



Maquiladora Industry: Past, Present and Future

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Latin America Looks East
Regional Issues, Trends, and
Progress in the Global Economy

Federal Reserve Bank of Atlanta

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Outline

- Industry Overview
- The maquilacrisis: why?
 - Present
- Connection and economic impacts
- Future
 - The Asian Factor
- Some conclusions

INDUSTRY OVERVIEW

The Rise of Production Sharing

- The second half of the 20th century was marked by a dramatic increase in world trade.
- Between 1970 and 2000, world trade increased more than 370 percent.
- Production sharing has played a key role in the growth of world trade in recent decades.
- Intra-industry trade enhances the gains from trade through better exploitation of economies of scale.
- Increasing world output through savings in fixed costs.
- Firms have turned to production sharing to stay competitive.
- Production sharing, or trade in intermediate goods, represents more than \$800 billion in trade annually.
- Maquiladora-led U.S.–Mexico trade is primarily in intra-industry trade (or production sharing). About 80 percent of U.S. trade with Mexico is intra-industry.

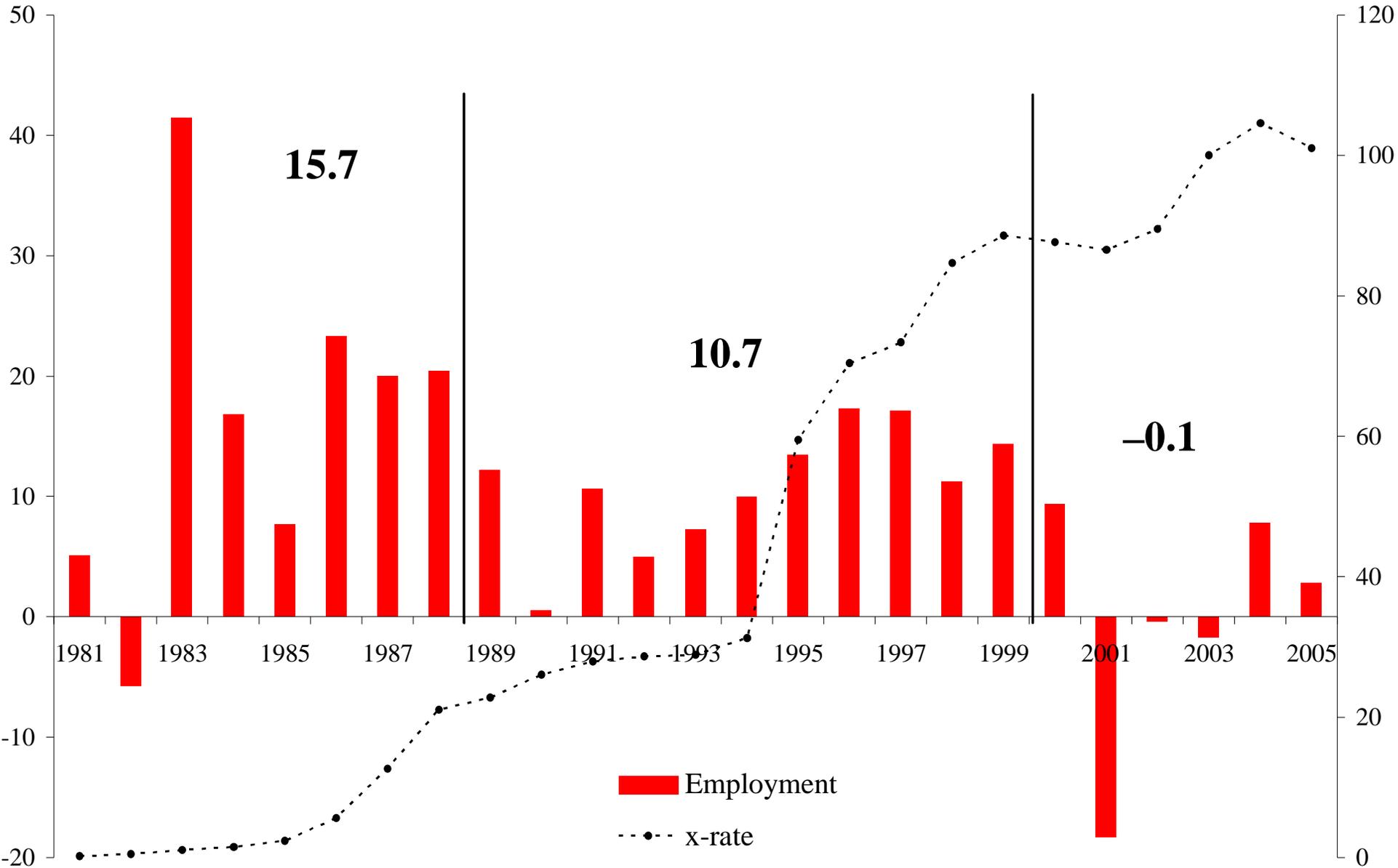
Introduction to Maquiladoras

- End of the Bracero program in 1965
- Border Industrialization Program
The maquiladora program was a measure to alleviate high unemployment and growing poverty.
- By 1969, 147 companies were in place, accounting for 17,000 jobs
- The first two industrial parks were in Ciudad Juárez, Chih. Mexico and Nogales, Sonora Mexico
- RCA, Convertors, Sylvania, Centralab, Acapulco Fashion and Ampex were among the first U.S. companies to set up maquiladora operations.

What Is a Maquiladora?

- Typically, maquiladoras are foreign-owned, controlled or subcontracted manufacturing plants that process or assemble imported components for export.
- Maquiladora inputs are generally imported duty-free, and countries like the U.S. only tax the value-added portion of maquiladora exports.

Three Stages of Maquiladoras Growth



Industry Evolution

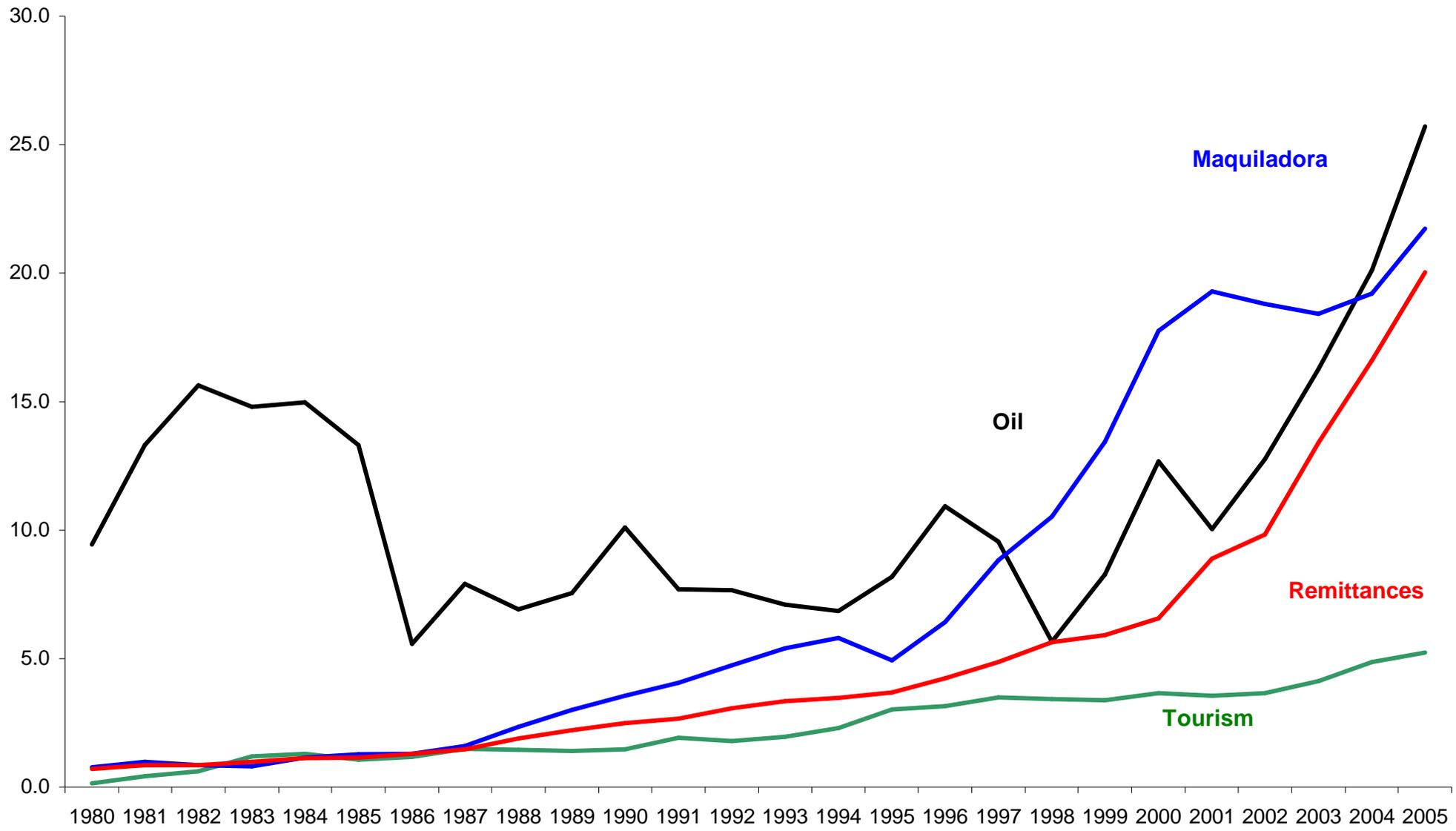
- First-generation maquilas are typical of the earliest plants: highly labor-intensive with limited technology and dependent on decision from parent company (i.e. textile).
- Second-generation plants are oriented less toward assembly and more reliant on manufacturing processes (i.e. Auto-harnesses, TV sets, and electrical appliances).
- Third-generation maquilas are research oriented, with emphasis on design and development (i.e. Delphi's Mexico Technical Center).

Importance to the Mexican Economy

- Maquiladora exports represent almost 50% of Mexico's total exports
- The industry employs 10% of formal employment

Top Foreign-Exchange Generators

BillionsofU.S.Dollars



THE CRISIS

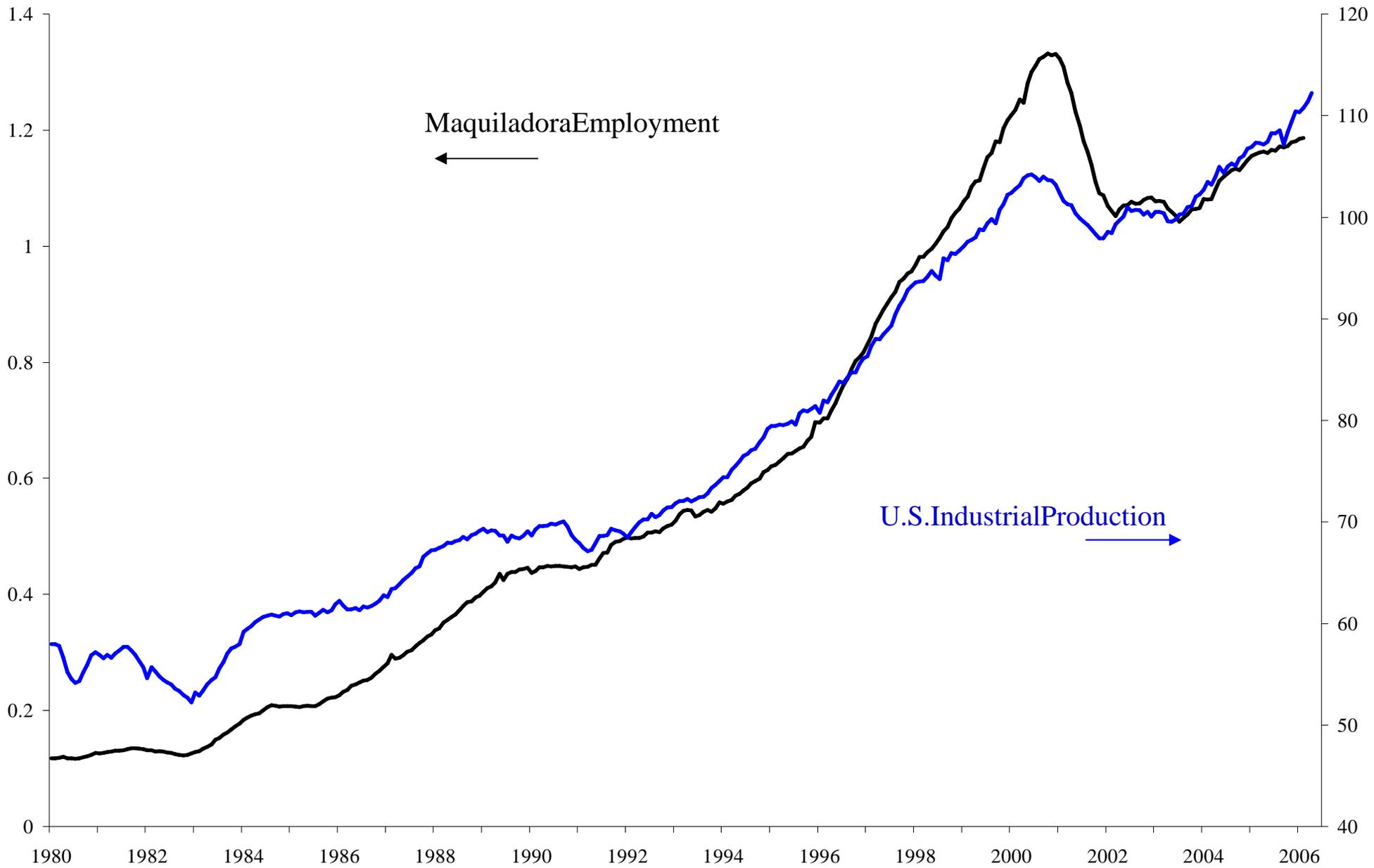
Maquiladora Downturn

- From October 2000 to June 2002, more than 260,000 job losses, about 76 percent in border states.
- From May 2001 to June 2002, more than 420 plants closed, about three-fourths of them in border states.

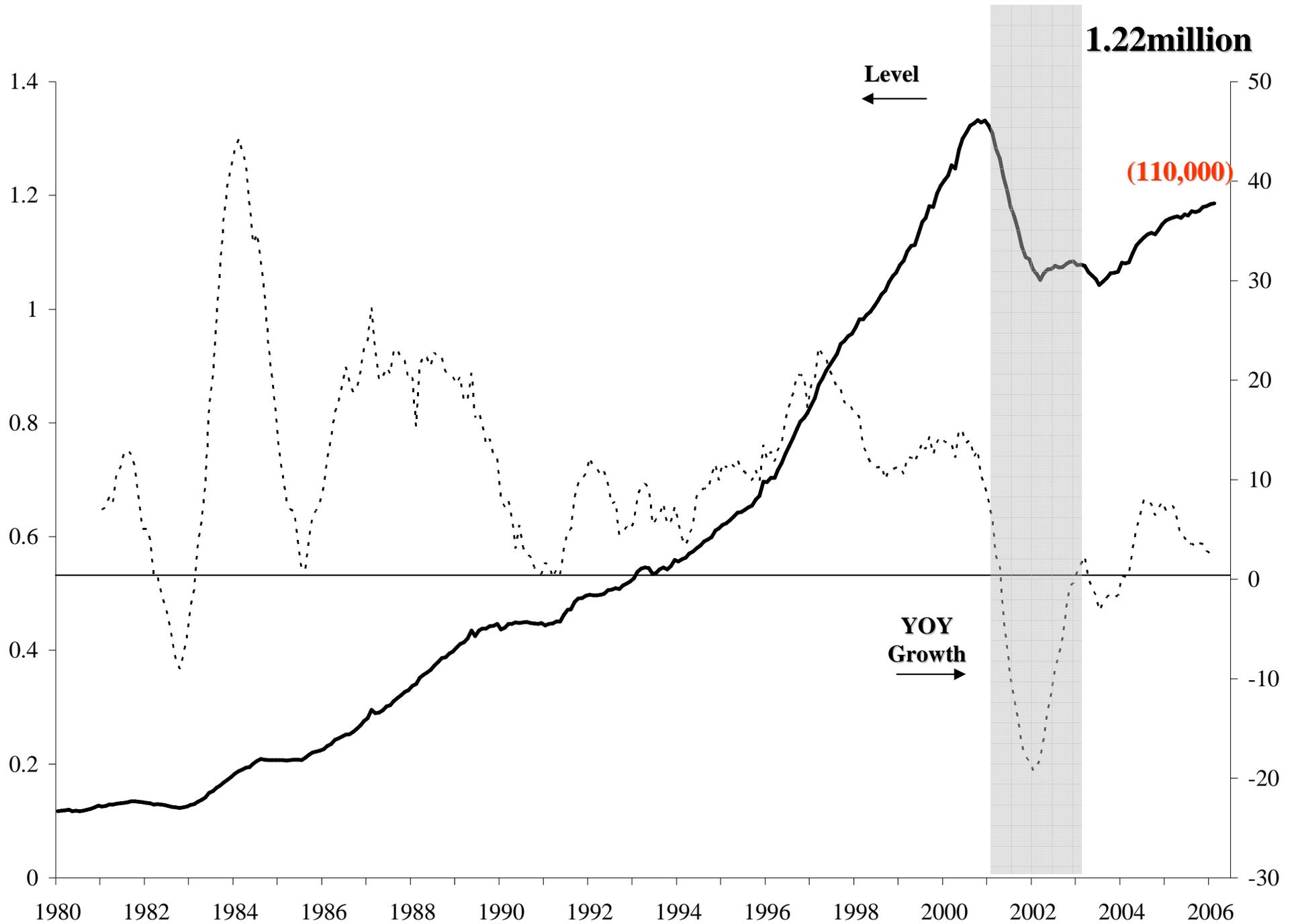
Maquiladora follows US Industrial Production

Millionsofworkers

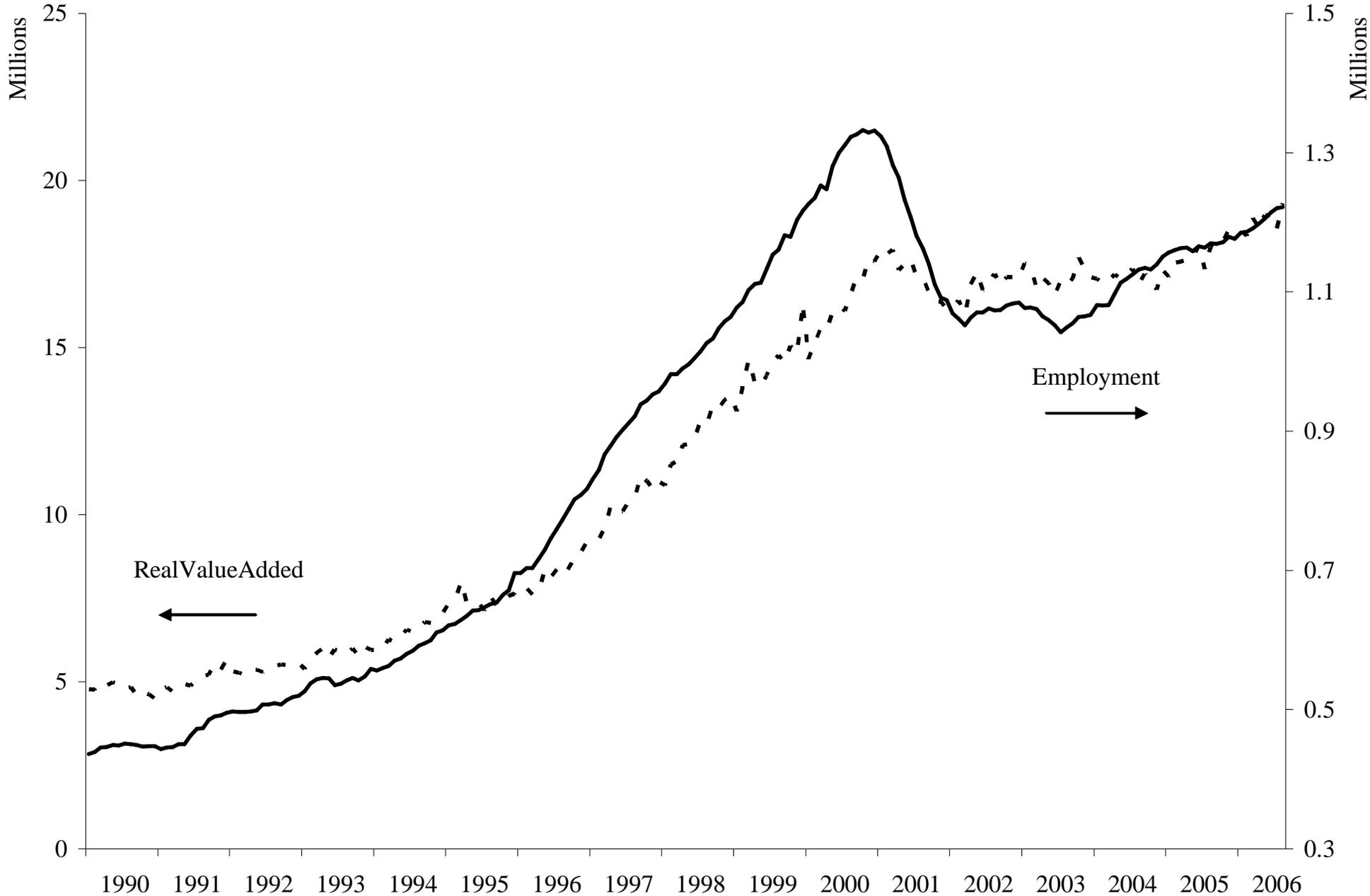
U.S.IP



Current Employment Level

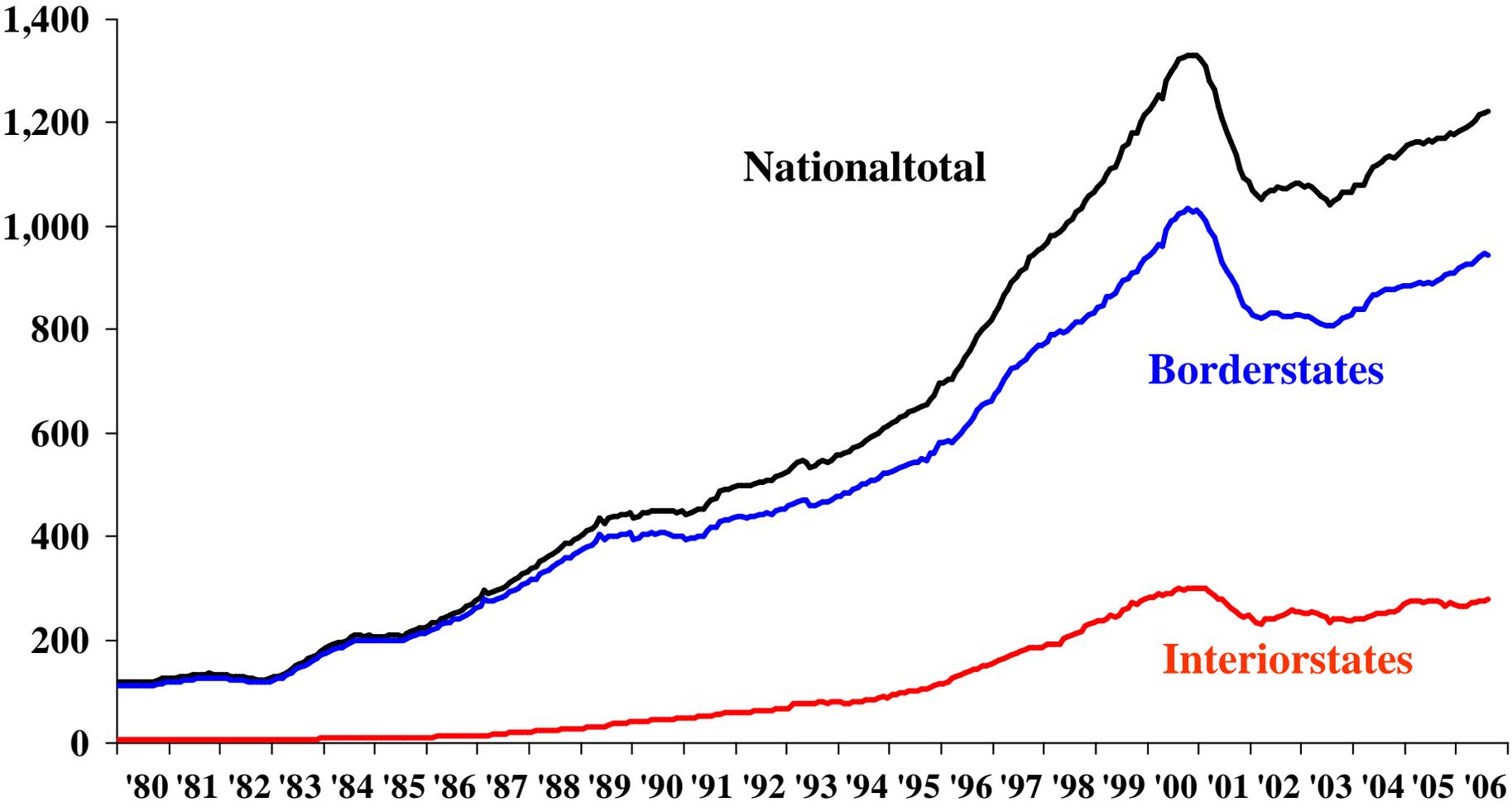


Production Increasing



Maquiladora Employment

Border vs. Interior States



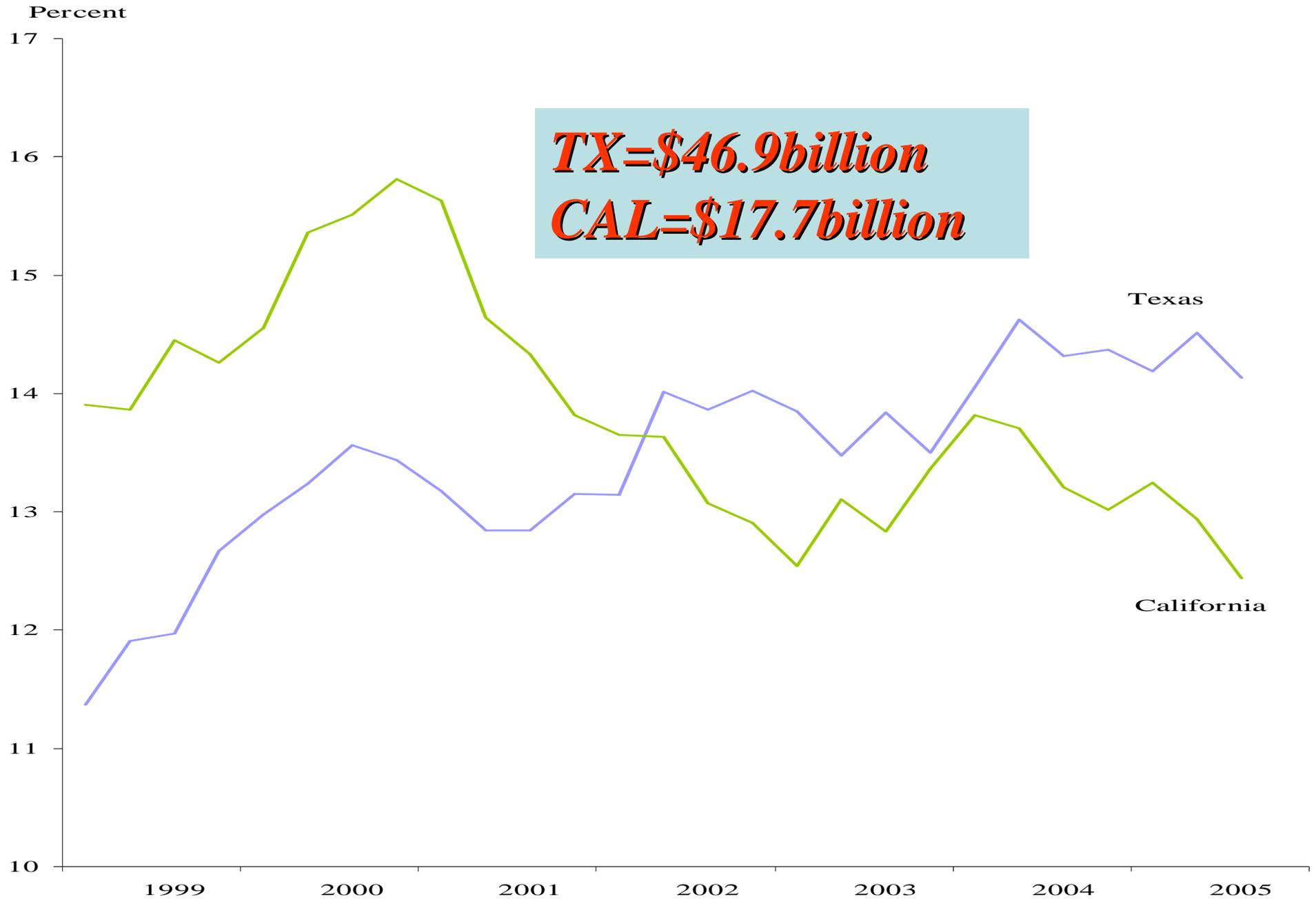
*Seasonally adjusted

THE CONNECTION

U.S.–Mexico Trade (billionsofU.S.dollars)

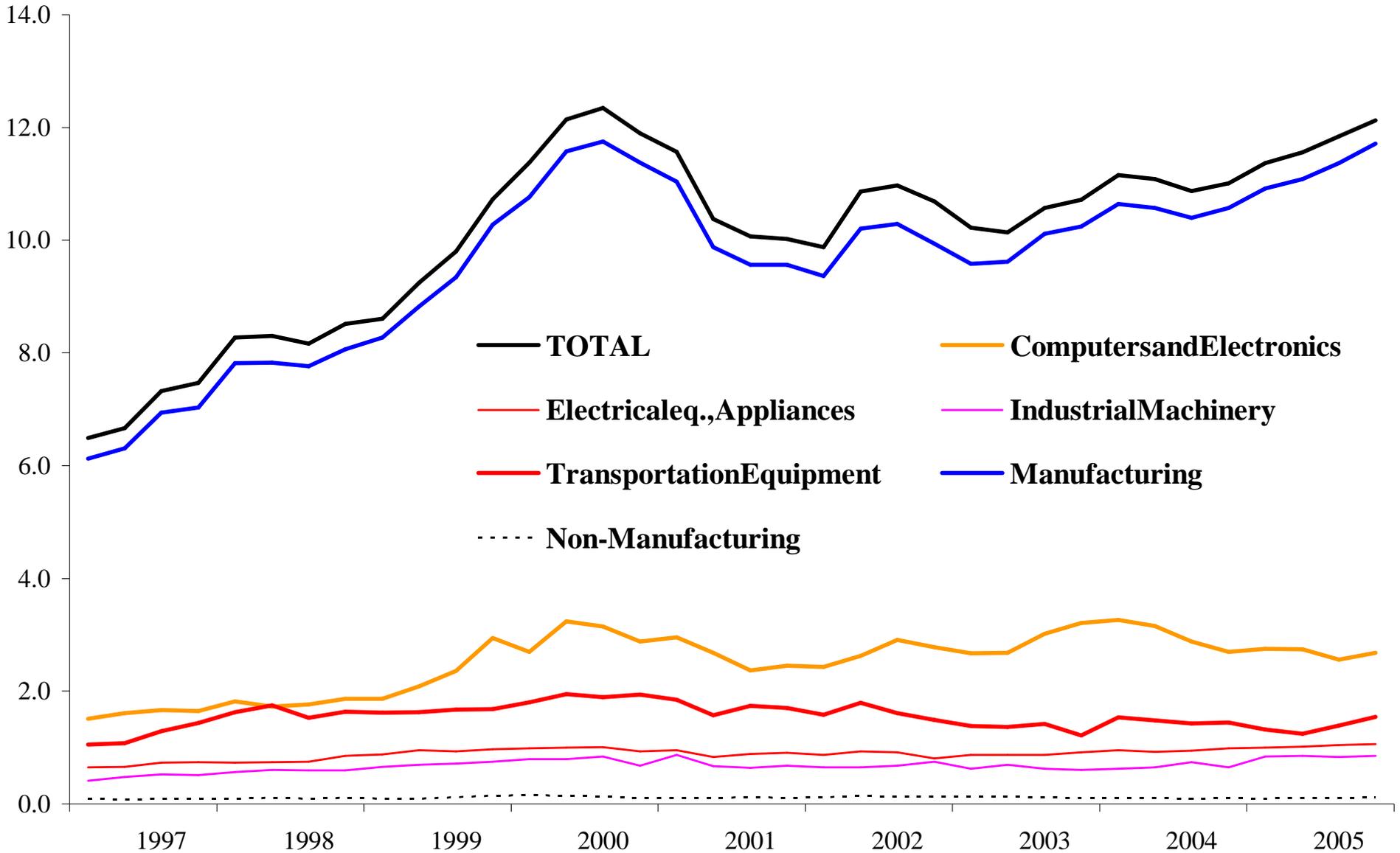
Imports					Exports				
Rank	NAICS code	Product	Amount	Rank	NAICS code	Product	Amount		
1	78	ROADVEHICLES	26.8	1	77	ELECTRICMACHINERY,APPARATUSANDAPPLIANCES	17.8		
2	33	PETROLEUM,PETROLEUMPRODUCTSANDRELATEDMATERIALS	25.7	2	78	ROADVEHICLES	11.3		
3	77	ELECTRICMACHINERY,APPARATUSANDAPPLIANCES	20.7	3	75	OFFICEMACHINESANDAUTOMATICDATAPROCESSING MACHINES	7.5		
4	76	TELECOMMUNICATIONSANDSOUNDRECORDINGAND REPRODUCINGAPPARATUSANDEQUIPMENT	18.9	4	74	GENERALINDUSTRIALMACHINERYANDEQUIPMENT	6.3		
5	75	OFFICEMACHINESANDAUTOMATICDATAPROCESSING MACHINES	7.1	5	89	MISCELLANEOUSMANUFACTUREDARTICLES,N.E.S.	5.3		
6	71	POWERGENERATINGMACHINERYANDEQUIPMENT	6.7	6	33	PETROLEUM,PETROLEUMPRODUCTSANDRELATEDMATERIALS	4.7		
7	74	GENERALINDUSTRIALMACHINERYANDEQUIPMENT,N.E.S.,AND MACHINEPARTS	6.7	7	71	POWERGENERATINGMACHINERYANDEQUIPMENT	4.7		
8	84	ARTICLESOFAPPARELANDCLOTHINGACCESSORIES	6.3	8	76	TELECOMMUNICATIONSANDSOUNDRECORDINGAND REPRODUCINGAPPARATUSANDEQUIPMENT	4.3		
9	87	PROFSSIONAL,SCIENTIFICANDCONTROLLINGINSTRUMENTS ANDAPPARATUS	5.4	9	57	PLASTICSINPRIMARYFORMS	4.2		
10	93	SPECIALTRANSACTIONSANDCOMMODITIESNOTCLASSIFIED ACCORDINGTOKIND	4.6	10	69	MANUFACTURESOFMETALS,N.E.S.	4.1		
11	5	VEGETABLESANDFRUIT	4.5	11	51	ORGANICCHEMICALS	3.7		
12	82	FURNITUREANDPARTS	4.3	12	65	TEXTILEYARN,FABRICS,MADE-UPARTICLES,N.E.S.,AND RELATED PRODUCTS	3.7		
13	69	MANUFACTURESOFMETALS,N.E.S.	3.9	13	87	PROFSSIONAL,SCIENTIFICANDCONTROLLINGINSTRUMENTSAND APPARATUS	3.0		
14	89	MISCELLANEOUSMANUFACTUREDARTICLES,N.E.S.	3.7	14	68	NONFERROUSMETALS	2.3		
15	67	IRONANDSTEEL	2.7	15	64	PAPER,PAPERBOARD,ANDARTICLESOFPAPERPULP	2.3		
	Subtotal:		148.0		Subtotal:		85.2		
	All other:		22.2		All other:		34.8		
	Total		170.2		Total		120.0		

Texas and California Share of U.S. Exports



TexasExportsToMexico

\$BillionsofUSDollars



U.S.–Mexico Border Linkages

- In general, a 10% increase in maquiladora activity in Mexican border cities
- Generates a 1.1% to 2.0% employment increase in the corresponding U.S. border city side

*“U.S.–Mexico Integration and Regional Economies: Evidence from Border-City Pairs”
Gordon H. Hanson
Journal of Urban Economics, 2001*

THEFUTURE

WageComparison

	Mexico	China	California
HourlyAverageSalary	\$1.47	\$0.47	\$16.60
BenefitsandTaxes	101%	52%	26%
TotalIntegratedSalary	\$2.96	\$0.72	\$20.84

Source:MexicoMinistryofEconomy

	Mexico	SriLanka	UnitedStates
ManufacturingWages	\$2.08	\$0.48	\$20.32

Source: BLS

	Mexico	China	UnitedStates
ManufacturingWages	\$2.10	\$0.25	\$17.20

Source:InternationalLaborOrganization

Chart7

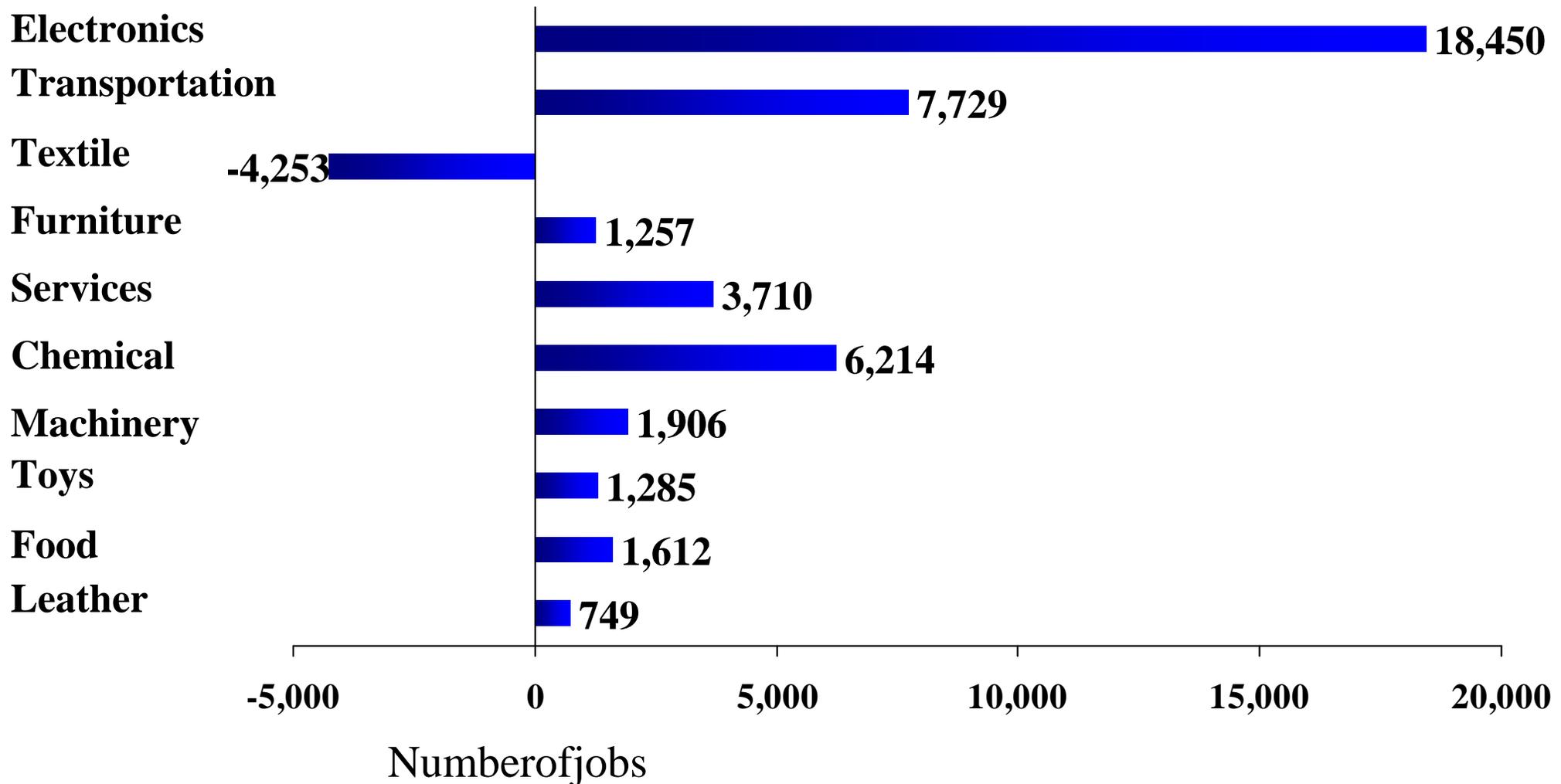
Mexico is still Competitive

Competitive Factor	Mexico	China
Labor Costs		X
Electricity Costs		X
Supplier Base		X
Transportation costs and transit time	X	
Skilled labor/productivity	X	
International telecommunication costs	X	
Technology transfer	X	
Manufacturing/management flexibility	X	
Protection of intellectual property	X	
Transparency in regulation/administration	X	
Free-trade agreements	X	

Source: U.S. International Trade Commission, **Industry Trade and Technology Review, Mexico versus China: Factors affecting export and investment competition**, July 2002,

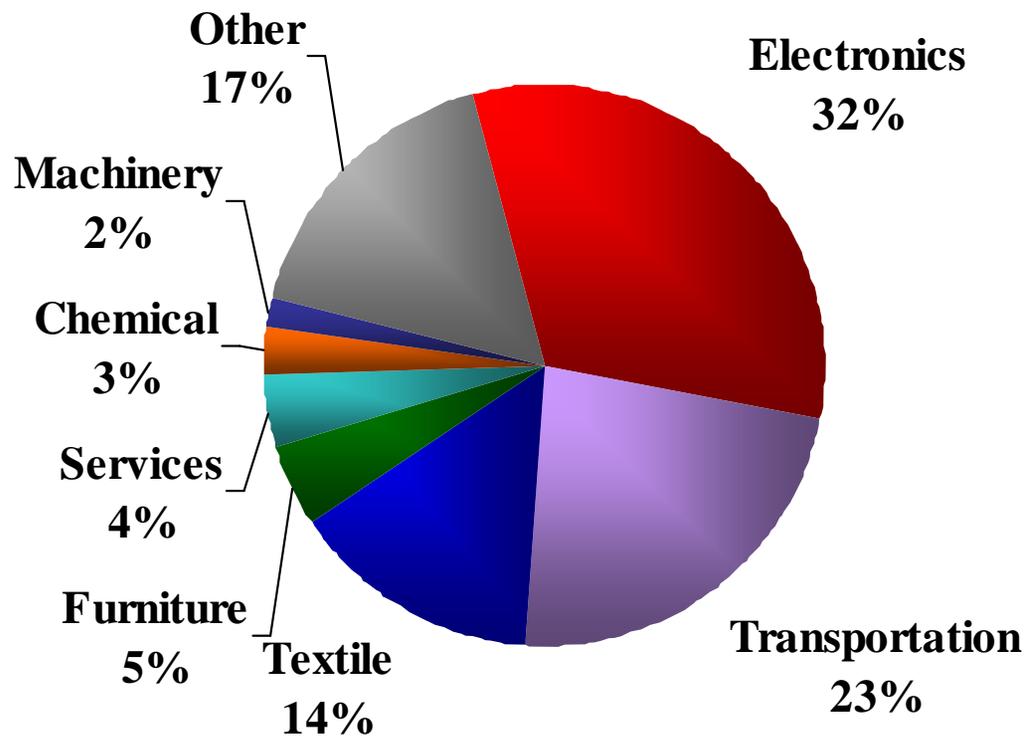
Maquiladora Employment Growth by Sector

(2006 job gains/losses)



Maquiladora Employment by Sector

Share
(2006 average)

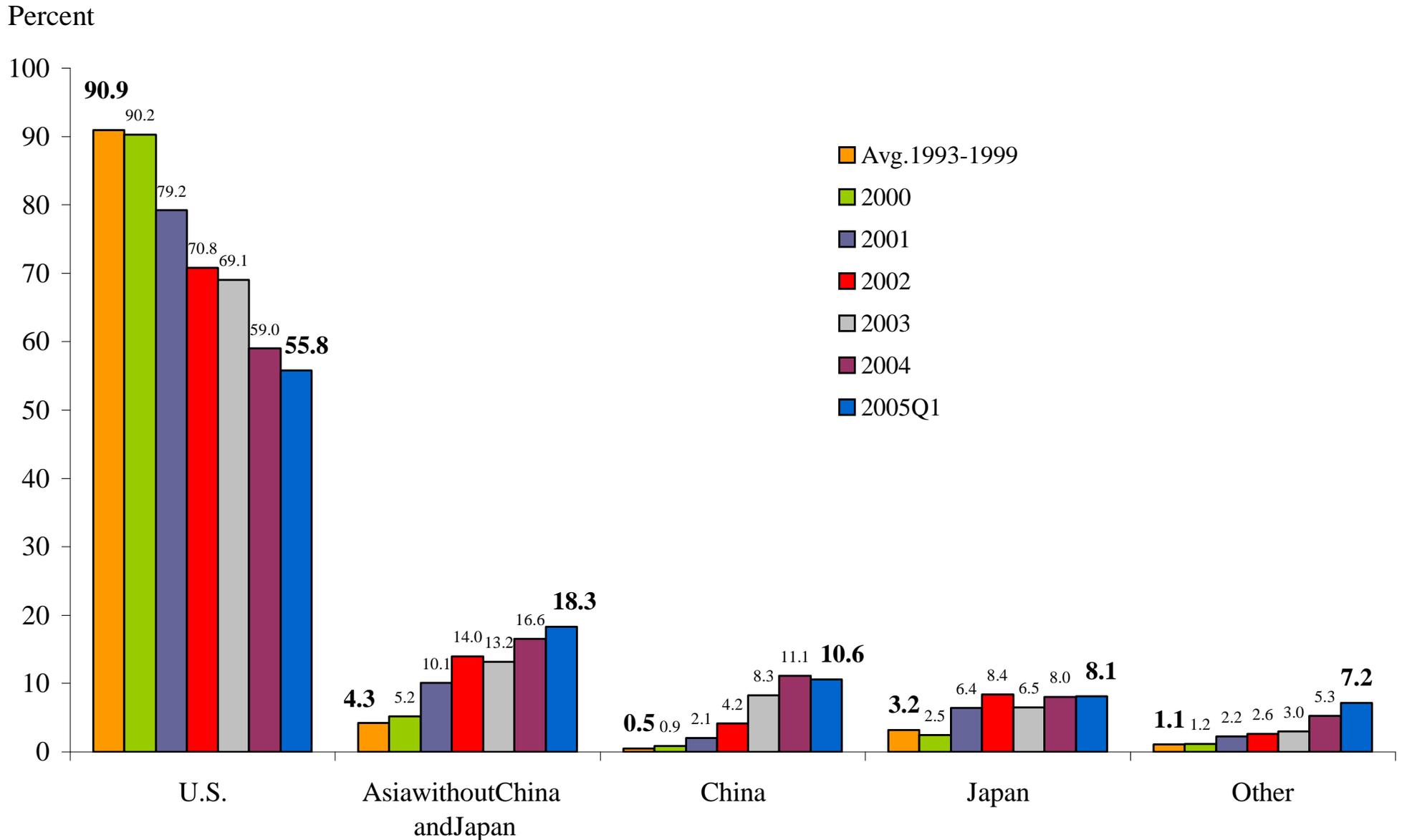


FDI in Maquiladoras by Country of Origin

(billion of US dollars)

	1994–2006	Share
TOTAL	26,203	%
USA	23,164	88.4
Japan	533	2.0
South Korea	366	1.4
Holland	358	1.4
Singapore	308	1.2
Switzerland	245	0.9
Canada	181	0.7
UK	172	0.7
Finland	160	0.6
Spain	140	0.5
France	134	0.5
Germany	91	0.3
Taiwan	75	0.3
Caiman Islands	58	0.2
Italy	33	0.1
China	32	0.1

Mexican Maquiladora Imports by Country of Origin



A New Maquiladora Model

- Emphasis on attracting/retaining high-tech plants.
- High complexity plants, tailored to high-end customers, with quick JIT response for customers in volatile markets.
- Investment in capital intensive plants.
- Full-fledged effort toward vertical integration of the industry and more value-added production.
- Prompt leveraging and taking “overnight” advantage of new U.S. and global competitive factors.
- Maquiladoras must have their own business model with engineering, R&D at maquiladora level.

SOURCE: John Christman, *Global Insight*

Chief Competitive Sectors in the Future

- Automotive parts and components
- Aerospace
- Electronics (high-end, i.e. large LCD flatscreen TVs)
- Software
- Metal mechanics
- Medical/hospital instruments and supplies

SOURCE: John Christman, *Global Insight*

Concluding Remarks

- A return to annual growth rates of double-digits is extremely unlikely, at least in the near future.
- As more capital-intensive manufacturing becomes the norm, employment growth will likely be lower than in the past, while wages should be higher.
- Hence, there is a structural component to the current downturn, 4th generation maquiladora?

Concluding Remarks-cont'd

- Low wage jobs are most at risk, most notably the apparel and some electronics sectors.
- Further, the maquiladora industry must focus on developing more efficient processes.
- Managers can no longer rely on peso devaluation to absorb increasing labor costs
- Identify regional comparative advantages; work together to maximize benefit
- Output growth and productivity, rather than jobs, will measure the success of the next generation of maquiladoras.



THANKS