackson, MS; Hinds County)

Ergon (Jackson, MS; Hinds County)

Faurecia (Cleveland, MS; Bolivar County)

FibreCraft (Tupelo, MS; Lee County)

Flexsteel Industries (Starkville, MS; Oktibbeha County)

Franklin Corporation (Houston, MS; Chickasaw County)

Franklin Furniture Corporation (Houston, MS; Chickasaw County)

Genesis (Pontotoc, MS; Pontotoc County)

Georgia Gulf (Aberdeen, MS; Monroe County)

Hunter Engineering (Durant, MS; Attala County)

Magnolia Medley Foods(Vardaman, MS; Calhoun County)

Mama's Hot Tamales (Picayune, MS; Pearl River County)

Martin Rea Fabco (Shannon, MS; Lee County)

Max Home (Fulton, MS; Itawamba County)

Mercury Aviation (Flowood, MS; Rankin County)

Mississippi Industries for the Blind (Jackson, MS; Hinds County)

MMI of Mississippi (Hazlehurst, MS; Copiah County)

Morgan Van Lines (Booneville, MS; Prentiss County)

M-Tek (Madison, MS; Madison County)

Mueller Industries (Fulton, MS; Itawamba County)

Navistar Defense (West Point, MS; Clay County)

Northrop Grumman Ship Systems (Pascagoula, MS; Jackson County)

Penick Organics (Macon, MS; Noxubee County)

Pharma Pac (DeKalb, MS; Kemper County)

Plymouth Tube (Eupora, MS; Webster County)

Prime Designs (Tupelo, MS; Lee County)

Prime Designs (Tupelo, MS; Lee County)

Sly, Inc. (Mathiston, MS; Choctaw County)

Source Link (Madison, MS; Madison County)

South Mississippi Multi-Company Lean Consortium (Columbia, MS; Marion County)

Spatial Information Solutions (Starkville, MS; Oktibbeha County)

T&L Specialty Company (Tupelo, MS; Lee County)

TBEI (Corinth, MS; Alcorn County)

Tower Automotive (Madison, MS; Madison County)

Tupelo Manufacturing (Tupelo, MS; Lee County)

USG Interiors (Greenville, MS; Washington County)

Viking Range (Greenwood, MS; Leflore County)

Yorozu (Vicksburg, MS; Warren County)

Information provided by Center for Advanced Vehicular Systems Extension, Center for Safety and Health, Franklin Furniture Institute, Industrial Outreach Service, and Technology Resource Institute