

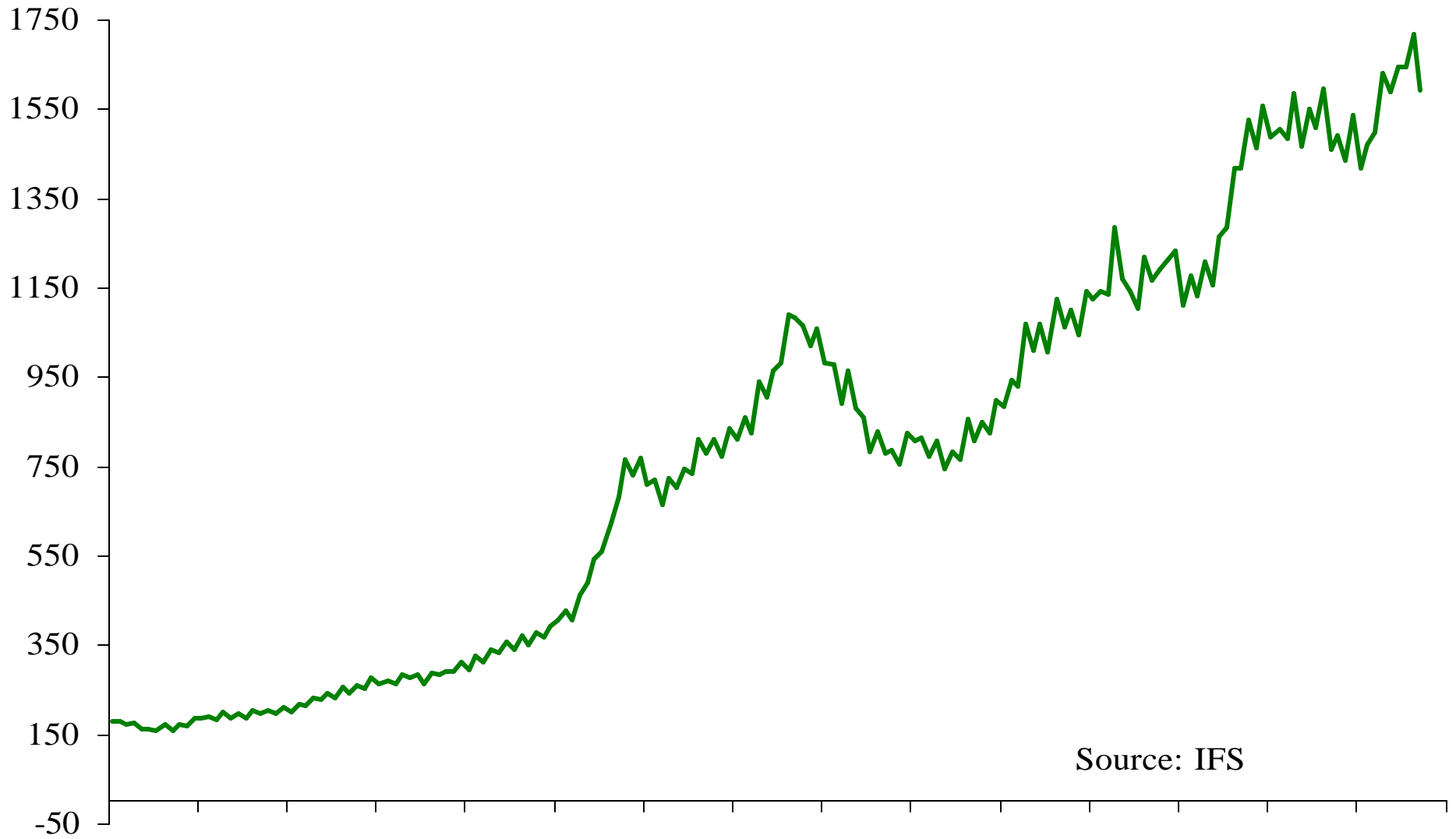
Global Production Sharing: The Mexican Case

Pia M. Orrenius

Federal Reserve Bank of Dallas

World Trade

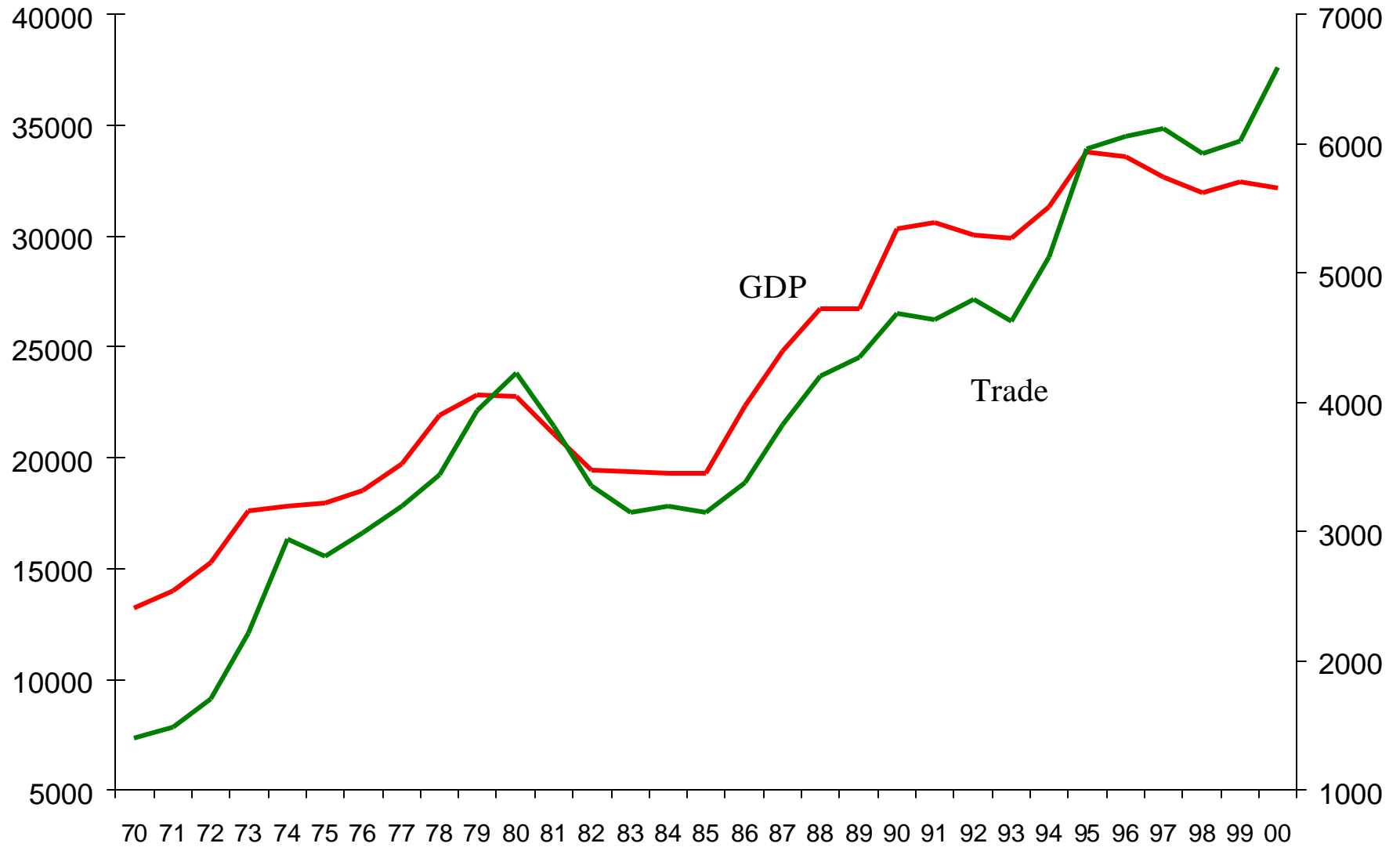
Real \$, Billions



Source: IFS

World GDP & Trade

Real \$, Billions

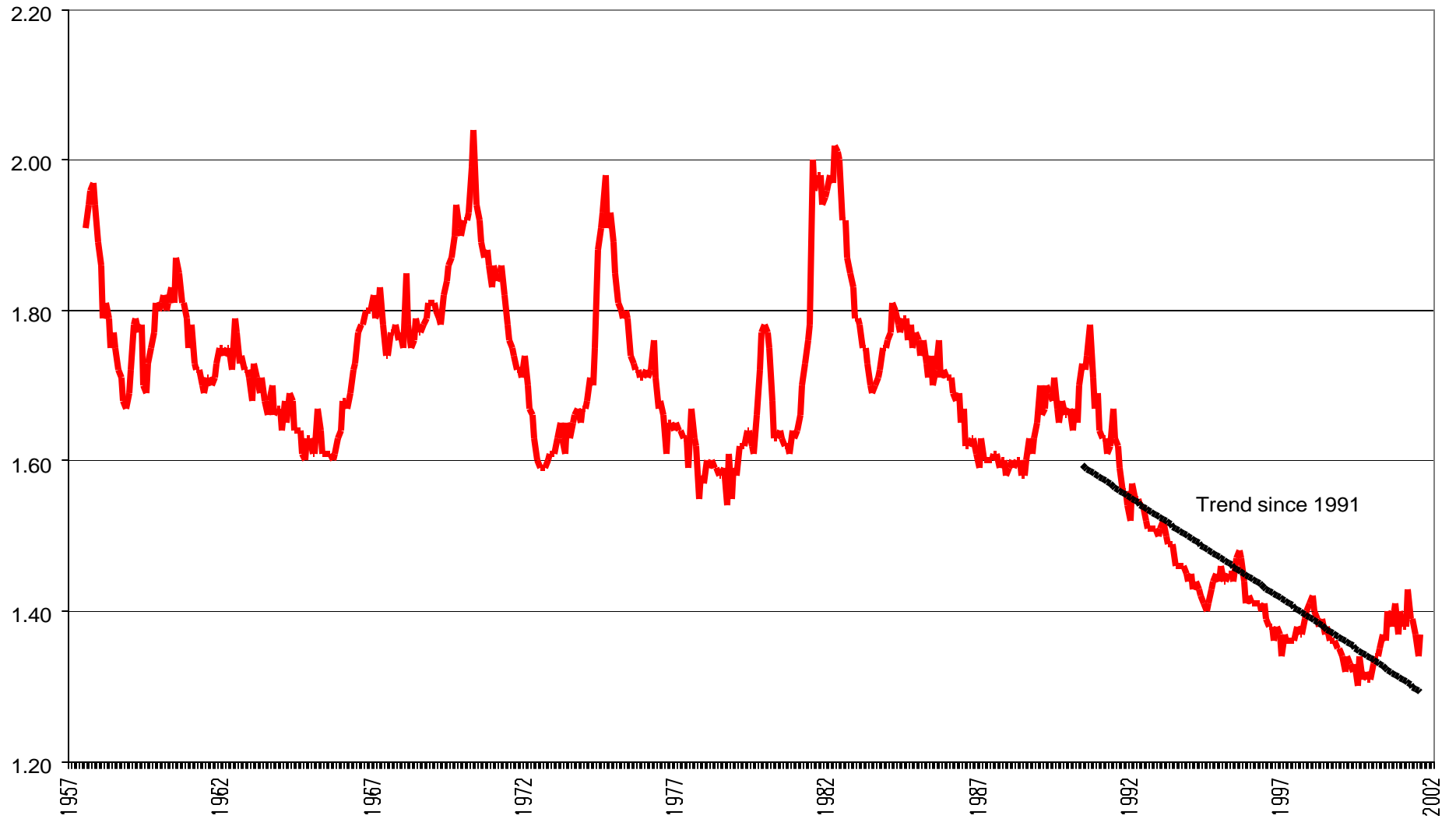


Production sharing,
also known as cross-border
manufacturing networks, occurs
when the processes used to
manufacture a good are
conducted in more than one
country.

Why the rise in global production sharing?

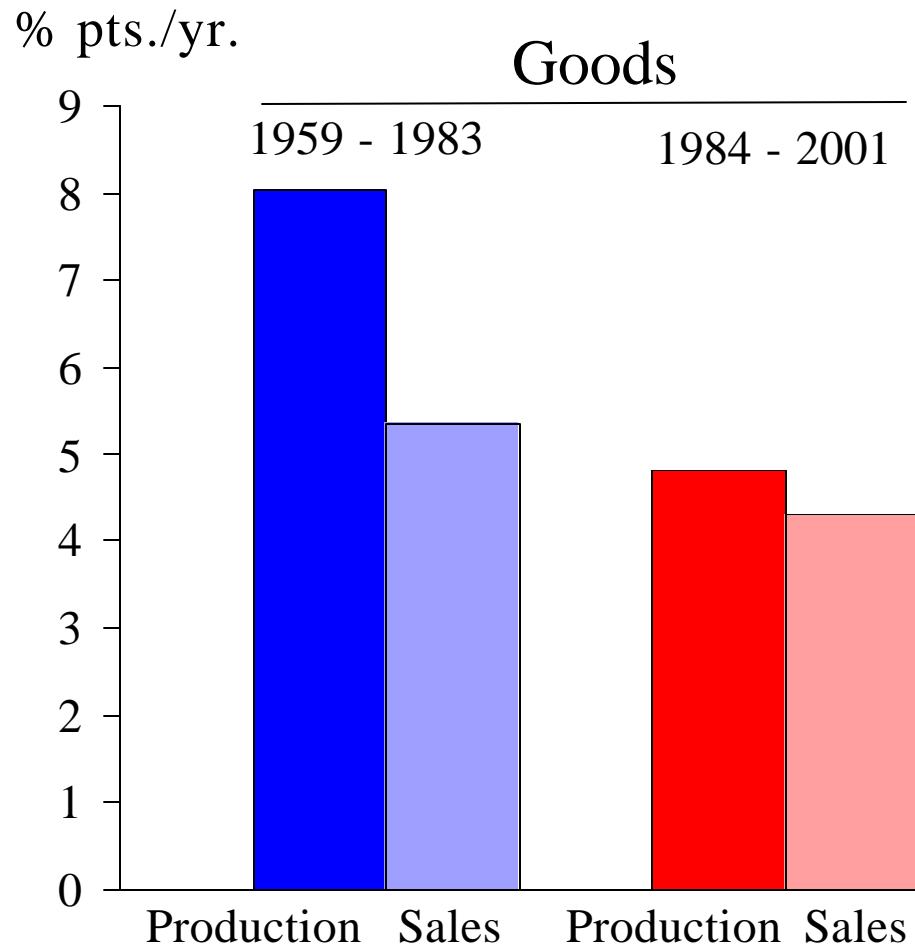
- Large cross-country cost differences
- Falling tariffs
- Falling shipping & transportation costs
- Falling information, search and communications costs
- Improving inventory & sales monitoring
- Increasing international competition

Inventory/Shipments Ratio



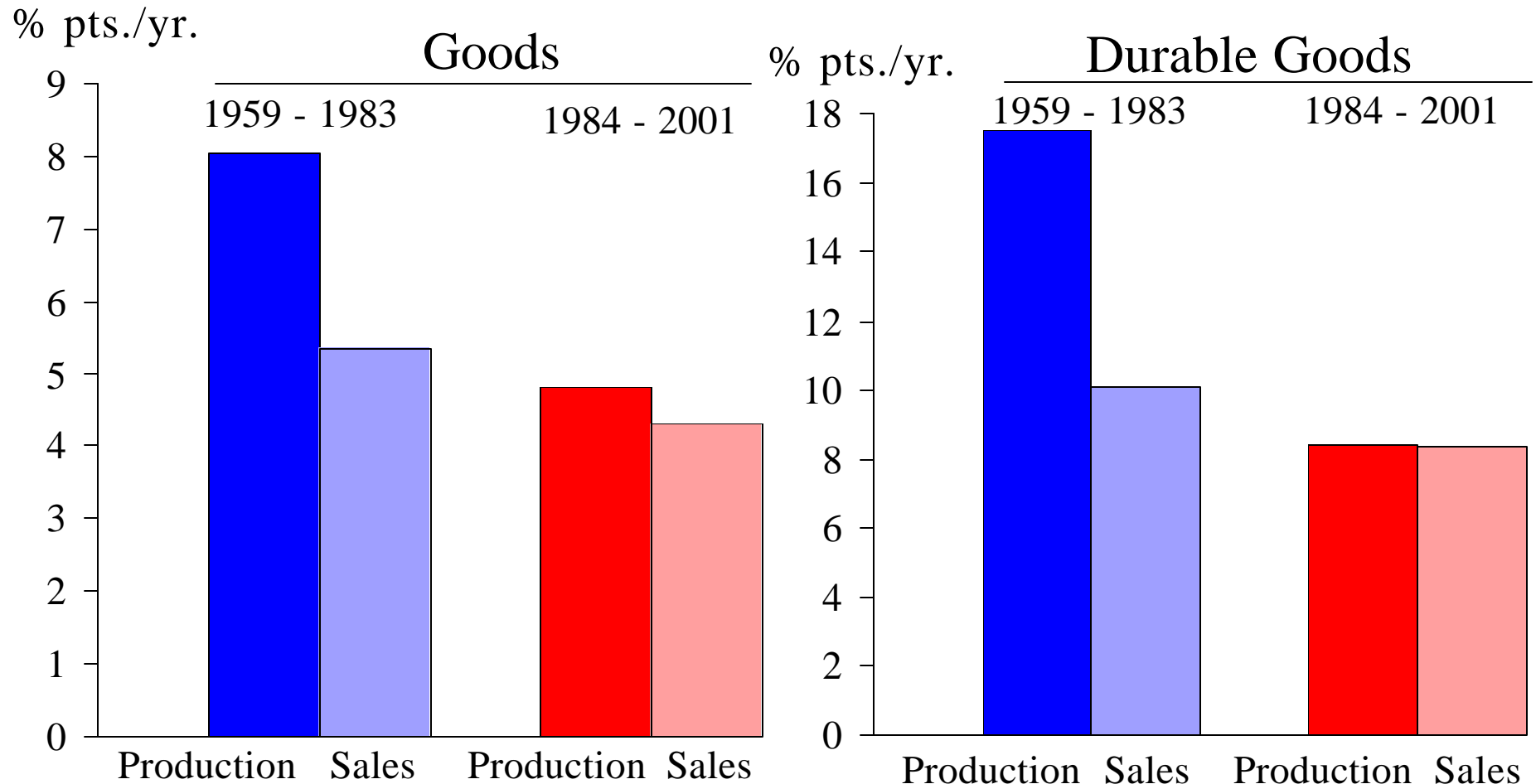
Improved inventory management smooths production relative to sales

(Growth volatility before and after 1984)



Improved inventory management smooths production relative to sales

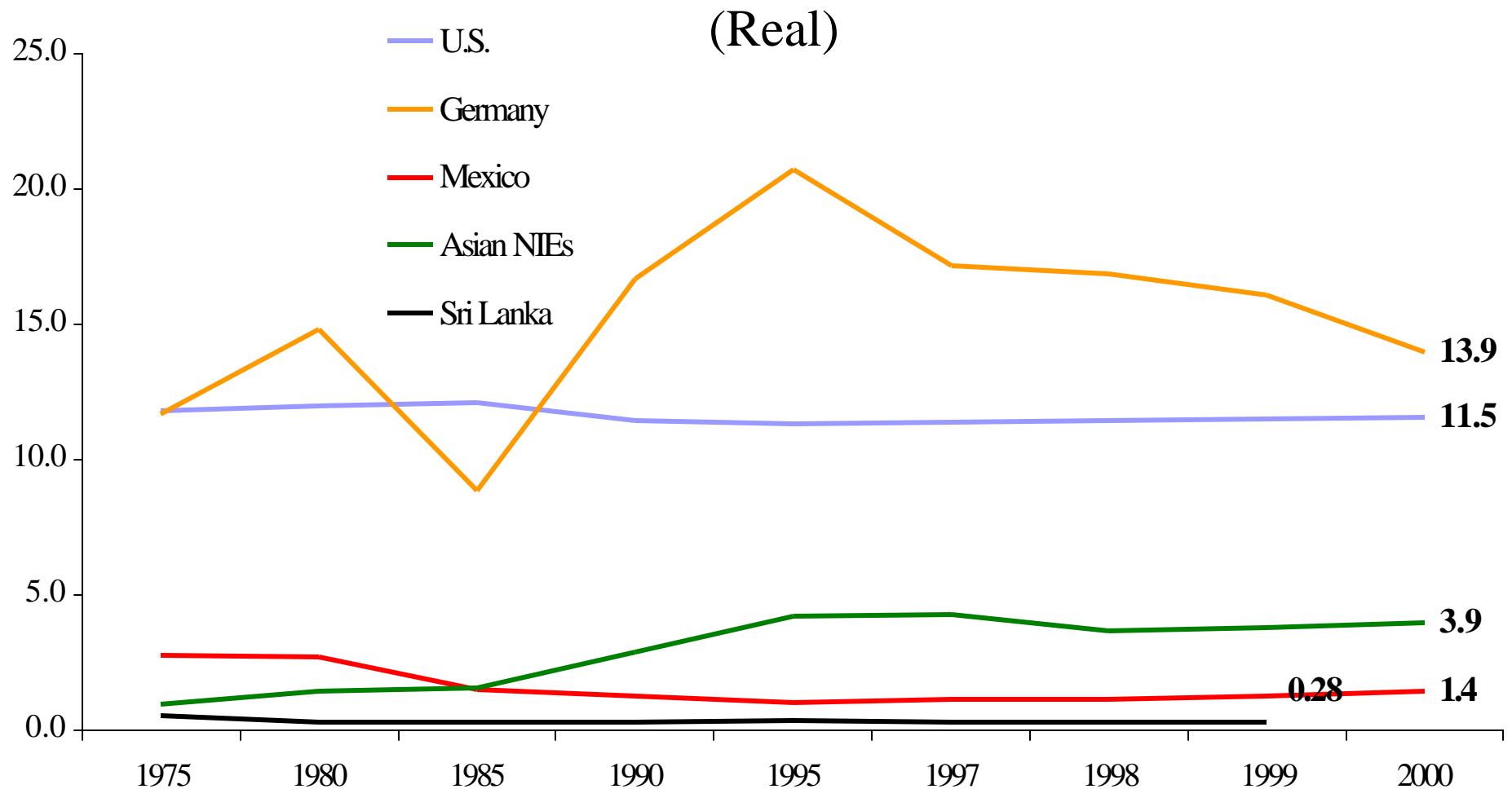
(Growth volatility before and after 1984)



Why Mexico?

- Geographic proximity
- Plentiful & low-cost labor
- Maquiladora program
- Freer trade: GATT (1986), NAFTA (1994)
- Barriers to foreign investment declining since 1983

Hourly Compensation Costs for Production Workers in Manufacturing

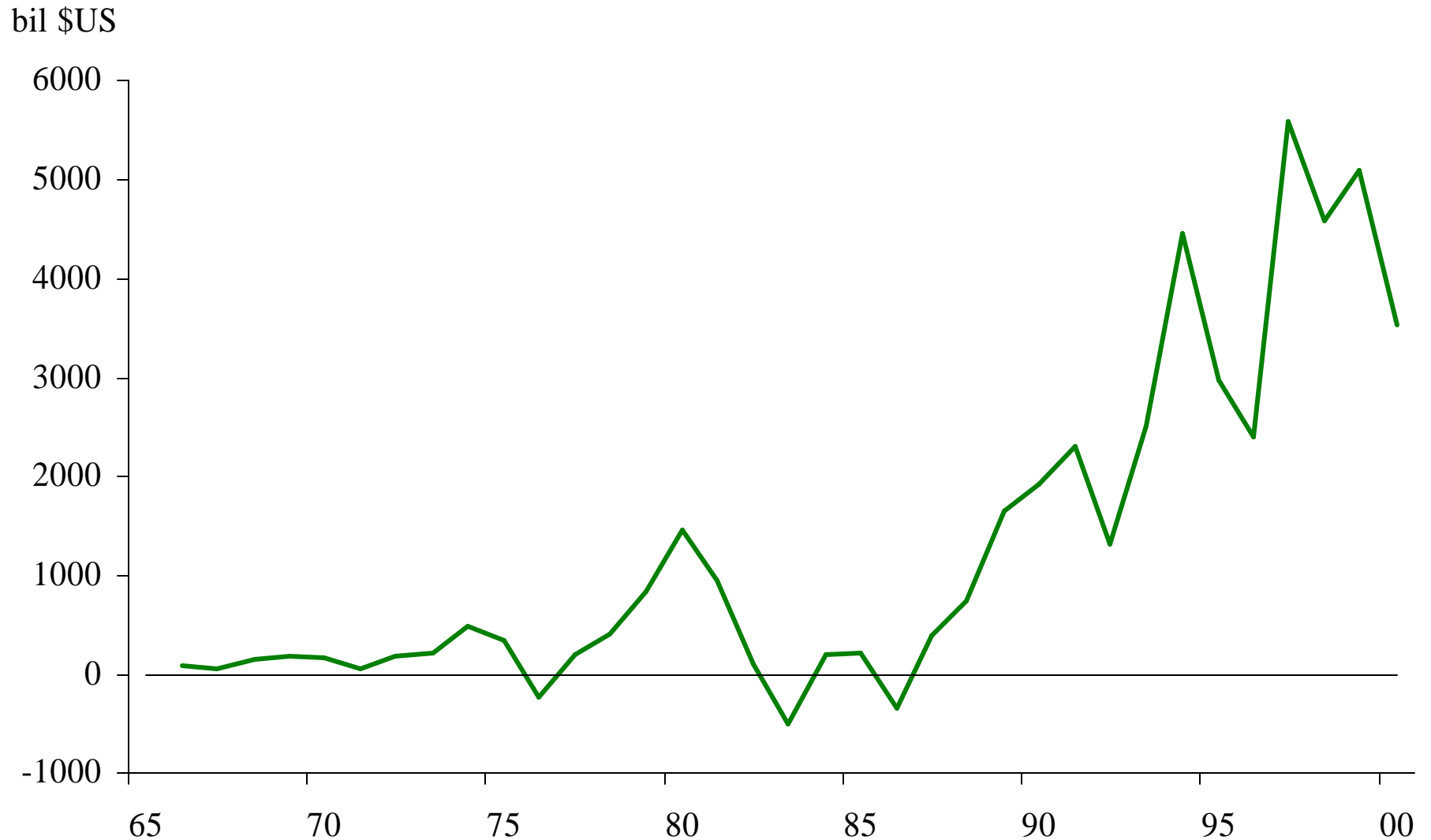


NOTE: Asian NIEs consists of the four newly industrializing economies of Hong Kong, Korea, Singapore, and Taiwan

SOURCE: BLS, Foreign Labor Statistics.

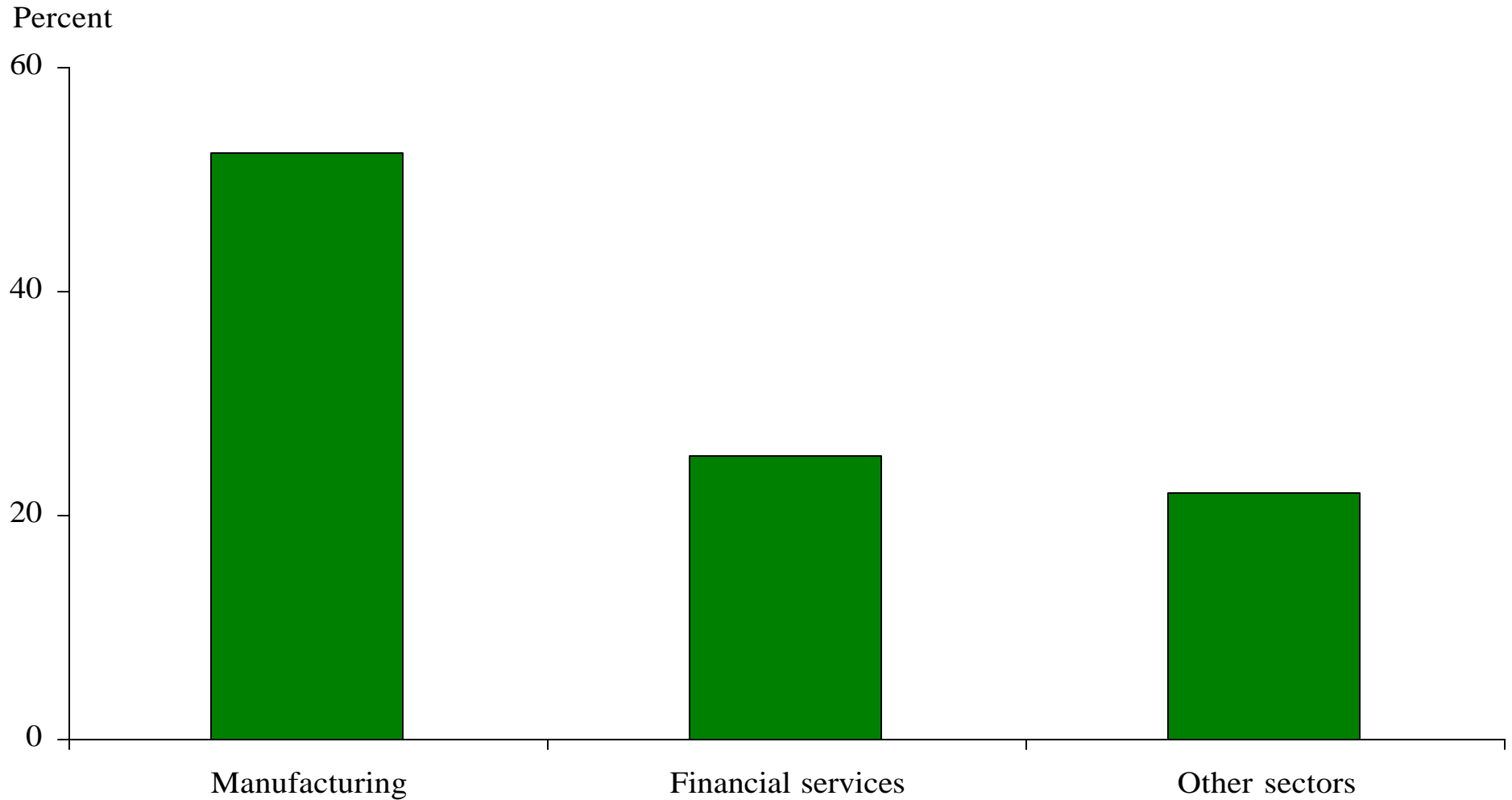
U.S. investment in Mexico rises

(Net US direct investment in Mexico, \$US)



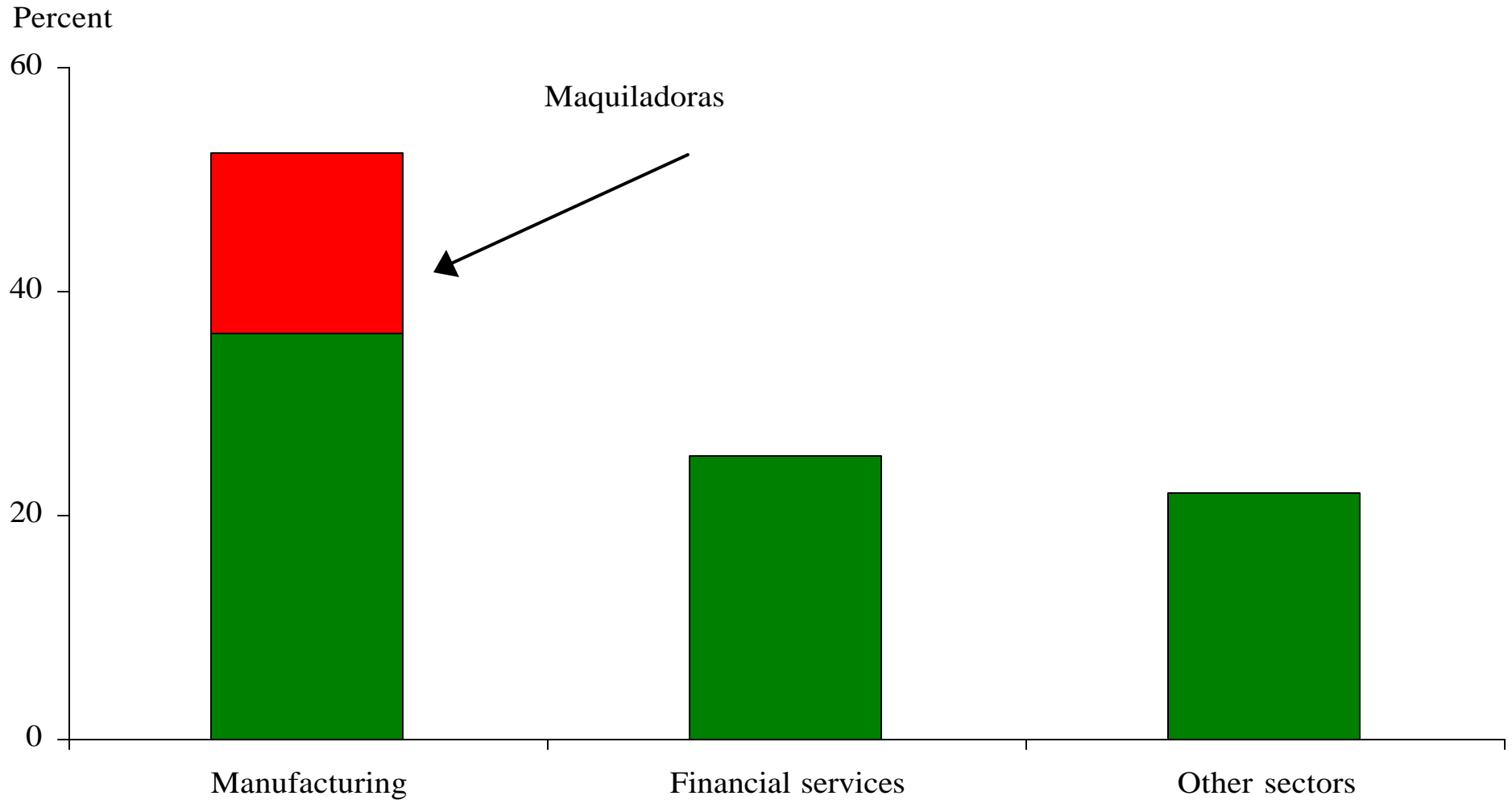
Source: Bureau of Economic Analysis

Foreign investment by sector, 1994-2001



Source: Secofi

Foreign investment by sector, 1994-2001

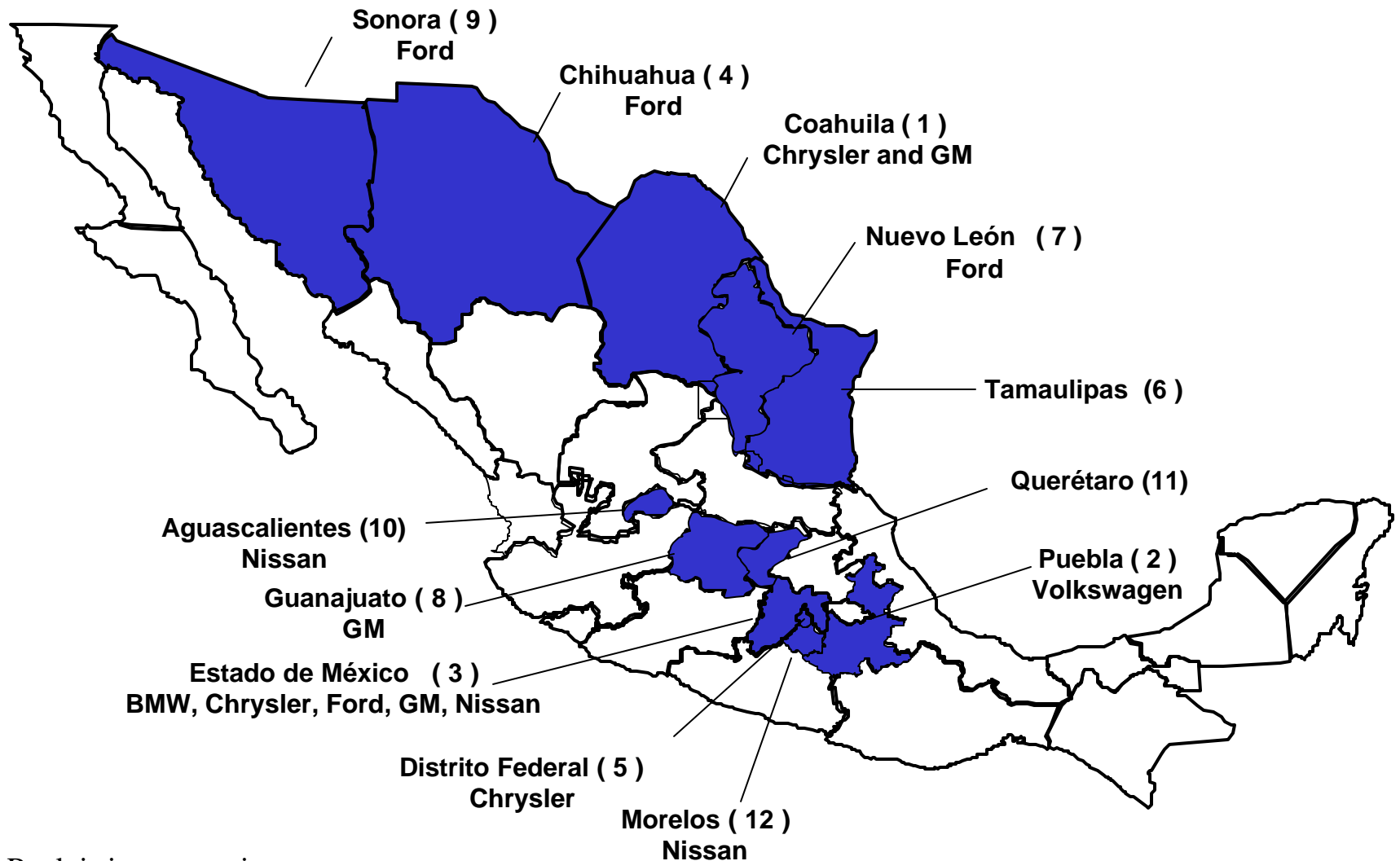


Source: Secofi

The Mexican auto industry

- Domestic Mexican auto industry and maquiladora auto parts industry coexist
- First auto assembly plant in Mexico: Ford Motor Company 1925
- First auto parts maquiladoras: GM and Chrysler 1979
- Delphi: a third generation maquiladora

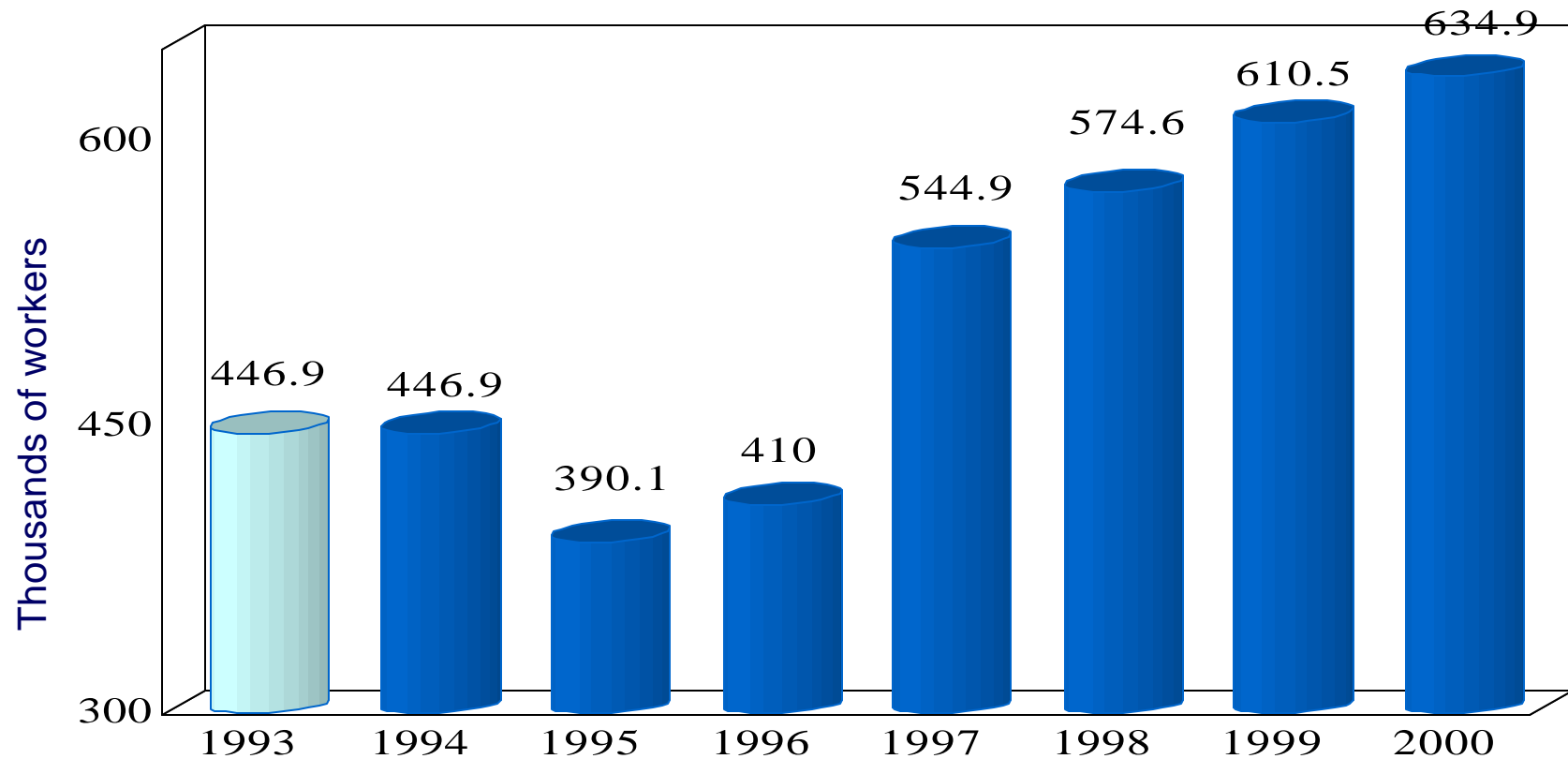
Mexico's Transportation Equipment and Autoparts Sector Main Exporting States, 2000



NOTE: Rank is in parenthesis

SOURCE: Secretary of the Economy and Mexican Association of the Automotive Industry (AMIA in Spanish)

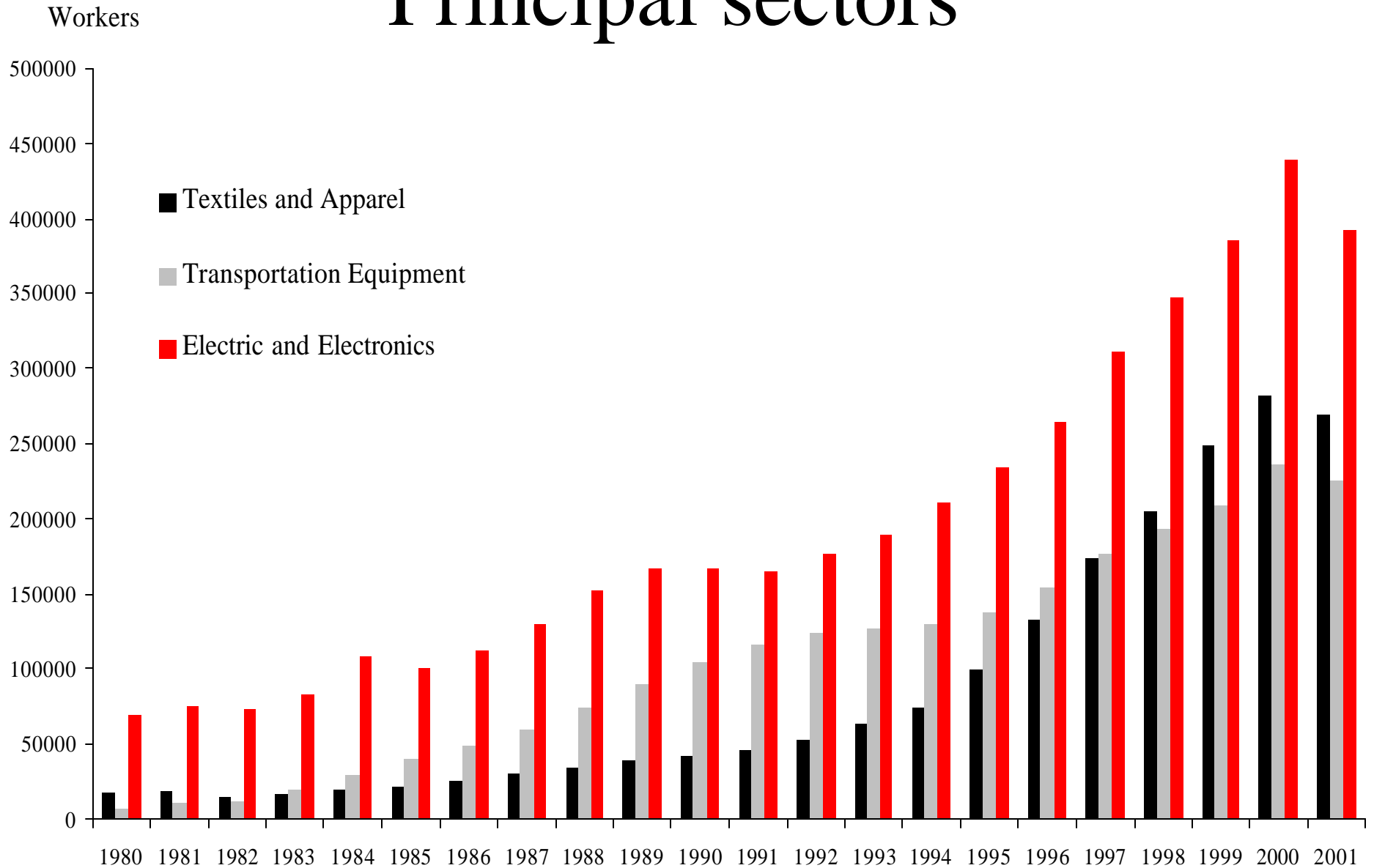
Transportation Equipment and Auto Parts Sector Employment



SOURCE: Secretary of the Economy with information from *Asociación de la Industria Automotriz (AMIA)*, *Industria Nacional de Autopartes (INA)*, *Asociación Mexicana de Distribuidores de Automotores (AMDA)* e *INEGI*.

Maquiladora Employment

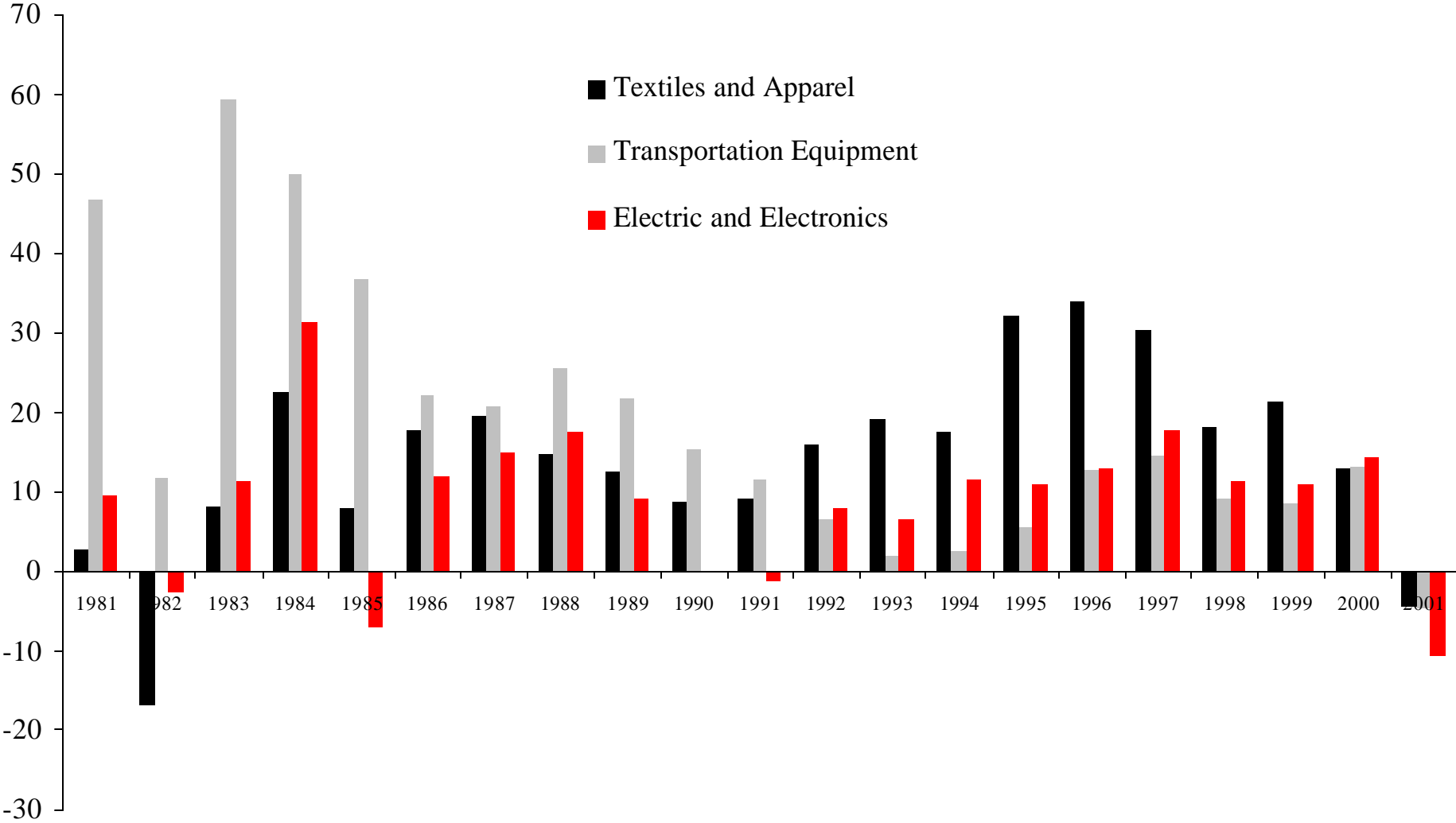
Principal sectors



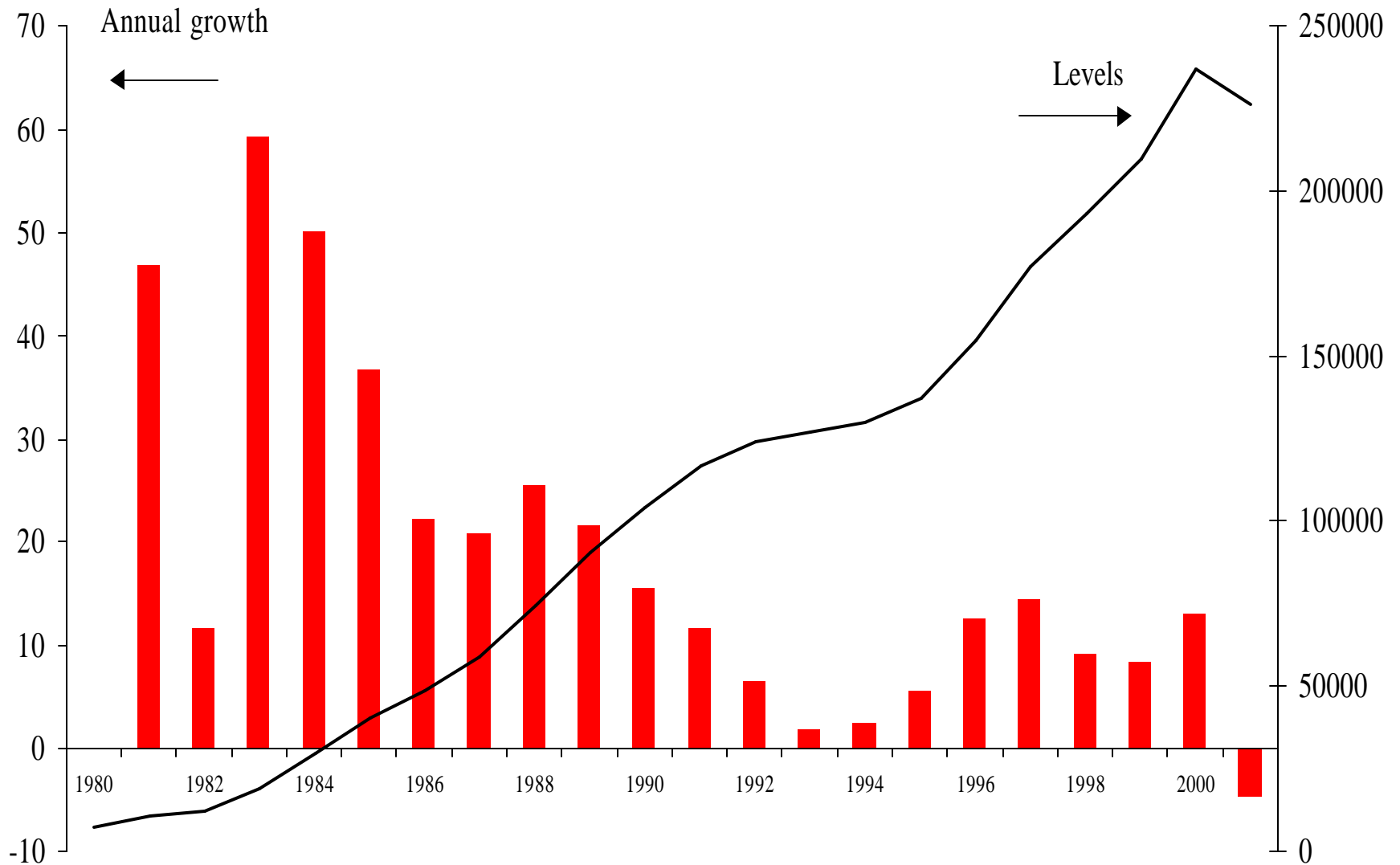
Maquiladora Employment

Principal sectors

Annual growth



Maquiladora Employment Transportation equipment sector



Mexico's growing importance in new car and light truck markets

- 1989 to 2001: Mexico moves from 6th to 3rd most important supplier of U.S. imports
- 1989 to 2001: Mexico moves into top ten U.S. export markets.
- In 2001, Mexico second largest market for U.S. exports of new cars and light trucks.

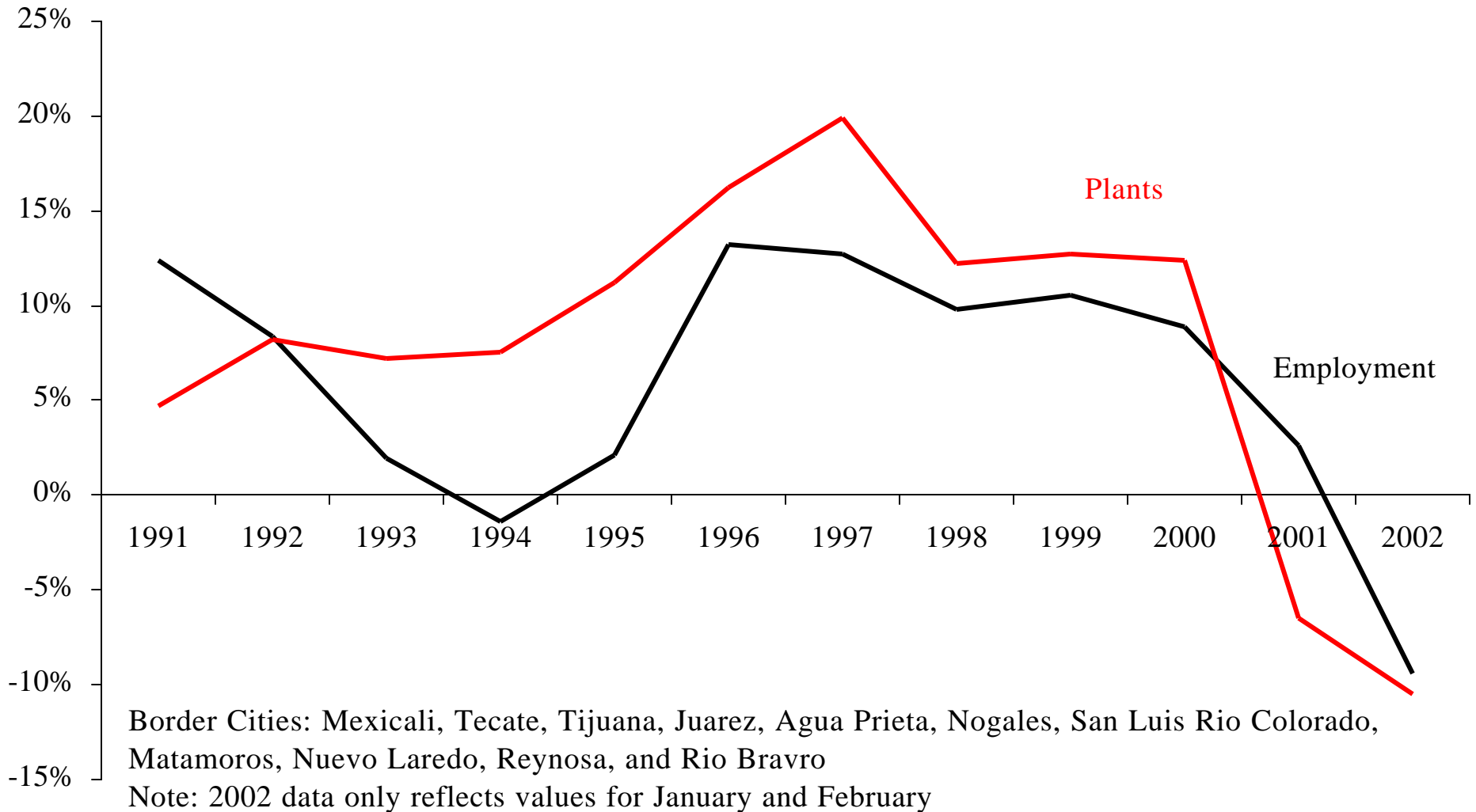
Challenges in Mexican manufacturing

- Staggering layoffs in 2001
- Rising peso, rising labor costs
- Impending elimination of certain subsidies

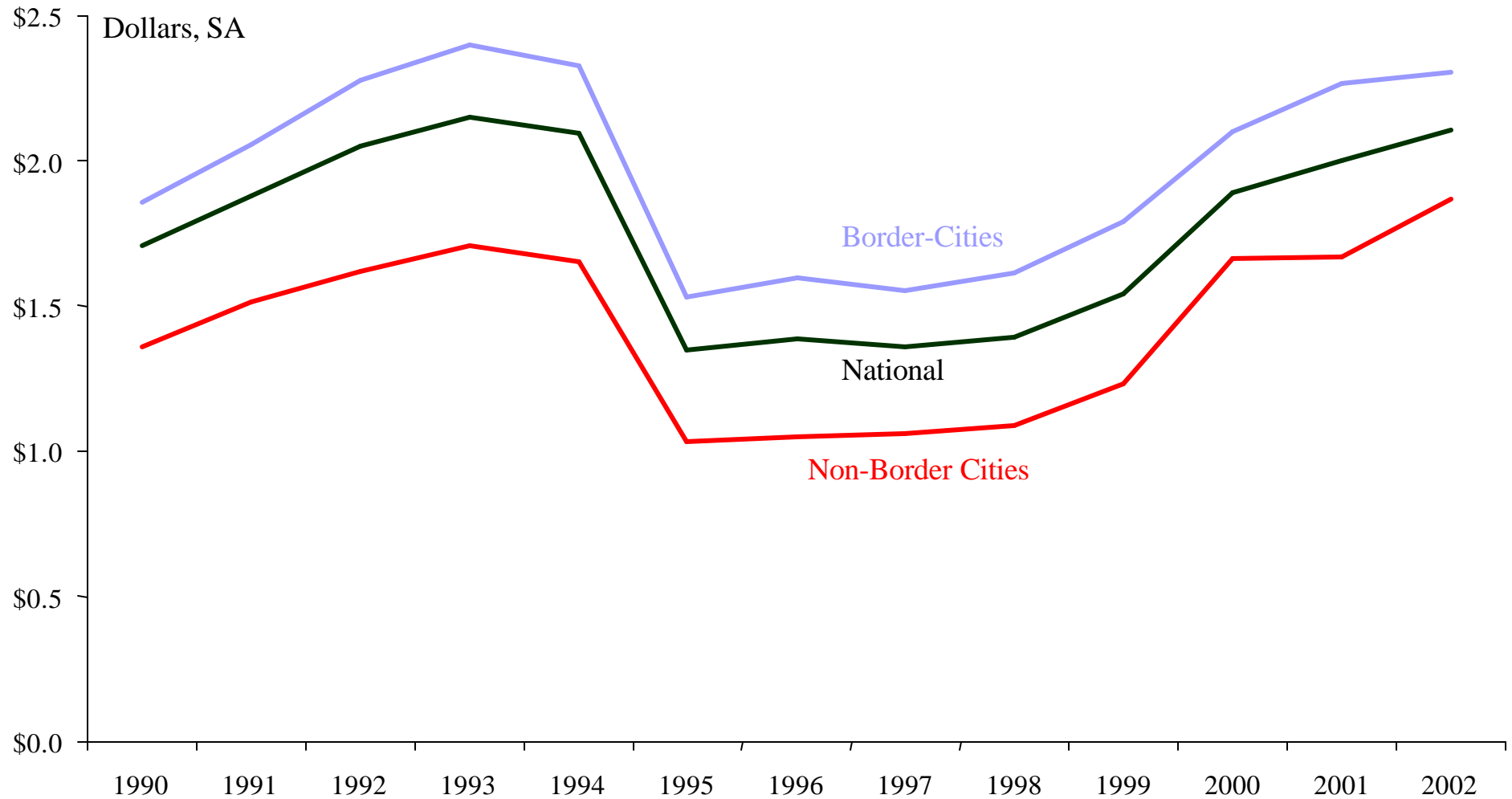
Maquiladora layoffs & plant closings

Annual % Change
SA

Maquiladora Employment and Plants Growth



Maquiladora Average Hourly Wages



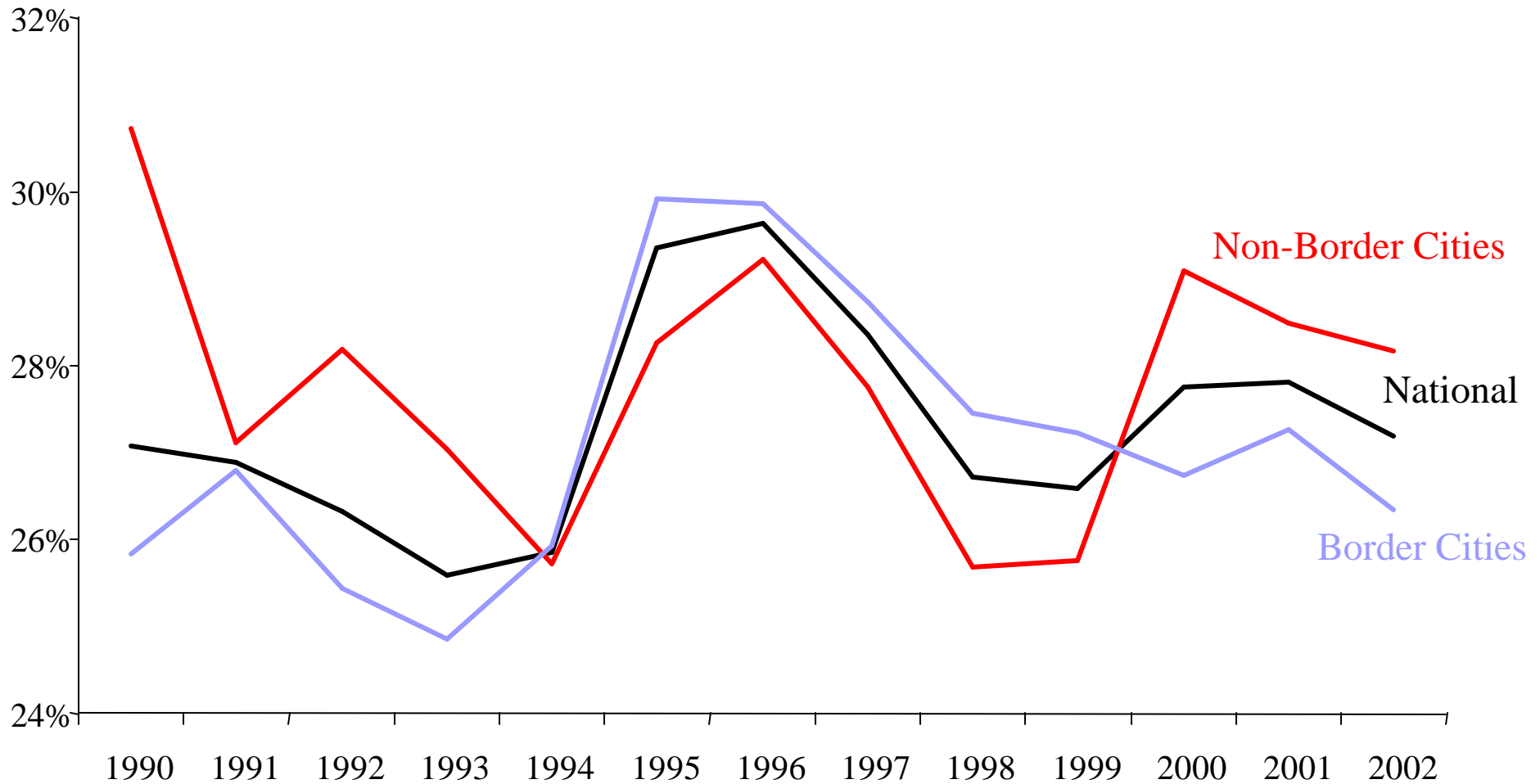
Border Cities: Mexicali, Tecate, Tijuana, Juarez, Agua Prieta, Nogales, San Luis Rio Colorado, Matamoros, Nuevo Laredo, Reynosa, and Rio Bravro

Notes: (1) Average hourly wage includes fringe benefits

(2) 2002 figure includes only data for January and February

Maquiladora operating costs

Operating Costs/Value Added



Border Cities: Mexicali, Tecate, Tijuana, Juarez, Agua Prieta, Nogales, San Luis Rio Colorado, Matamoros, Nuevo Laredo, Reynosa, and Rio Bravro

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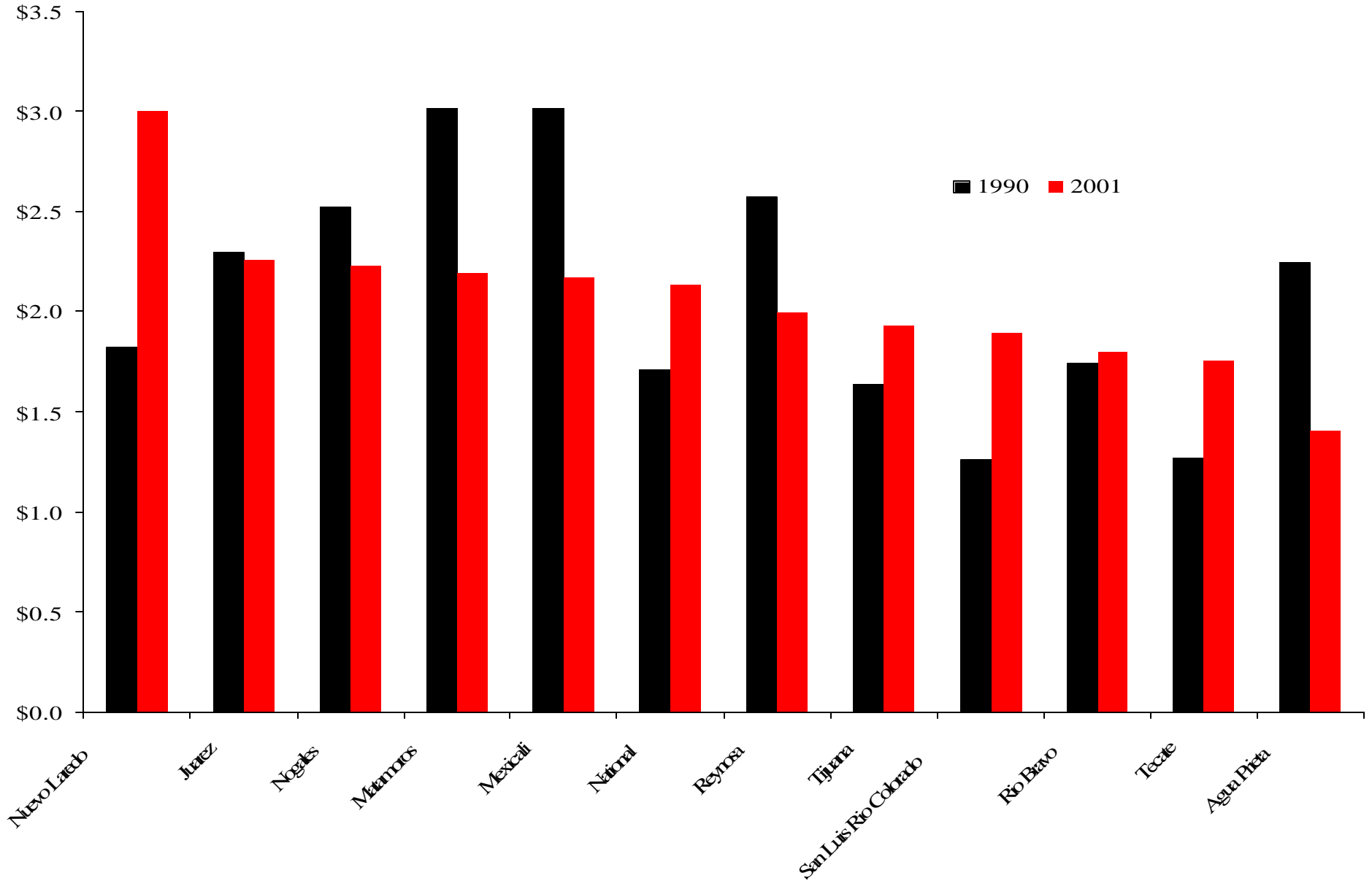
Other uncertainties

- Fiscal uncertainty
- 9-11 security measures
- Stalled domestic reform

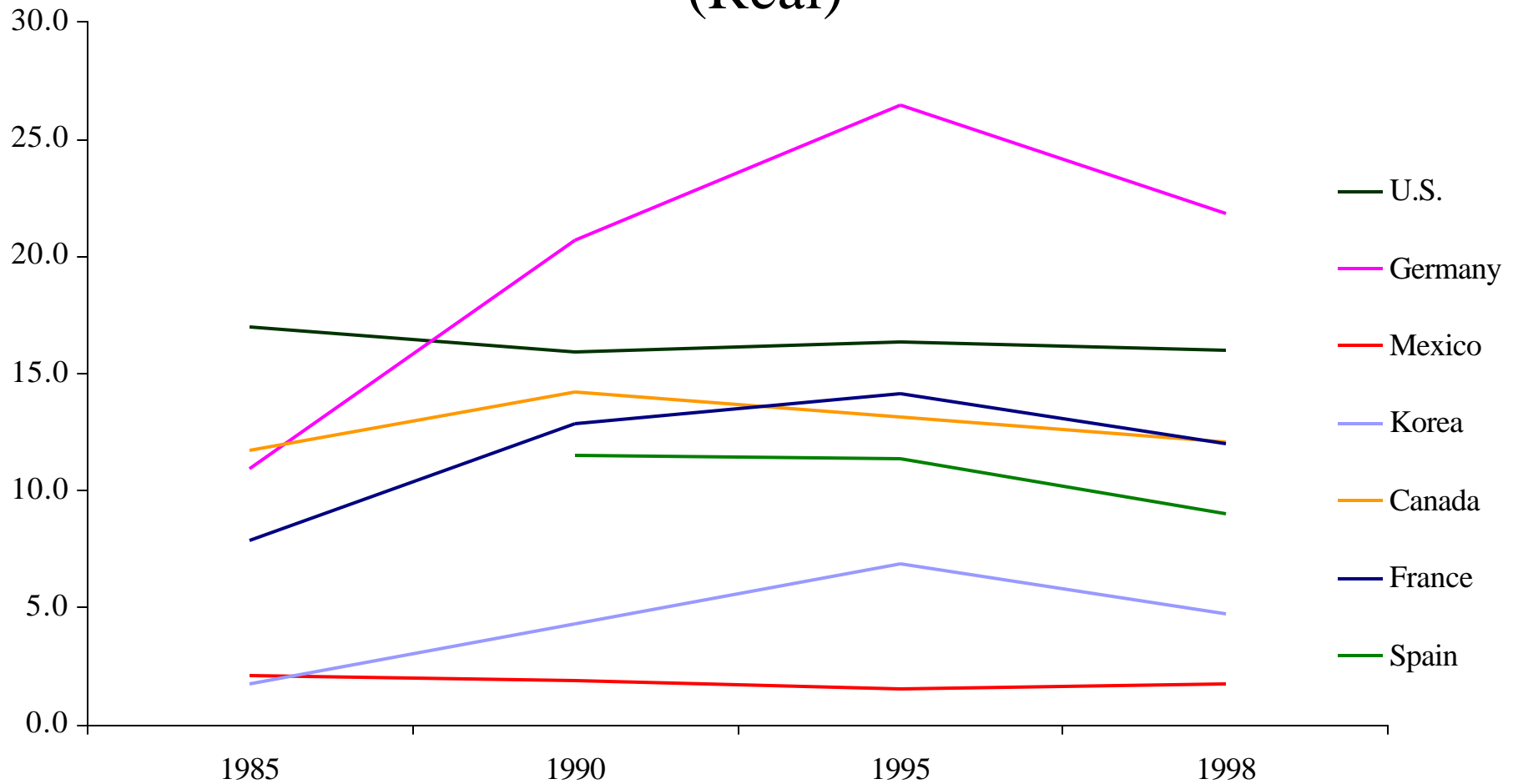
On the plus side...

- Mexico still competitive
- Rising impetus for adoption of more efficient production methods
- Funding for smarter borders
- Increasing pressure for domestic reform
- Weakening peso

Wage by border city: 1990, 2001



Low wages continue to be a comparative advantage for the Mexico's Automotive Sector (Real)



Hourly compensation costs for production workers in transportation equipment manufacturing, SIC 37.

SOURCE: BLS, Foreign Labor Statistics.

Conclusions

- Global production sharing continues to rise
- Payoff has been to consumers & stockholders
- Mexico has played a big role, esp. in auto industry
- Serious challenges exist to future growth of Mexican manufacturing...
- But forces are for positive change