

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

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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

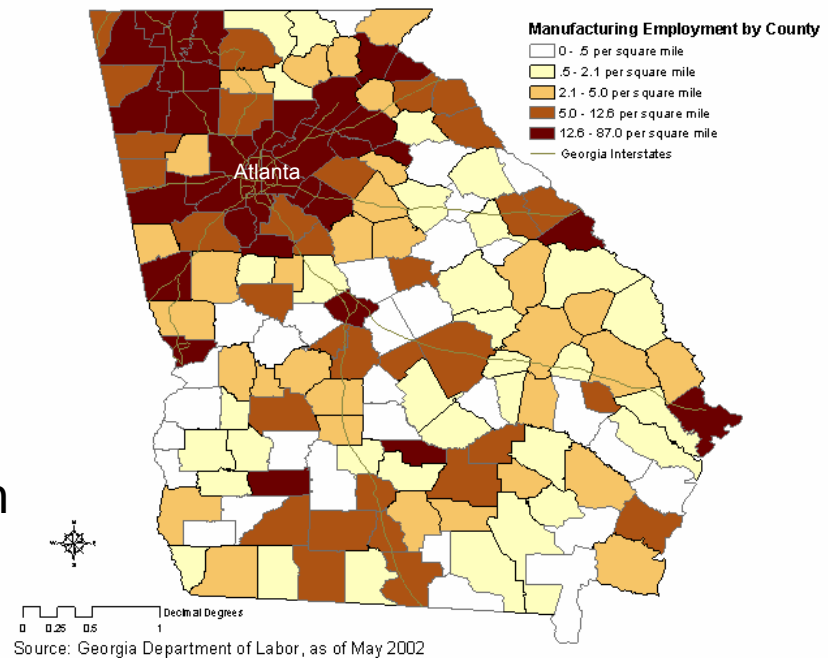
⌘ Manufacturing is:

- ⌘ 10,000+ establishments, 98%=SMEs
- ⌘ Almost 450,000 manufacturing jobs, 66%=SMEs
- ⌘ 14% of GSP
- ⌘ Jobs are relatively high wage – 1.7 times retail worker pay

⌘ Rural* manufacturers:

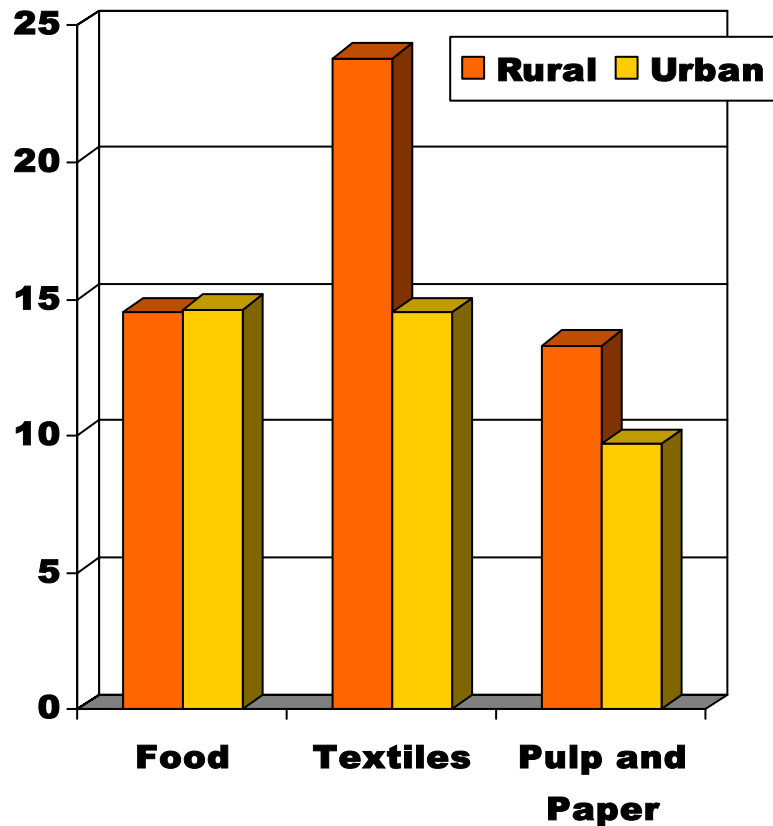
- ⌘ 23% establishments, 27% of jobs
- ⌘ Have more workers – 20% more than urban
- ⌘ Pay lower wages (80% urban wages)
- ⌘ Less concentrated
- ⌘ More manufacturing dependent

*Defined as counties not in a metropolitan area.



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

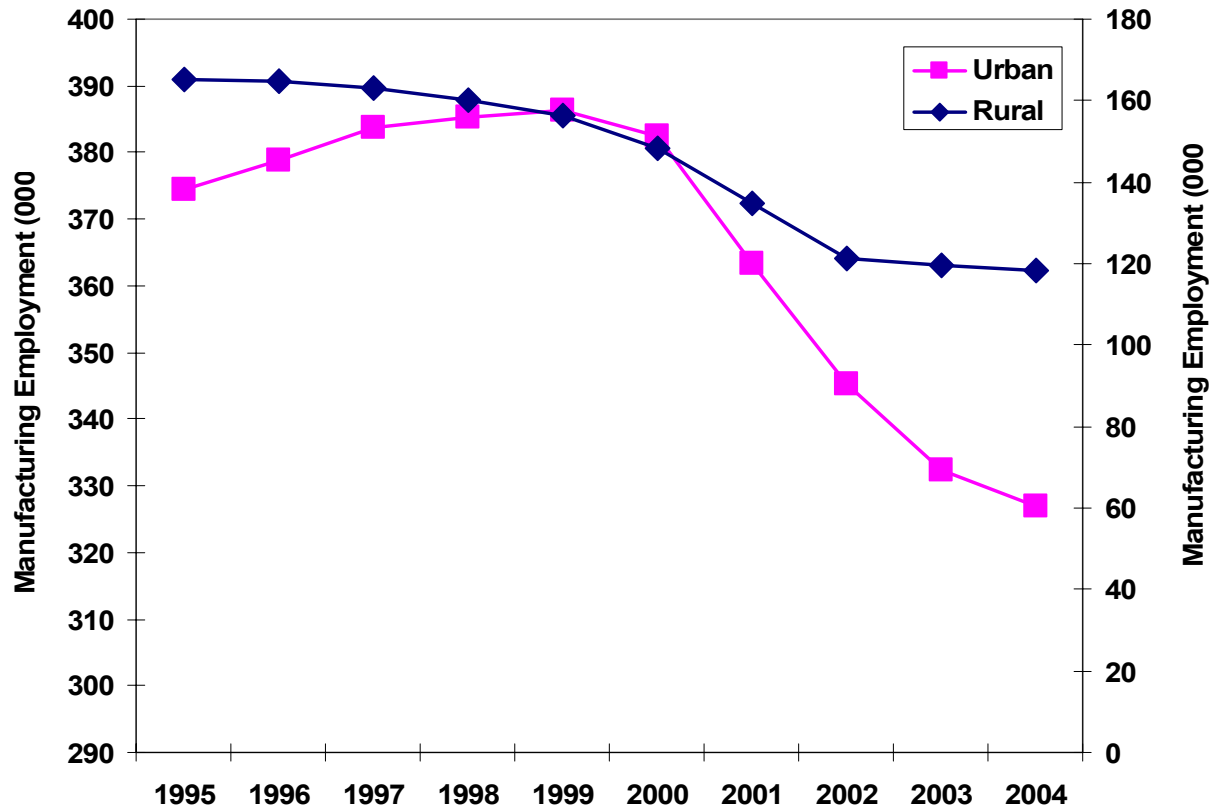
Not Thought of as a Traditional Place for Innovation



- ⌘ Economic transition: Agriculture → Branch Plants
- ⌘ 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
- ⌘ R&D: more public/defense than private
- ⌘ 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.

Source: U.S. Bureau of Labor Statistics

Georgia Manufacturing Survey 2005

⌘ Process

- ☒ Conducted every 2-3 years since 1989
- ☒ 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

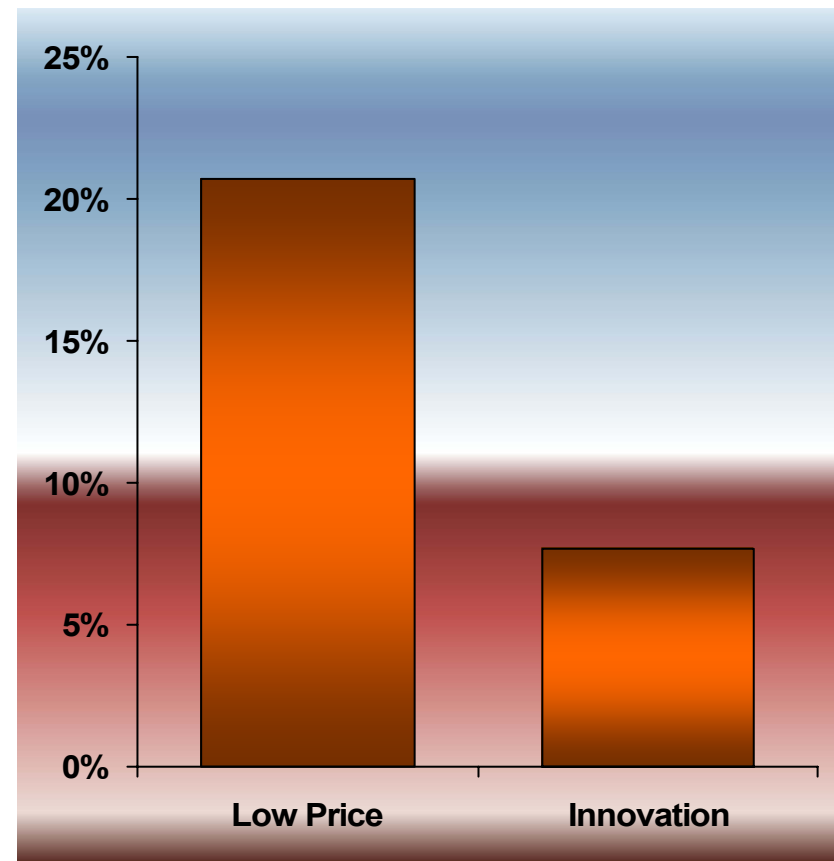
<http://www.cherry.gatech.edu/survey>

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

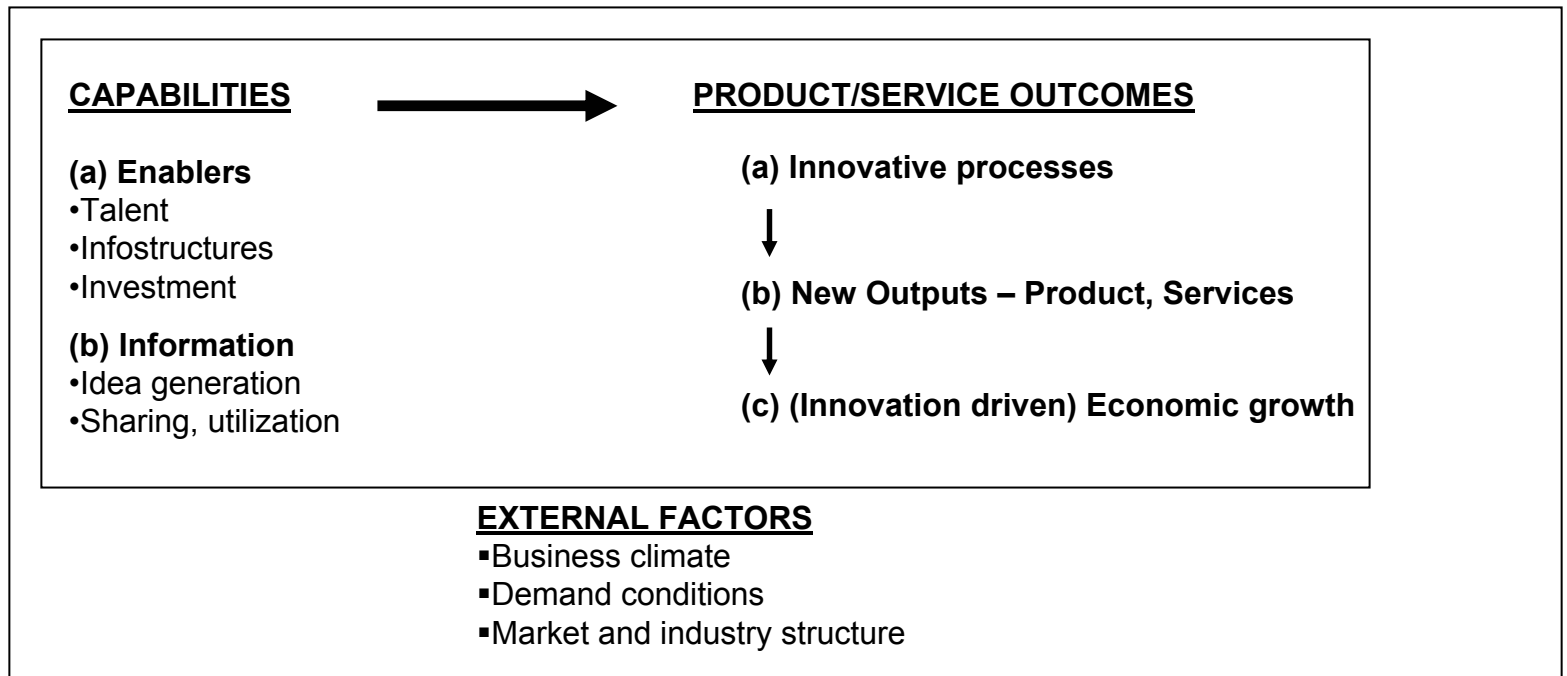
⏏ Average return on sales nearly twice as high

⏏ Wages \$10,000 higher

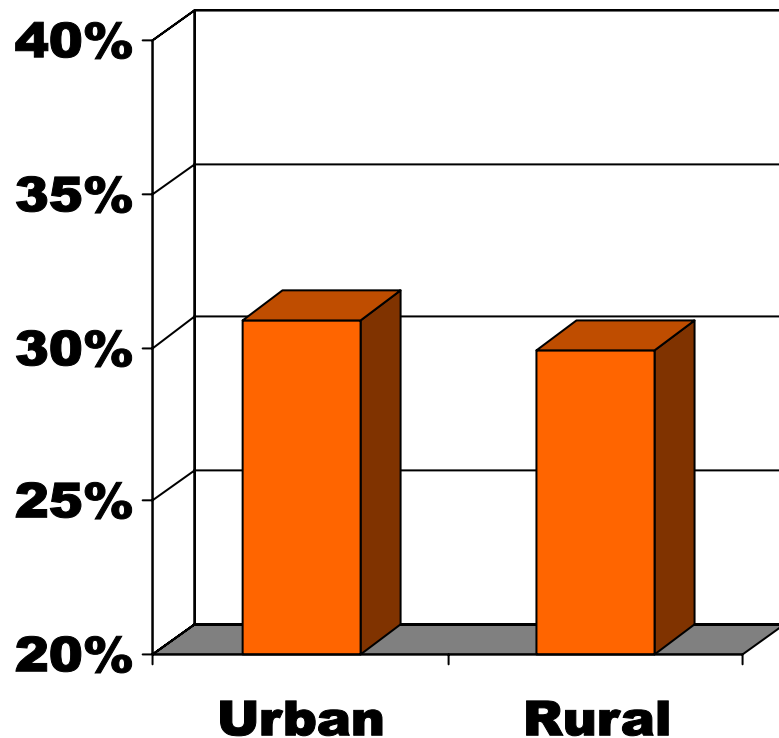


Source: Georgia Manufacturing Survey 2005, preliminary weighted results of 635 manufacturers with 10+ employees.

General Model of Innovation



Rural and Urban Manufacturers Have Comparable IT Adoption...

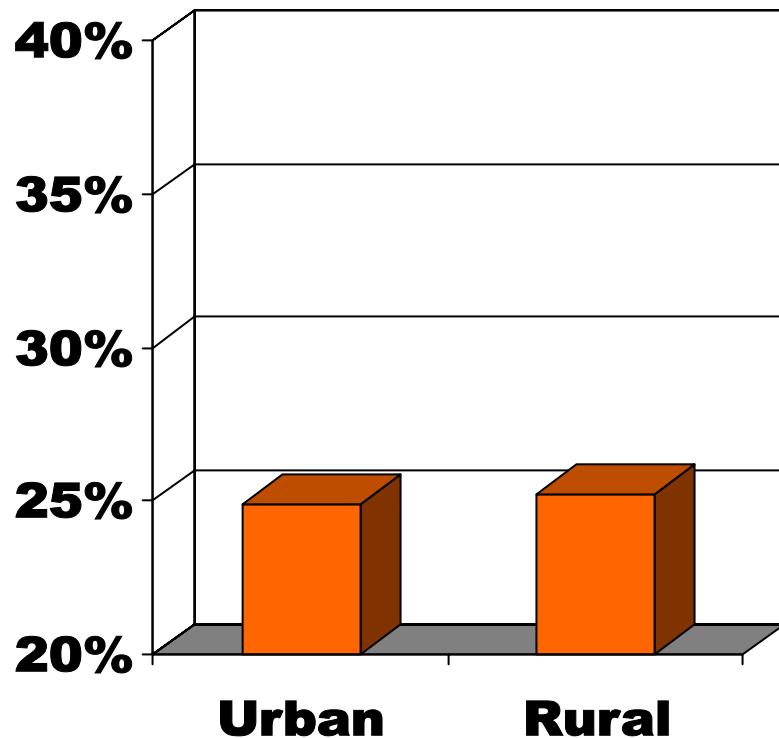


IT Software

- ⌘ E-commerce
- ⌘ E-procurement
- ⌘ Supply chain software
- ⌘ Software for ISO
- ⌘ CAD software
- ⌘ CIM
- ⌘ CRM
- ⌘ RFID
- ⌘ ERP
- ⌘ Design visualization software

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

...and Comparable Adoption of Manufacturing Techniques

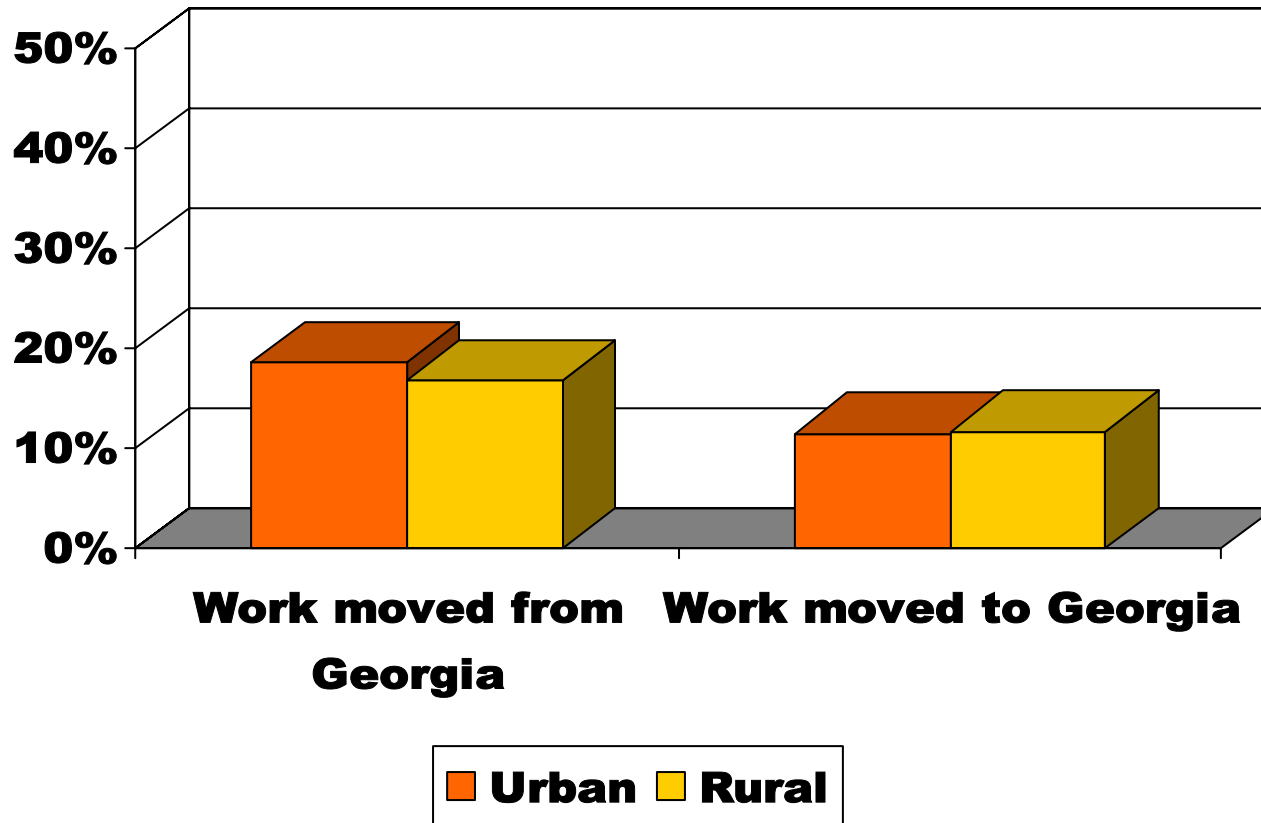


Manufacturing Techniques

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

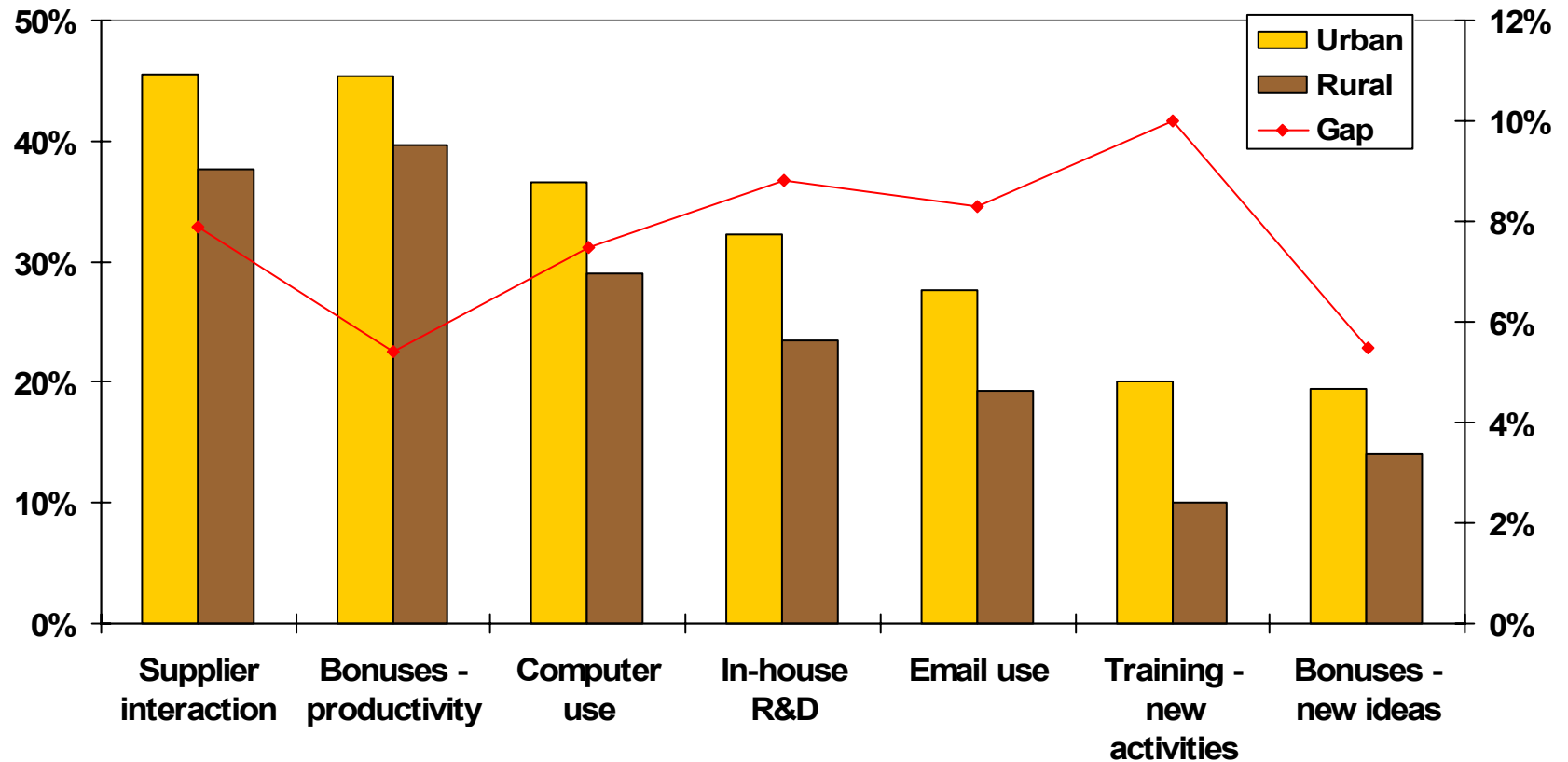
Source: Georgia Manufacturing Survey 2005, preliminary weighted results of 635 manufacturers with 10+ employees.

Similar Restructuring Forces Impacting at the Margins



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

But Rural Manufacturers Show Less use of “Soft” Innovation Capabilities

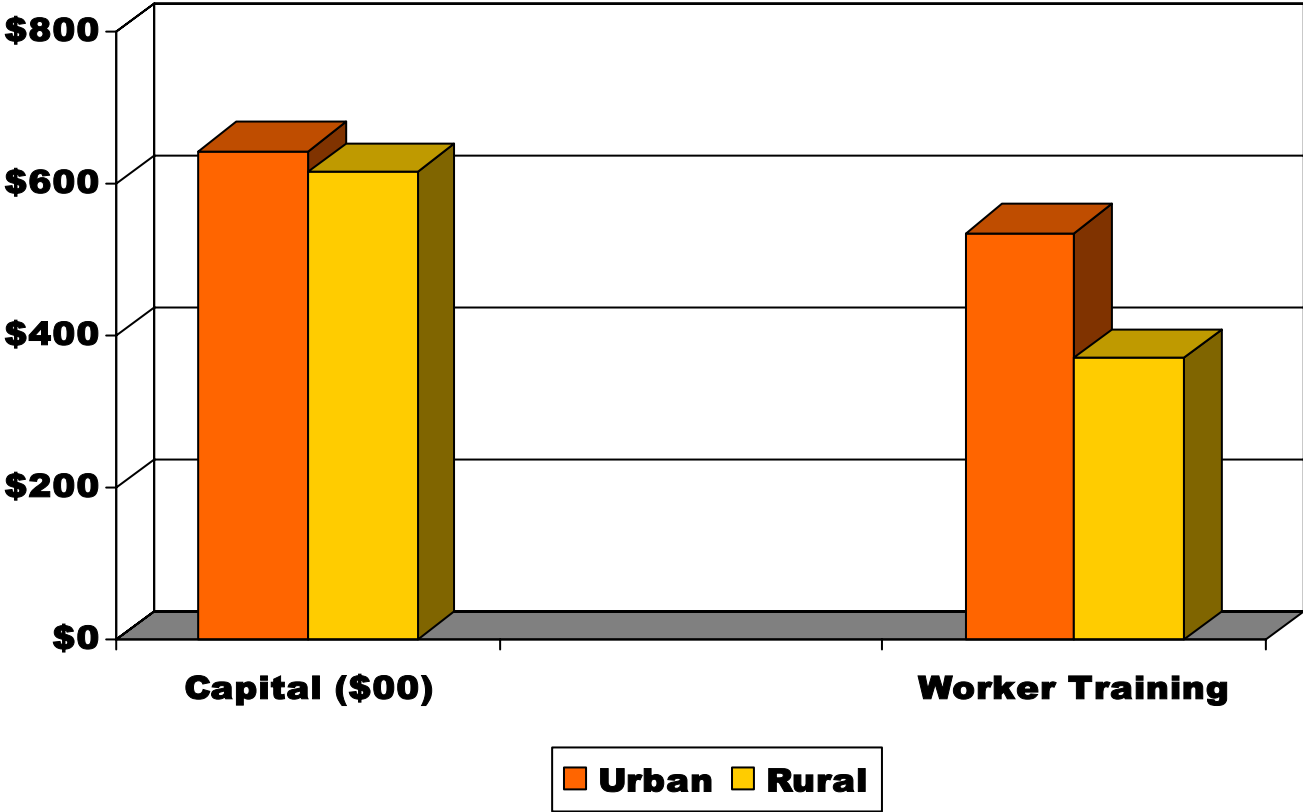


Source: Georgia Manufacturing Survey 2005, preliminary weighted results of 635 manufacturers with 10+ employees.

Capital Investment Per Employee

Rural Areas Invest in Traditional Capital at roughly same rate as Urban Areas.....

...but Lag Urban Areas in Investment in Human Capital



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

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