Modernization and Increasing Competitiveness – Manufacturing Challenges in the State of Georgia

Jan Youtie and Philip Shapira
Georgia Institute of Technology, Atlanta, USA

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Summary of Preliminary Findings

- #Innovative strategies are associated with higher returns to the firm and the community compared with strategies based on low price
- Rural and urban manufacturers comparable adoption rates of technology
- #But rural manufacturers have less use of "soft" enablers of innovation



Overview

- # Manufacturing and the Georgia Context
- ****The Georgia Manufacturing Survey**
- **#Innovative Strategies and Returns**
- ****Adoption of Technologies and Techniques**
- **#Innovation Enablers**
- **#Conclusions**



Setting the Context: The Georgia Economy and Manufacturing

Manufacturing is:

- □ 10,000+ establishments, 98%=SMEs
- △ Almost 450,000 manufacturing jobs, 66%=SMEs
- △ 14% of GSP
- times retail worker pay

More manufacturing dependent

^{*}Defined as counties not in a metropolitan area.



Manufacturing Employment by County

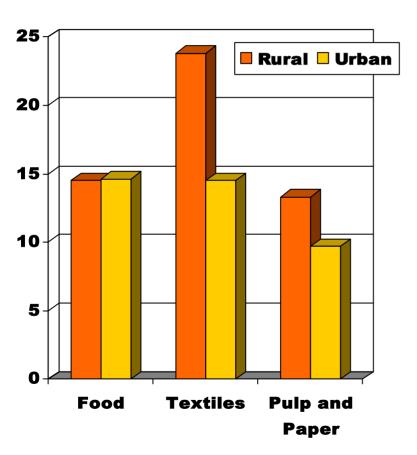
□ 0 - .5 per square mile

.5 - 2.1 per square mile ■ 50 - 126 per square mile

12.6 - 87.0 per square mile Georgia Interstates

^{≥ 23%} establishments, 27% of jobs urhan Pay lower wages (80% urban wages) Less concentrated Source: Georgia Department of Labor, as of May 2002

Not Thought of as a Traditional Place for Innovation

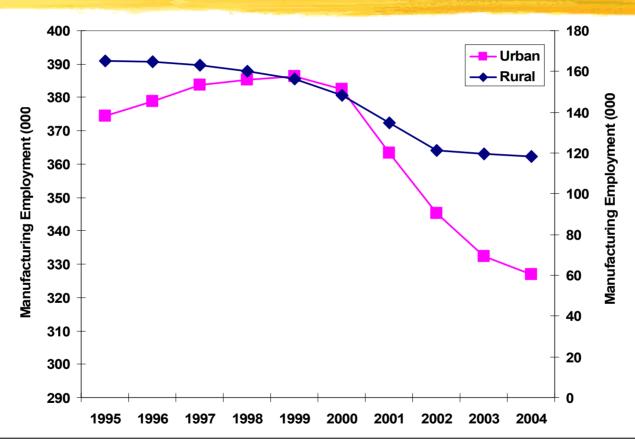


- # 52% rural manufacturing employment is in "traditional industries" textiles, food processing, pulp and paper
 - Rest transportation, fabricated metals, plastics, chemicals, etc.
- # Productivity: 20% higher in 2002 than 1998
- ₩ Not a k-12 education leader



Source: Georgia Department of Labor, U.S. Bureau of Economic Analysis

Georgia Lost More than 100,000 Manufacturing Jobs from 1997 to 2004



Rural Georgia lost 45k - 28% of the manufacturing base.



Georgia Manufacturing Survey 2005

Process

- Mail survey sent to manufacturers with 10+ employees
- Currently being administered (20% response)
- General Manager
- Preliminary results of 635, weighted to reflect ES-202 size, industry distribution

Objectives

- Identify needs, issues, challenges
- Understand trends in product, process innovations and manufacturing technologies, techniques
- Examine the use of programs to assist manufacturers
- Define operational, performance, and strategic benchmarks

http://www.cherry.gatech.edu/survey

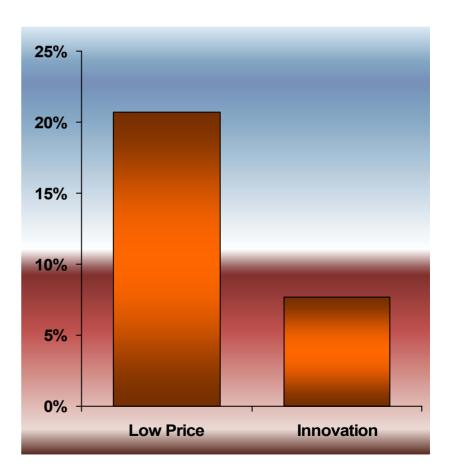


Few Georgia Manufacturers Compete through Innovation

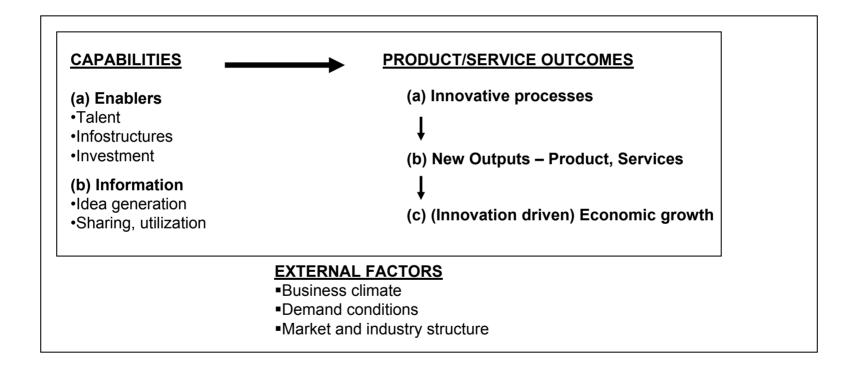
But firms using innovation as a strategy to compete for customers earn higher profits, pay higher wages than those competing on low price

Average return on sales nearly <u>twice</u> as high

✓ Wages \$10,000 higher

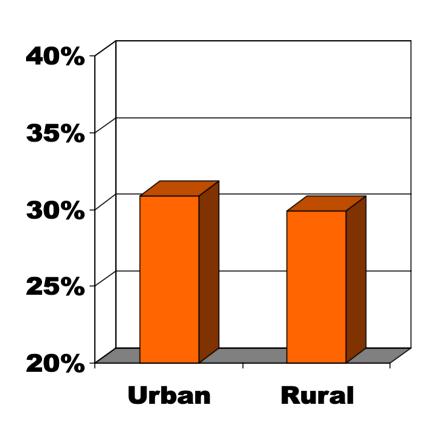


General Model of Innovation





Rural and Urban Manufacturers Have Comparable IT Adoption...

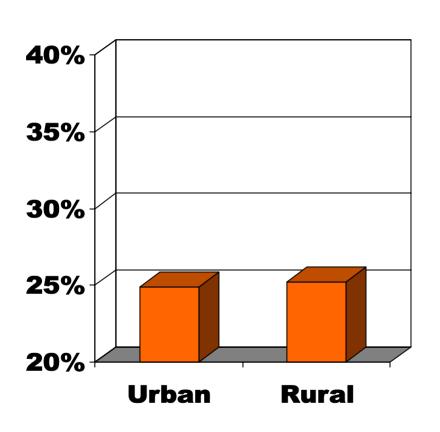


IT Software

- # E-commerce
- # E-procurement
- Supply chain software
- Software for ISO
- **#** CAD software
- **♯ CIM**
- **#** CRM
- ₩ RFID
- # ERP
- Design visualization software



...and Comparable Adoption of Manufacturing Techniques

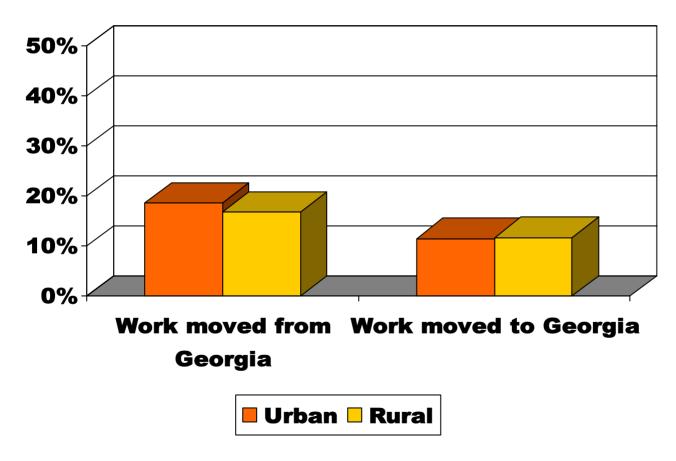


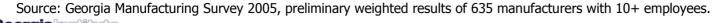
Manufacturing Techniques

- **#** ISO 9000
- Six sigma
- **₩** SPC
- # Pull system
- **Recycling**
- # ISO 14000
- Customer surveys
- # Employee surveys
- **#** Teamwork
- Mass customization

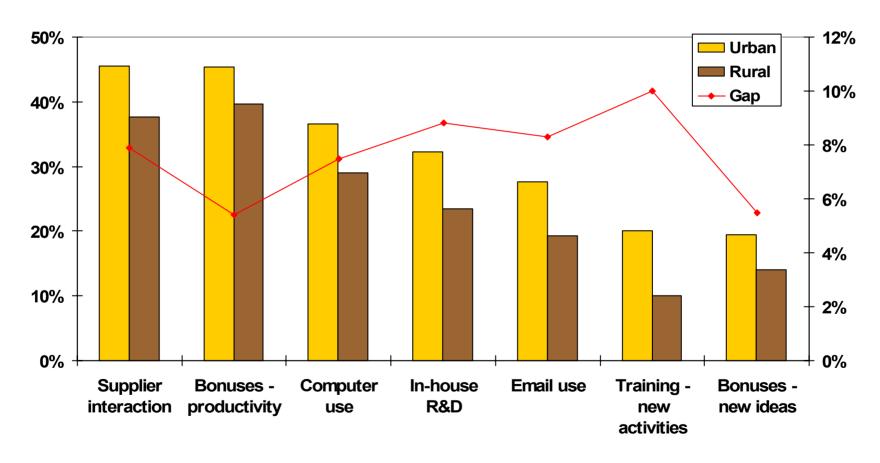


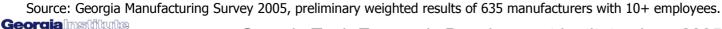
Similar Restructuring Forces Impacting at the Margins



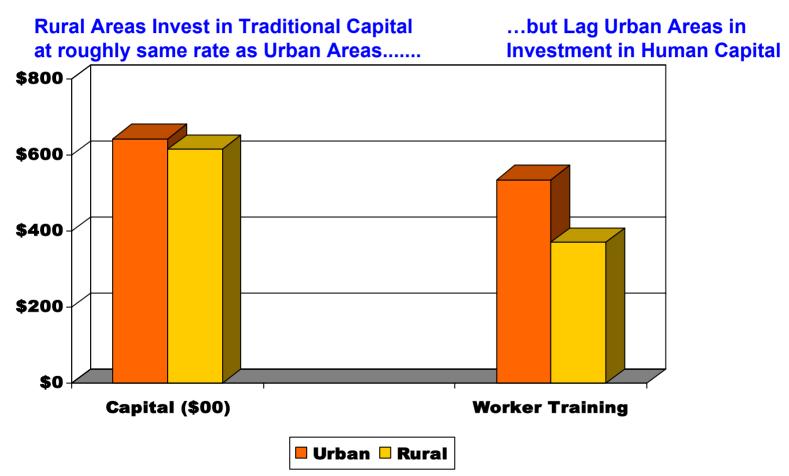


But Rural Manufacturers Show Less use of "Soft" Innovation Capabilities





Capital Investment Per Employee



Source: Georgia Manufacturing Survey 2005, preliminary weighted results of 635 manufacturers with 10+ employees.

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Implications

- #There is a "soft" as well as "hard" component to innovation
- Rural and urban manufacturers in Georgia share many commonalities
- #Trade-off between technology and human capital by manufacturers in rural Georgia
- #This may limit innovation capability on the demand side



Recommendations

- # Establishment level Place attention on developing talent and ability to generate and use information
- Local level Identify and promote innovation needs of existing manufacturers
- Regional level Develop opportunities to link manufacturers with common problems and interests
- State level Encourage statewide attention to the need to foster innovation in existing industries
- # Federal level Federal programs should encourage innovation capabilities
 - □ Example not just technical assistance with selection of technologies, but information generation, acquisition, sharing, use, and management

