

Performance of Urban Information Technology Centers: The Boom, the Bust, and the Future

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**Mary Daly
Jeremy Gerst
Economic Research Department**

Motivation

**Trends in the IT sector have a large impact on total
nonfarm employment.**

- **The IT boom benefited many regional centers of IT production**
 - **The IT bust left these regional centers struggling**
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Motivation

This reversal of fortunes prompted some key questions.

- **Will the economies of IT Centers survive the shock to IT?**
 - **Can IT centers return to prominence?**
 - **Which centers will be able to recover?**
 - **What characteristics will play a role in this process?**
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Our Research

We examine a sample of urban IT centers during the boom, the bust, and the recovery.

- **Key characteristics that helped these areas grow**
 - **Concentrations of employment and wages**
 - **Levels of research and development**
 - **Patent activity**
 - **Skill of labor force**
 - **Trends in employment and wage growth**
-

Plan of Talk

- **Data and Definitions**
 - **Profile of IT centers**
 - **Boom, Bust, Recovery**
 - **Putting it all together**
-

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Data sources:

Our data comes from several sources.

- **BLS (QCEW & CES)**
 - **BEA**
 - **U.S. Patent and Trademark Office**
 - **Global Trade Information Services**
 - **Compustat**
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Defining IT:

Total IT = IT Manufacturing + IT Services

Defining IT: Manufacturing

NAICS IT Manufacturing

- **Industrial Machinery**
 - **Commercial and Service Industry**
 - **Computer and Electronic Product**
 - **Computer and Peripheral Equipment**
 - **Communications Equipment**
 - **Audio and Video Equipment**
 - **Semiconductor and Electronic Component**
 - **Electronic Instrument**
 - **Magnetic Media**
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Defining IT: Services

NAICS IT Services

- **Software Publishers**
 - **Telecommunications**
 - **ISPs, Web Search Portals and Data**
 - **Computers Systems Design**
 - **Scientific Research and Development**
 - **Business, Technical School and Support Training**
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IT Centers

- Geographically defined as “metropolitan statistical areas” (MSAs)
 - We ranked MSAs based on the combined magnitude of the following factors.
 - Importance of the IT sector in the local economy
 - Contribution of the local IT sector to total national IT activity
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IT Centers: Our Sample



IT Centers: Our Sample



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Profiles

Measures

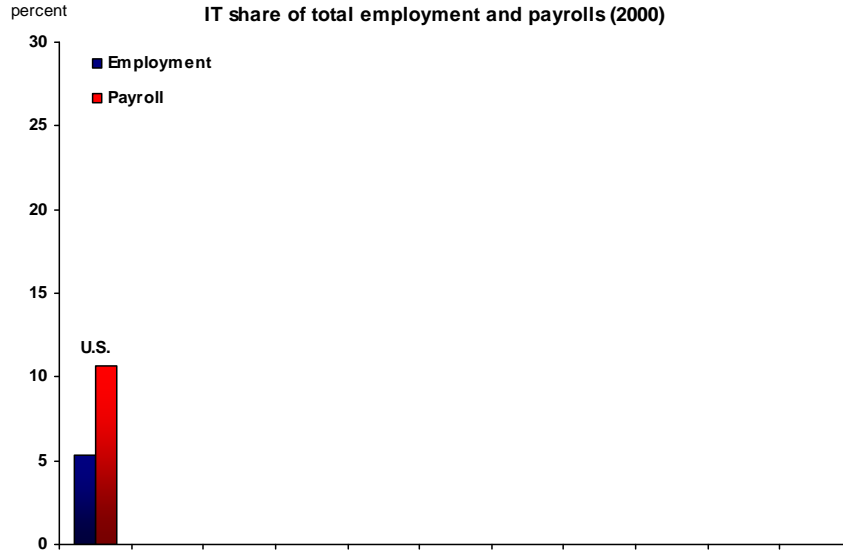
- **Concentration**
 - Employment and payrolls
 - Other measures of concentration
 - **Diversification**
 - **Key fundamentals**
-

Profiles

Measures

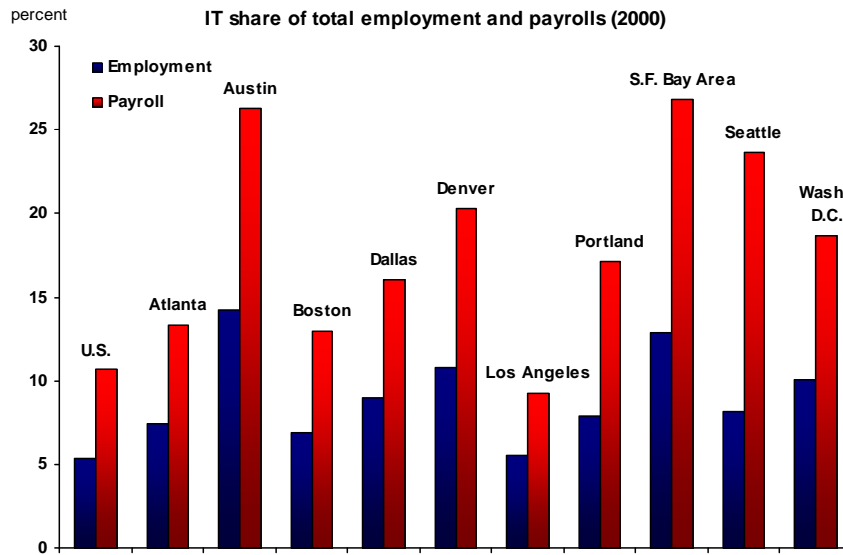
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Importance of IT to the Economy



Source: Authors' tabulations using data from the U.S. BLS (QCEW).

Importance of IT to the Economy



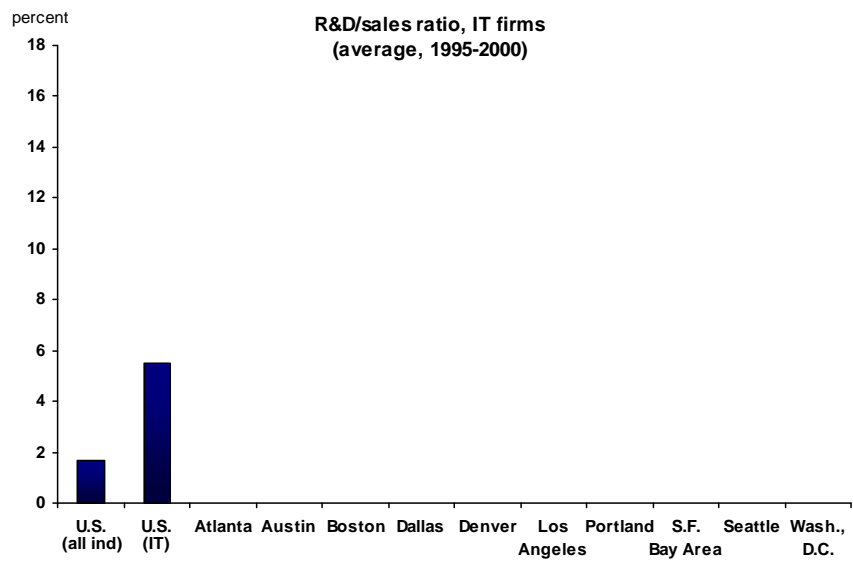
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Profiles

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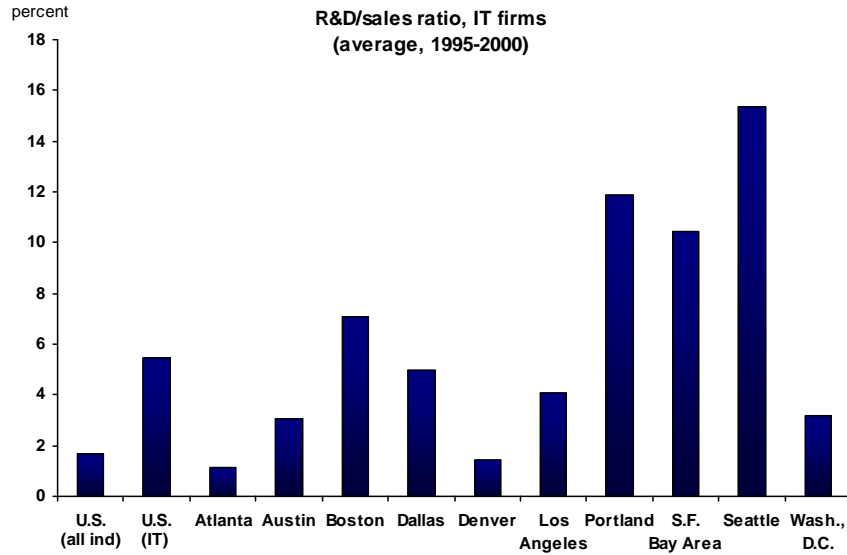
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Importance of R&D in IT



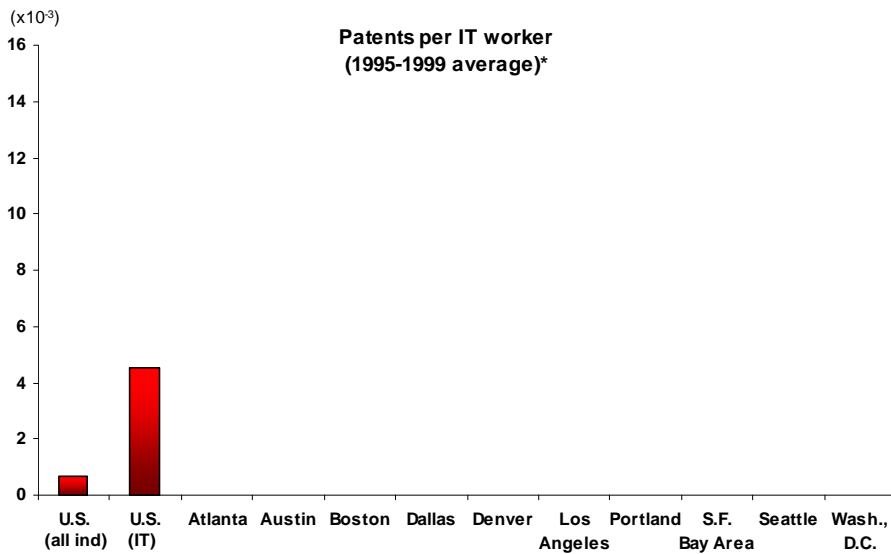
Source: Authors' tabulations using data from Compustat.

Importance of R&D in IT



Source: Authors' tabulations using data from Compustat.

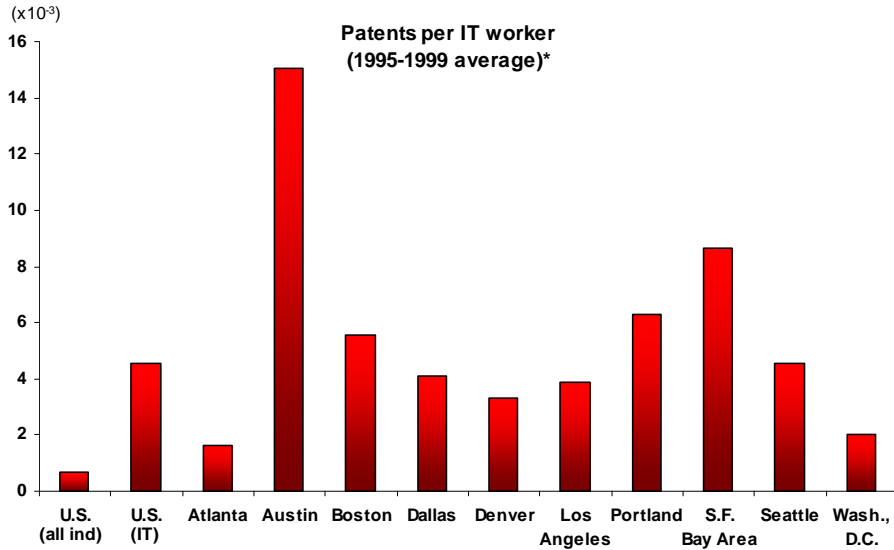
Importance of Patents per worker



*United States figures calculated from 1997-1999 data.

Source: Authors' tabulations of data from the U.S. Patent and Trademark Office and BLS (CES & QCEW).

Importance of Patents per worker



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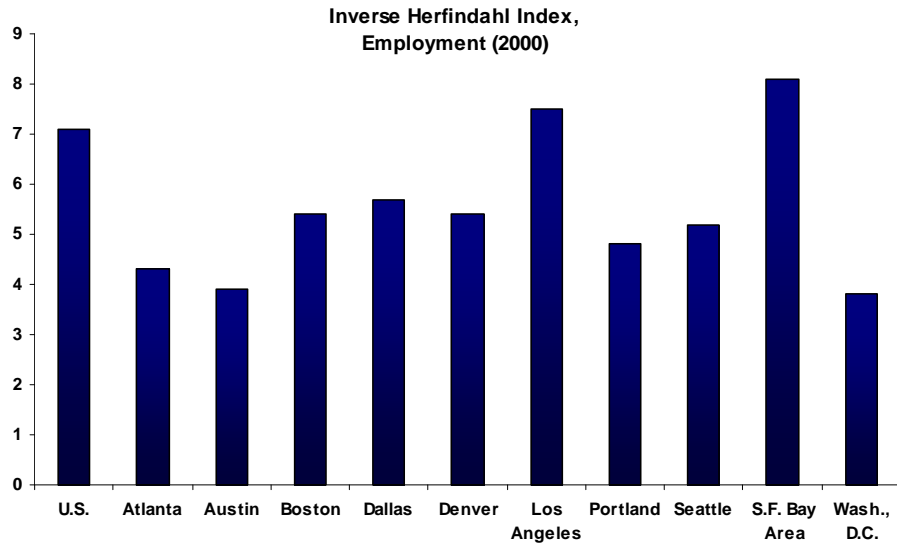
Source: Authors' tabulations of data from the U.S. Patent and Trademark Office and BLS (CES & QCEW).

Profiles

Measures

- **Concentration**
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-

Diversity of the IT Sector



Source: Authors' tabulations of data from the BLS (QCEW).

Profiles

Measures

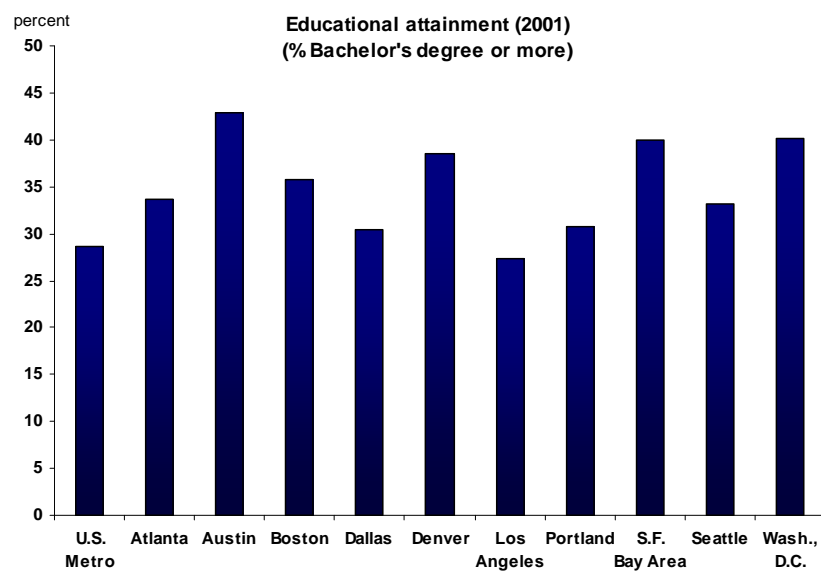
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-

Key Fundamentals

Some things people point to:

- Education
 - Venture capital spending
 - Beneficial knowledge spillovers
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A Skilled Labor Force



Source: Authors' tabulations using data from the U.S. BLS.

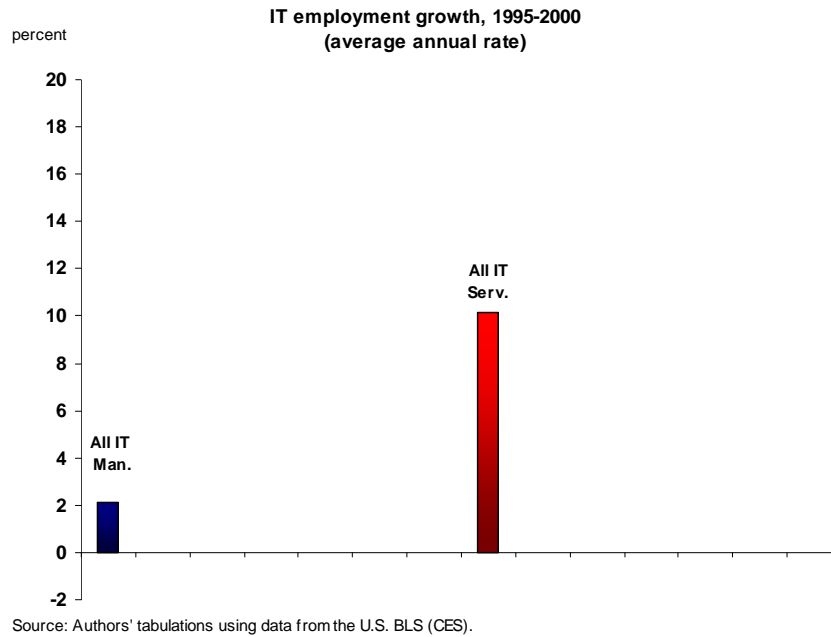
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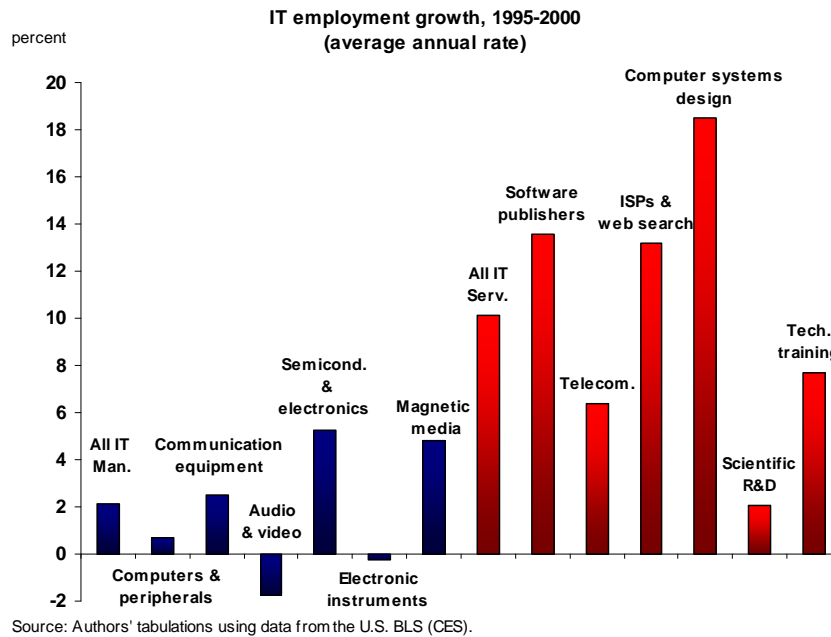
The Boom and the Bust

- What happened in the U.S.?
 - What happened in the IT Centers?
 - Worse?
 - Better?
 - The same?
-

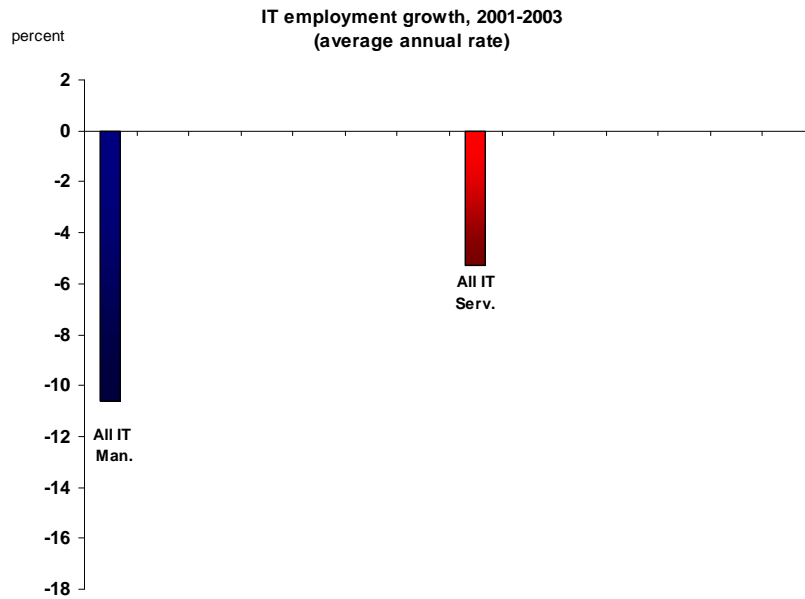
The Boom: 1995-2000



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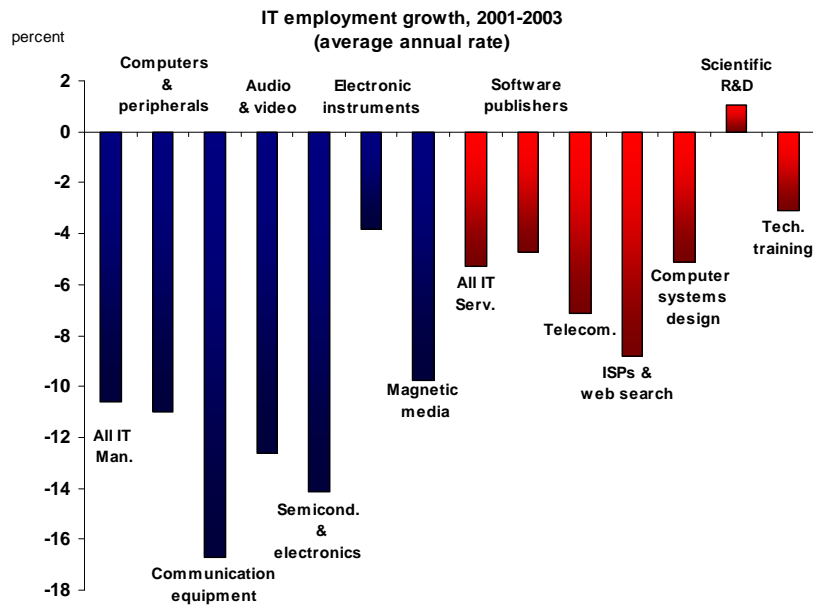


The Bust: 2001-2003



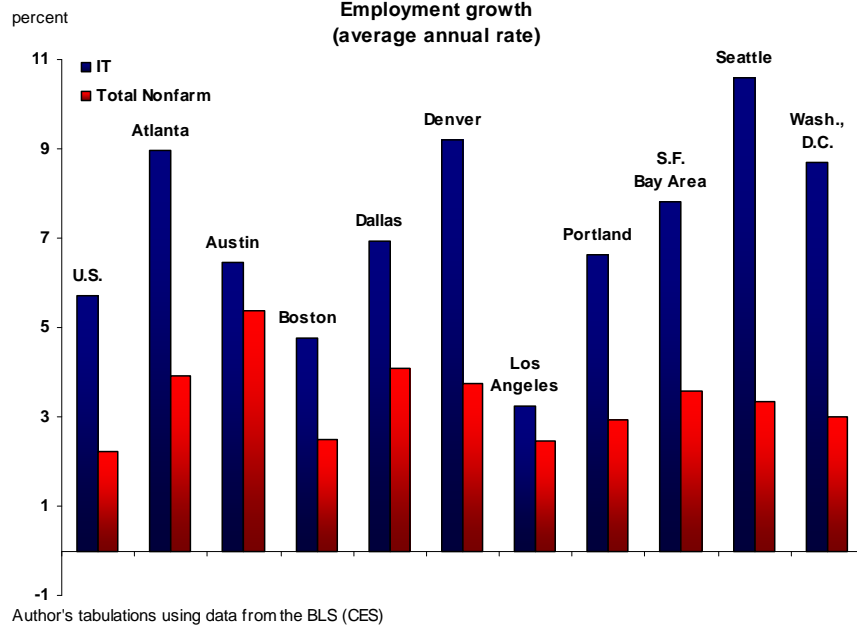
Source: Authors' tabulations using data from the U.S. BLS (CES).

The Bust: 2001-2003

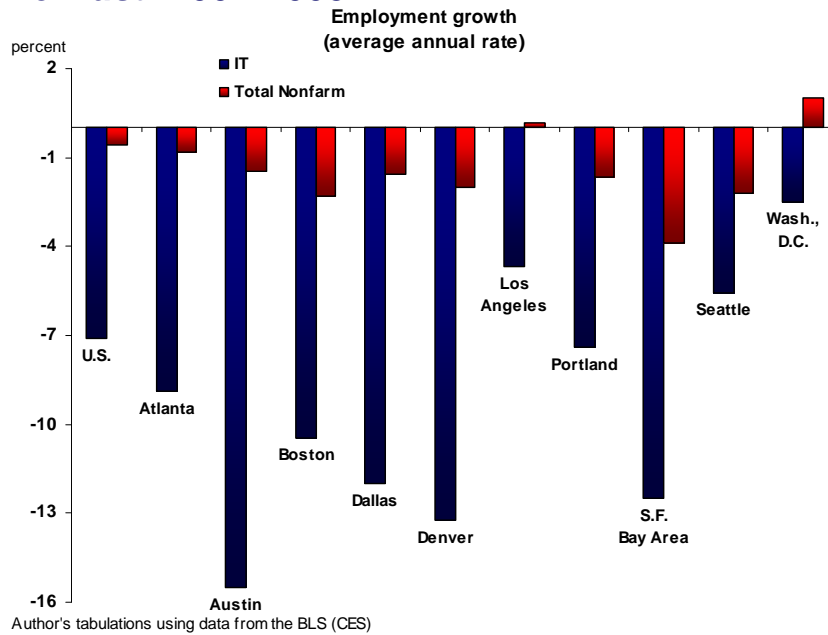


Source: Authors' tabulations using data from the U.S. BLS (CES).

The Boom: 1995-2000



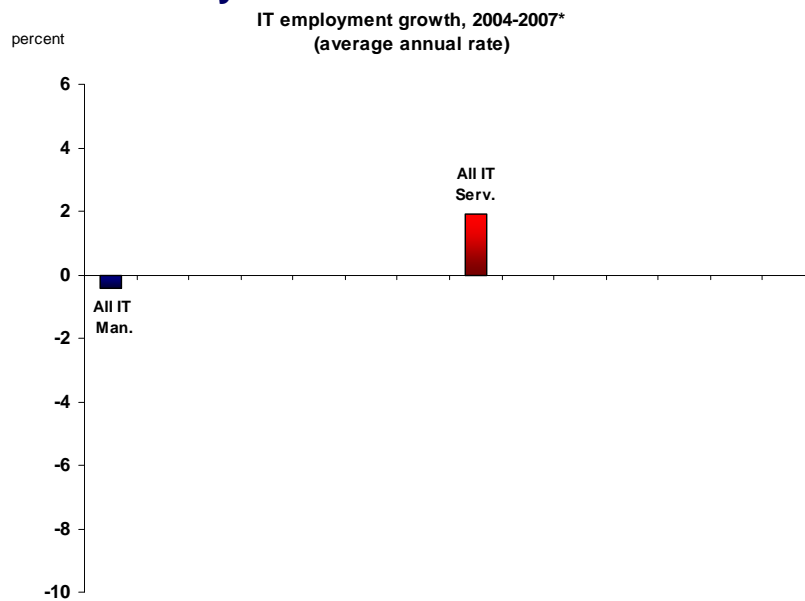
The Bust: 2001-2003



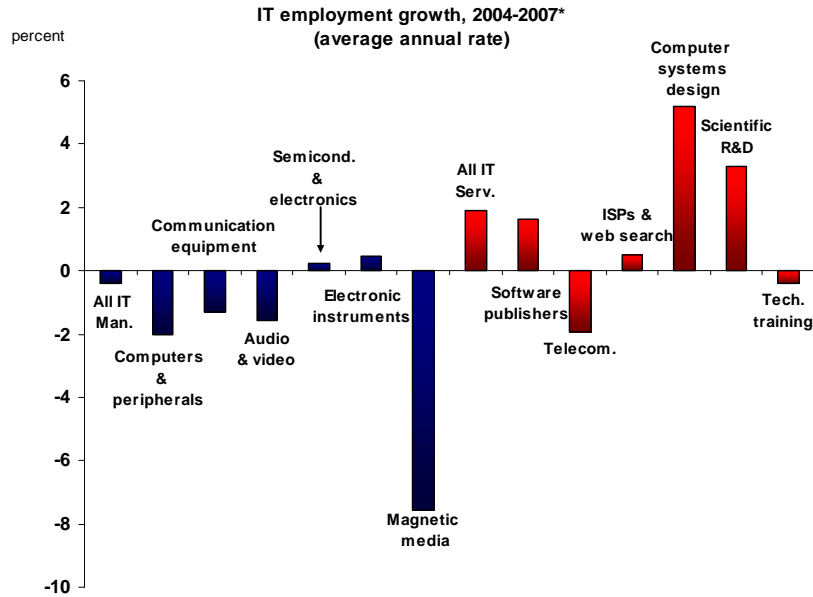
The Recovery

- What happened in the U.S.?
 - What happened in the IT Centers?
 - Where?
 - Why? (first impressions)
-

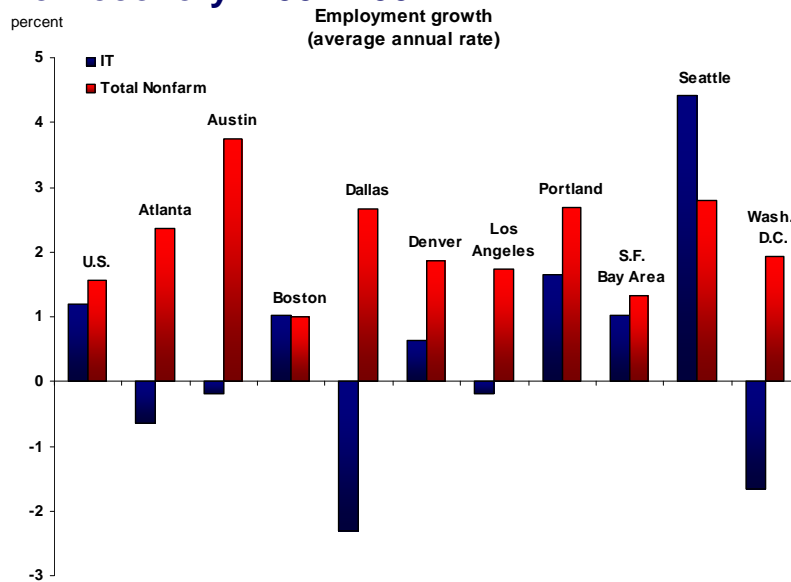
The Recovery: 2004-2007*



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The Recovery: 2004-2007*



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Summary

Returning to the questions

- All of the IT Centers have experienced moderate to robust total nonfarm employment growth in the recovery period
 - Some cities have returned to the forefront in prominence
 - A combination of a highly skilled workforce, diverse industry composition, R&D, and patents, seems to help IT centers respond
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Going forward

- **Delving into the contributions that the key fundamentals made to recovery**
 - **Looking at newly emerging IT Centers such as Phoenix**
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