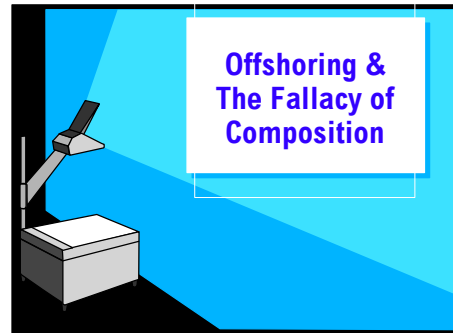


# A Systems Thinking Perspective on "Trade"

Mfg Task Force, 5/5/05

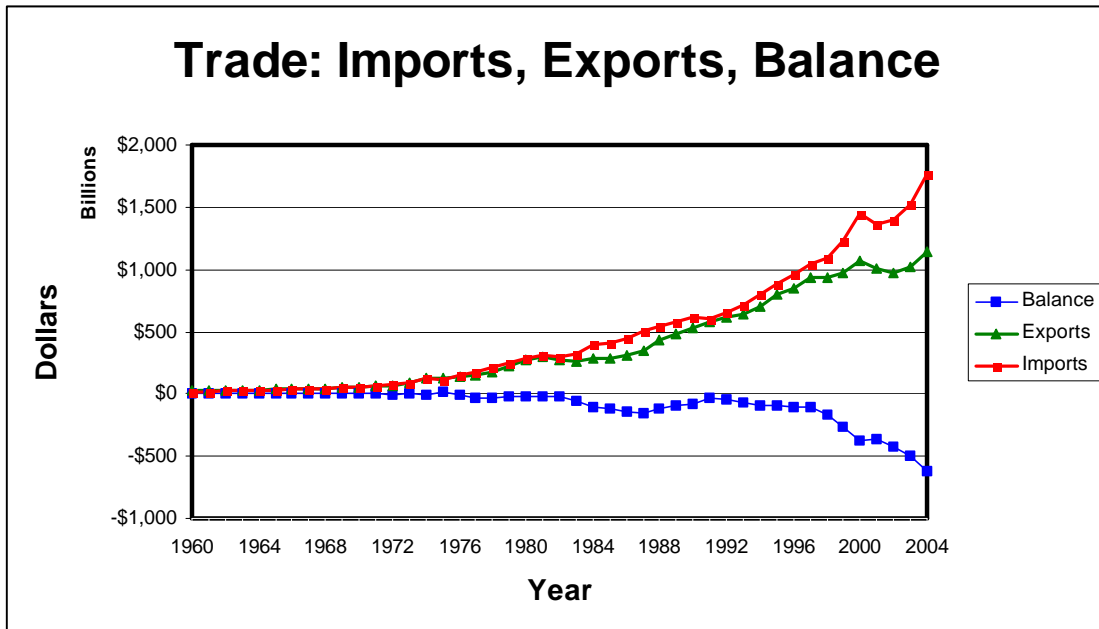
Bob Powell, Ph.D. MBA  
Continuous Improvement Associates  
E-mail: [scuba@usa.net](mailto:scuba@usa.net) Tel: 719 599-0977  
Web: [exponentialimprovement.com](http://exponentialimprovement.com)



## Outline

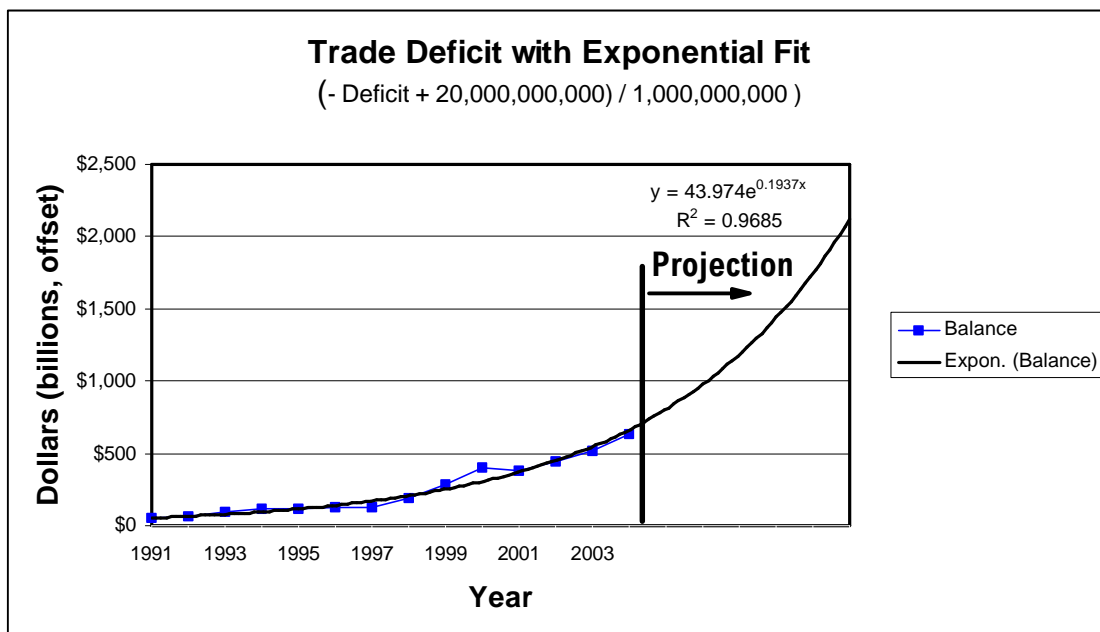
- Trade Data and Trends
- The Fallacy of Composition
- Trade Dynamics
  
- Note:
  - "Trade" is the "exchange of one thing for another"
  - ... it's not the "transfer of the factors of production"
  - ... we're addressing a larger issue than simple trade.

## Trade Trends - Growing Deficit

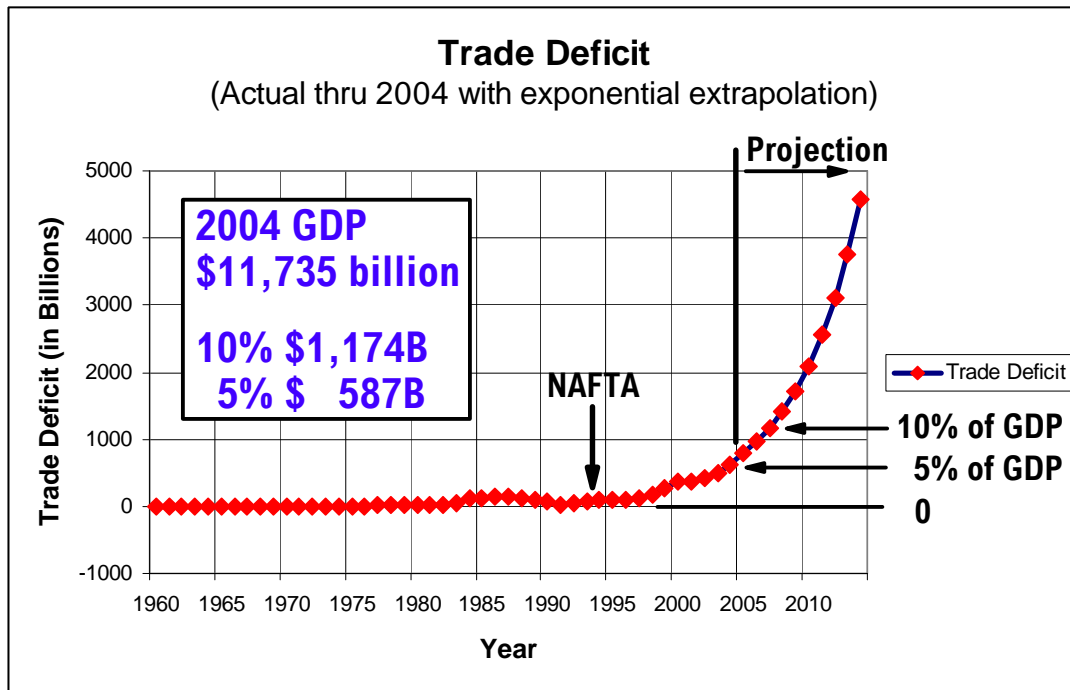


\* <http://www.census.gov/foreign-trade/statistics/historical/gands.txt>

## Trade Deficit - Extrapolation Forward from 2004

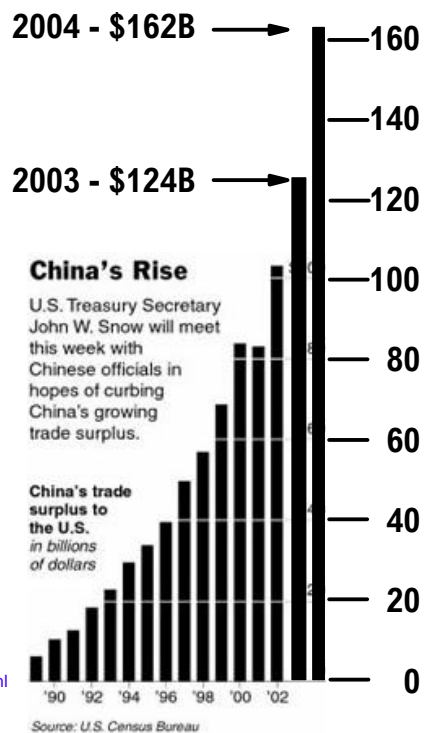


## Trade Deficit Actual & Projected



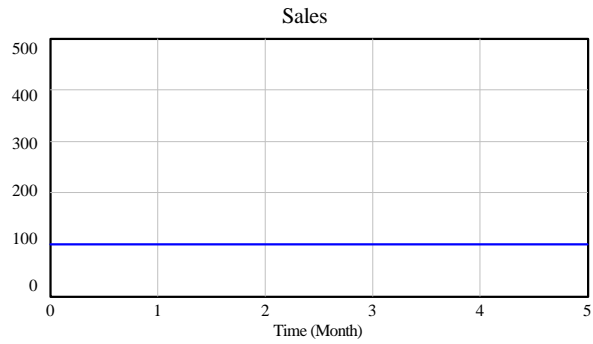
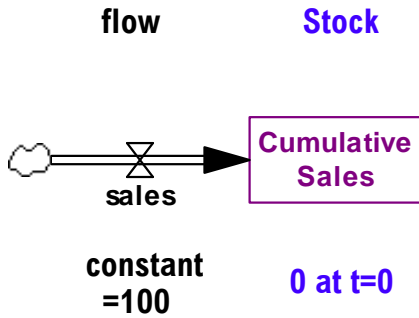
## Trade with China

- **1980 - China first got Most Favored Nation (MFN) status**
- **MFN renamed to NTR (Normal Trade Relations)**
- **2000 - China granted Permanent NTR (PNTR)**
- **Dec 2001- China granted Entry into WTO**

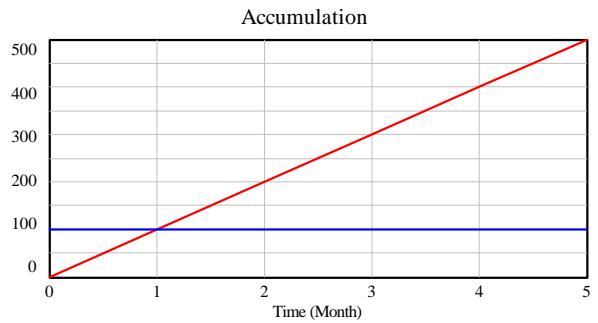


Graph: Joseph Kahn, "China Seen Ready to Conciliate U.S. on Trade and Jobs," 9/02/03, New York Times, <http://www.nytimes.com/2003/09/02/business/02CHIN.html>

# Stock & Flow Diagrams and Accumulations

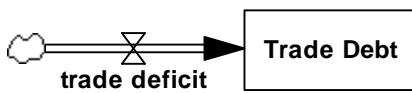


sales : Current — Widgets



sales : Current — Widgets  
Cumulative Sales : Current — Widgets

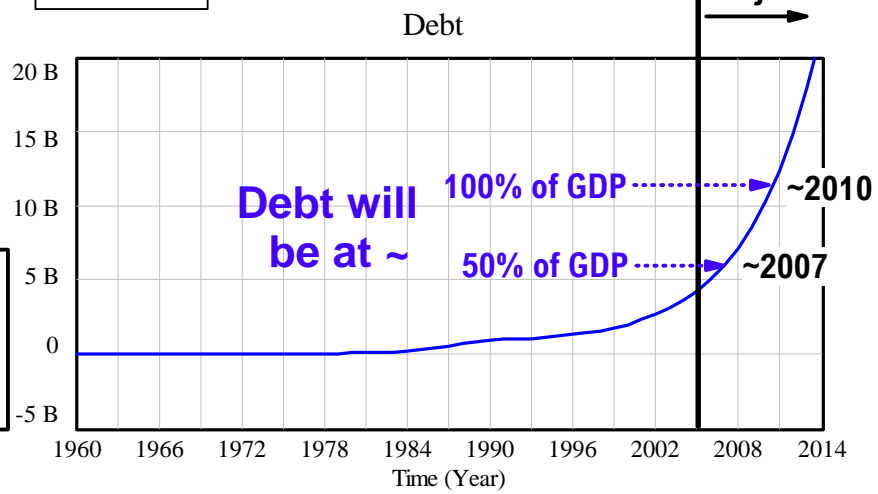
# Accumulated Deficit = Debt



S  
deficit data \*

**2004 GDP**  
**\$11,735 billion**

**10% \$1,174B**  
**5% \$ 587B**



Trade Debt : Current —

\* <http://www.census.gov/foreign-trade/statistics/historical/gands.txt>

## To Understand What's Going On

- **Use Systems thinking:**  
"Seeking to understand system behavior by examining "the whole" ... instead of by analyzing the parts."
- **Key systems principle:**  
Behavior is a result of structure
- **So when we see exponential growth, we ask:**  
What's the reinforcing feedback driving it?

## An Example of Structure

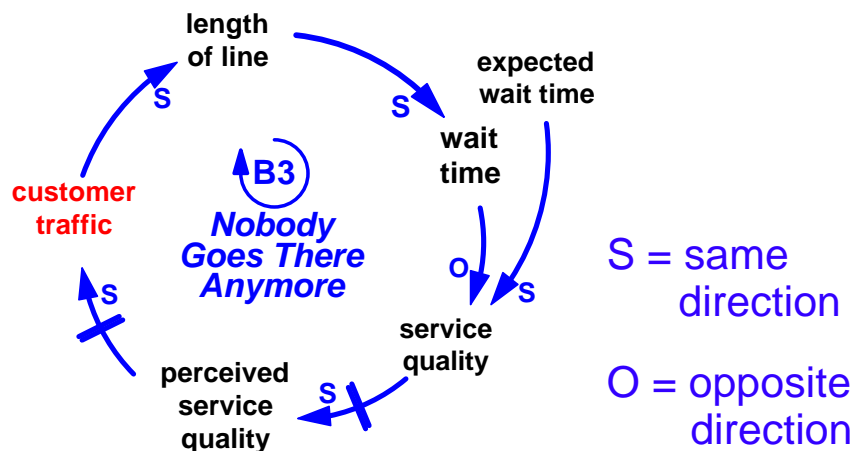


## To Understand What's Going On

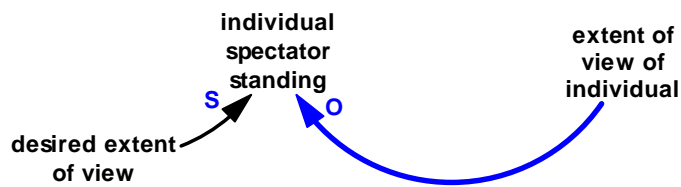
- **Fallacy of Composition:**  
"When we act as if what is true for a part is true for the whole."
- **Examples of the Fallacy:**
  - Spectator view of the field
  - Ocean fishing
  - Offshoring
- **Individually logical actions can be collectively irrational.**

## A Popular Restaurant

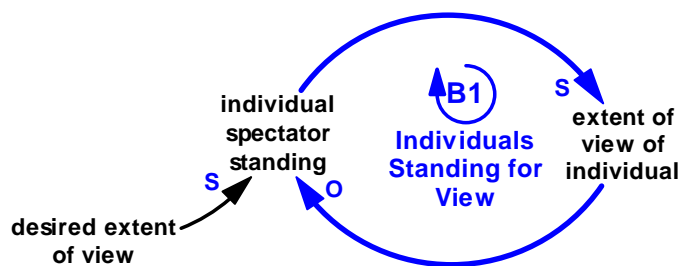
- "That place is too popular.  
Nobody goes there anymore." Yogi Berra



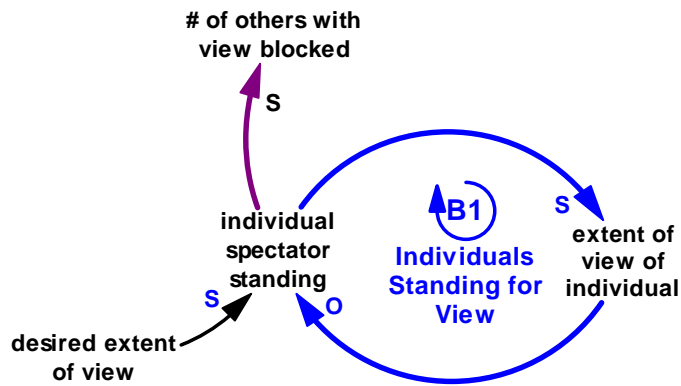
## Spectator View of Field - individuals stand when sitting doesn't provide the desired extent of view



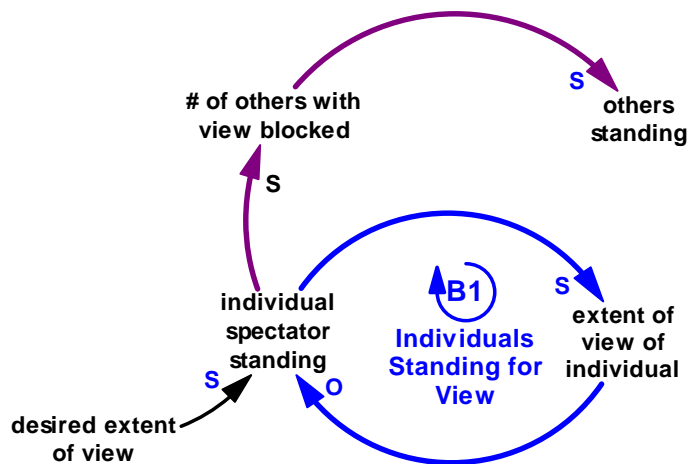
## Spectator View of Field - they improve their view by standing



## Spectator View of Field - but block the view of others

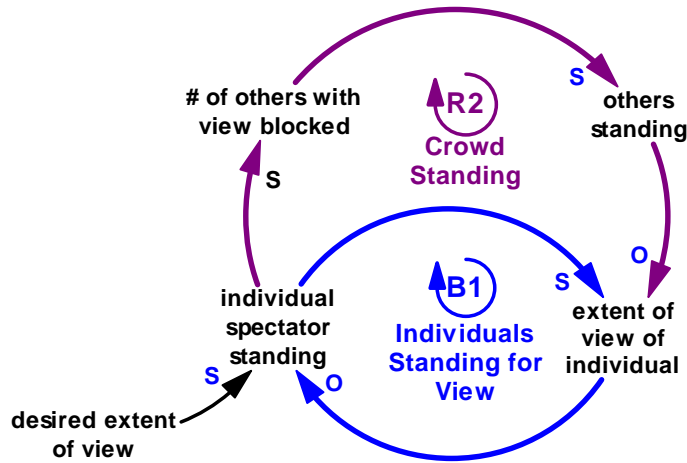


## Spectator View of Field - so others stand as well





## Spectator View of Field - which blocks the view of even more individuals

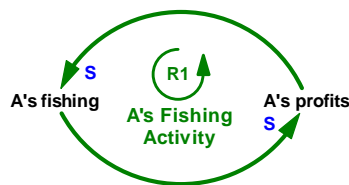


When everyone's standing no one can see better than before

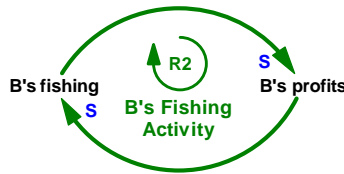
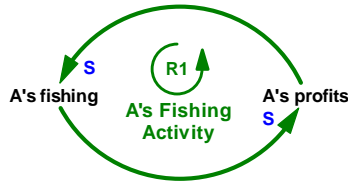
... and the whole is less efficient

... because standing takes more energy than sitting.

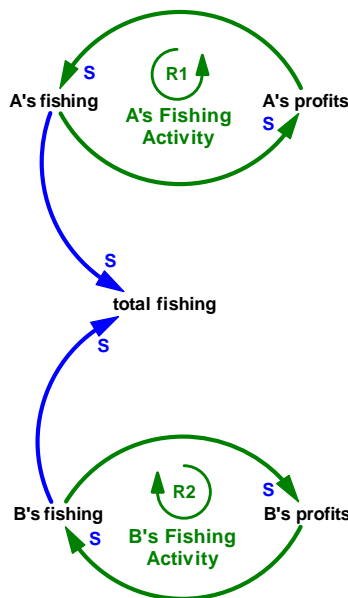
## Ocean Fishing - A puts out more boats



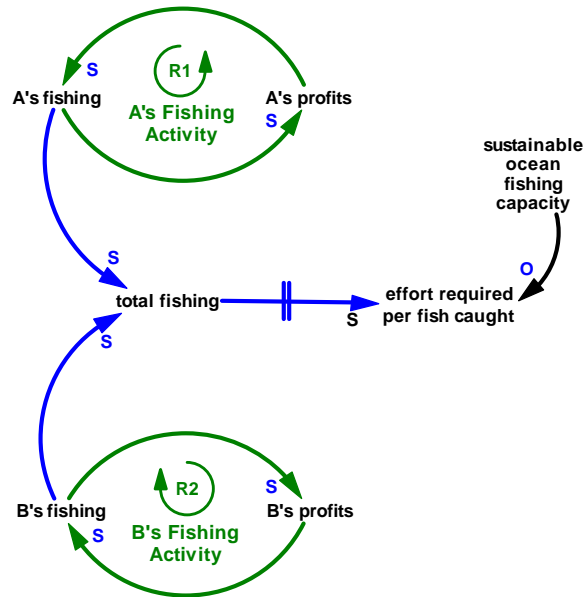
## Ocean Fishing - and B puts out more boats



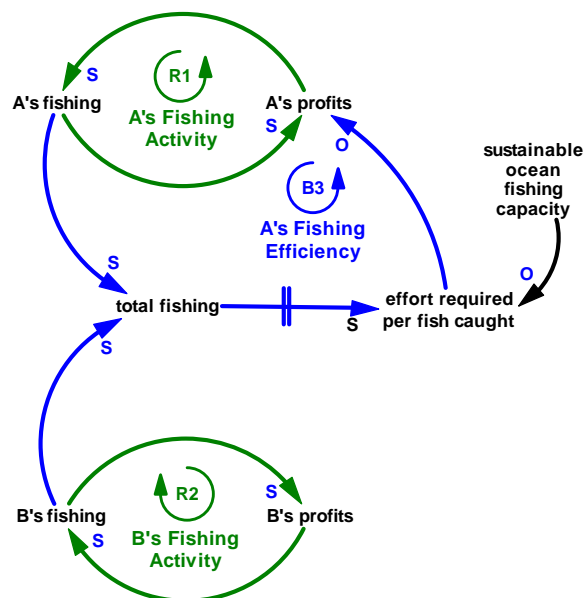
## Ocean Fishing - leading to more total fishing



## Ocean Fishing - that requires more & more effort



## Ocean Fishing - reducing A's profits



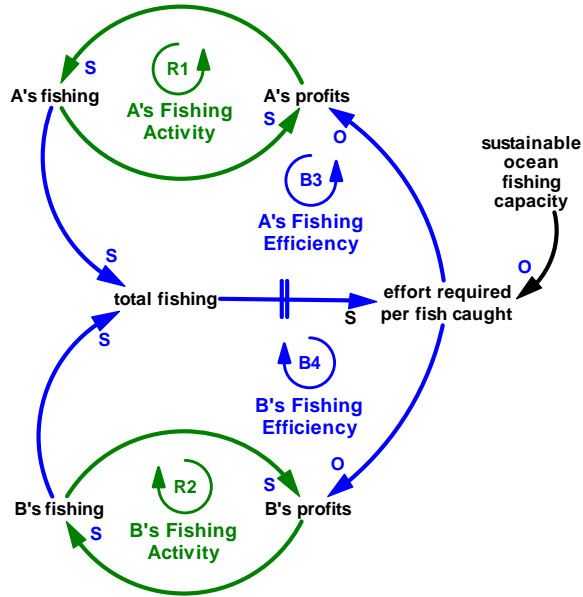
# Ocean Fishing - and reducing B's profits, too.

Every fisherman  
logically puts out  
more boats

... depleting the  
overall resource,

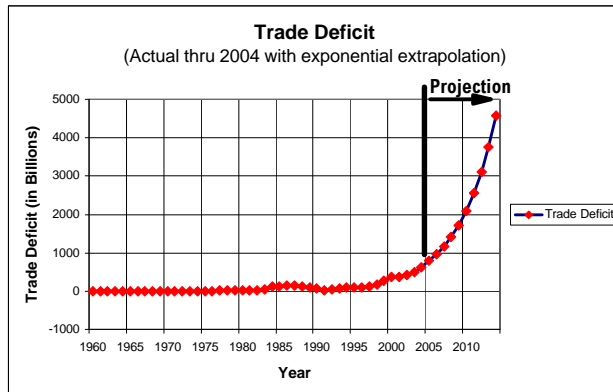
... and all are less  
efficient.

Plus, scarcity drives  
up price, sending  
exactly the wrong  
signal to preserve  
the resource.



# So Why is the Trade Deficit Growing Exponentially?

- When we observe exponential growth we know a reinforcing feedback is responsible.
- What is it?

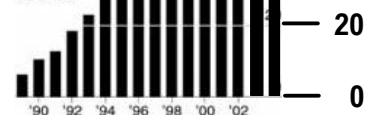


2004 - \$162B → 160  
2003 - \$124B → 120

### China's Rise

U.S. Treasury Secretary John W. Snow will meet this week with Chinese officials in hopes of curbing China's growing trade surplus.

China's trade surplus to the U.S. in billions of dollars



Source: U.S. Census Bureau

## Offshoring - a context of oversupply and price competition



The Chicago Tribune, four-part series: "The economics of glut."

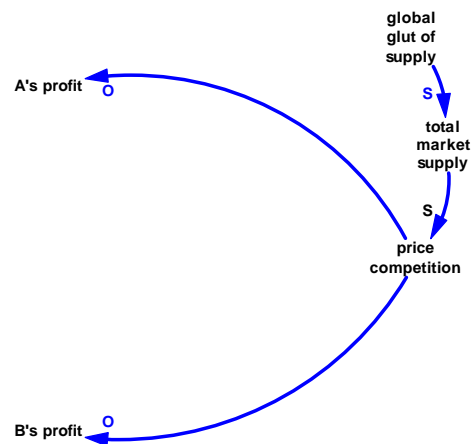
December 15, 2002 through December 18, 2002 at:

<http://www.chicagotribune.com/business/chi-021215glut,1,4874700.storygallery?coll=chi%2Dnewsspecials%2Dhed>

Overcapacity Stalls New Jobs By LOUIS UCHITELLE, October 19, 2003

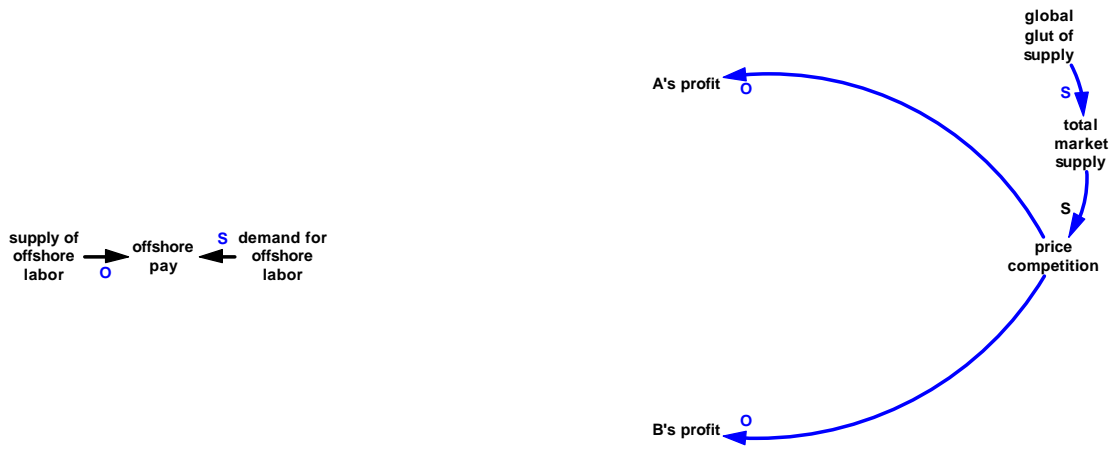
<http://www.nytimes.com/2003/10/19/business/19SOAP.html>

## Offshoring - price competition reduces profits

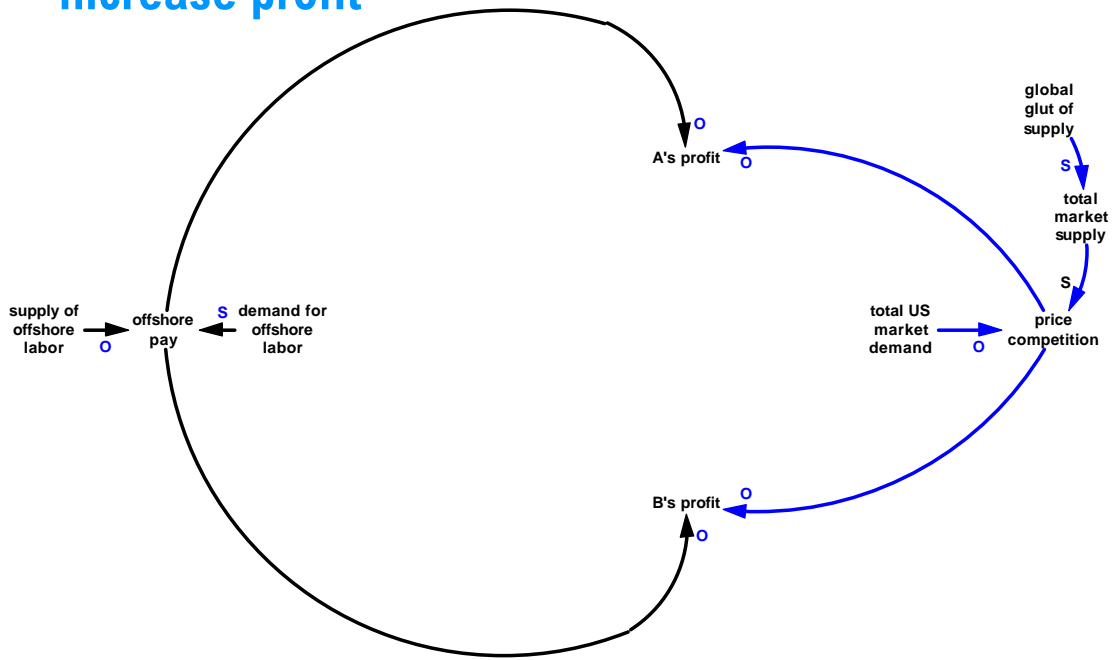


# Offshoring

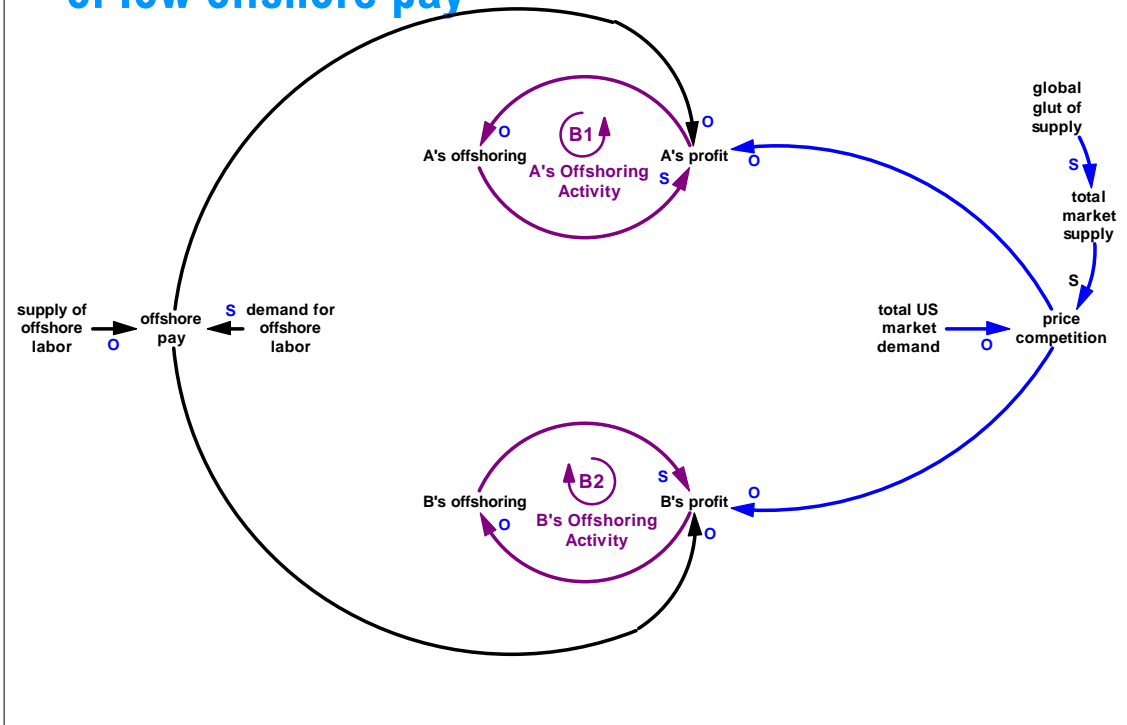
- also a context of low offshore pay



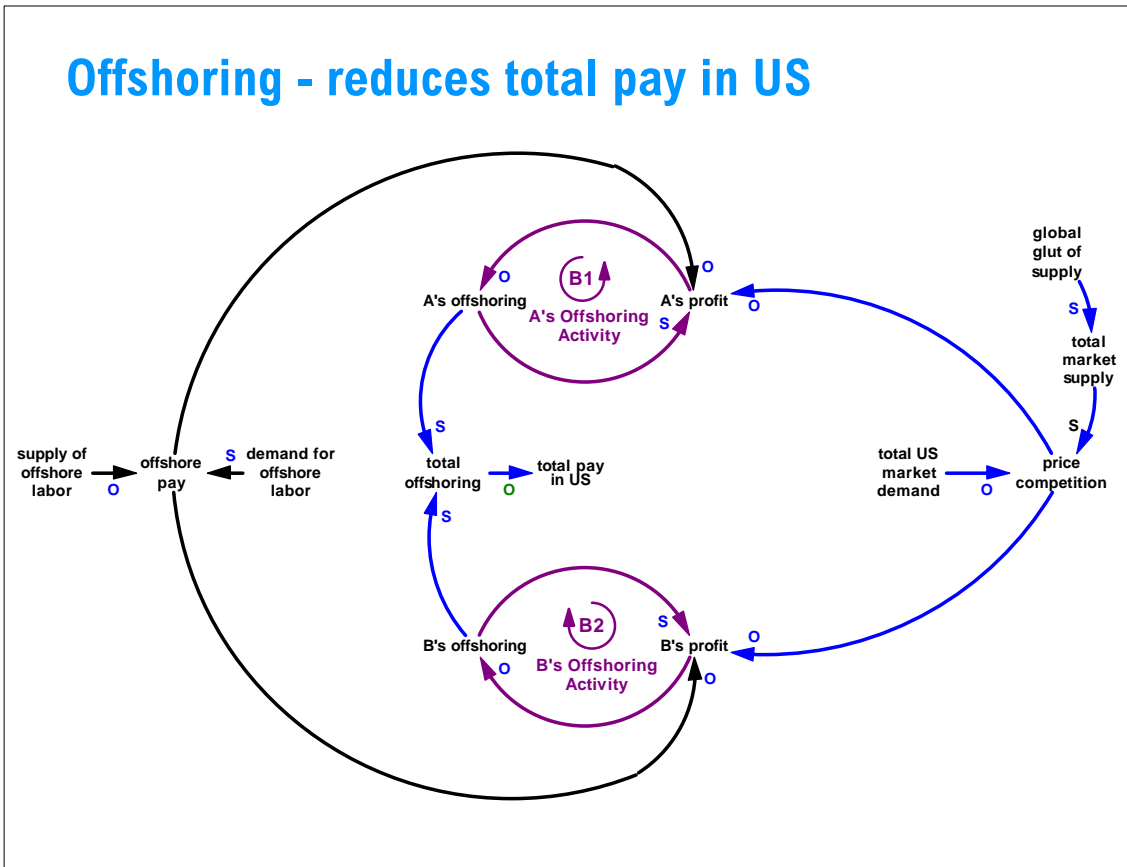
# Offshoring - offshoring can cut costs & increase profit



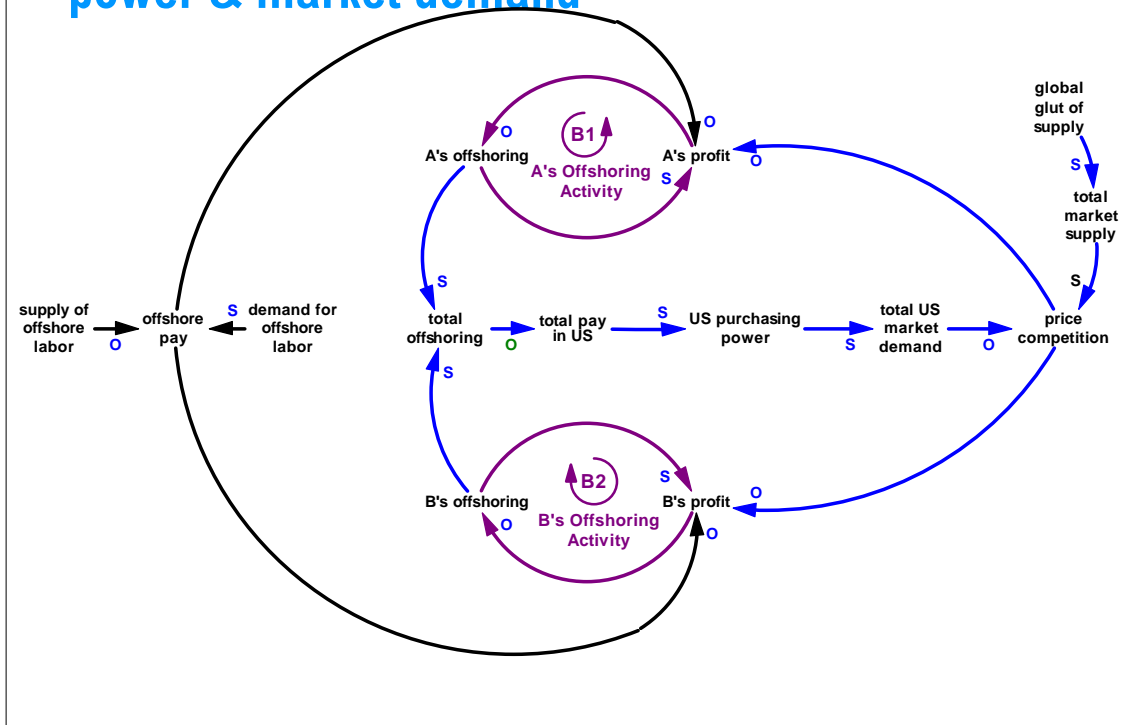
## Offshoring - offshoring to take advantage of low offshore pay



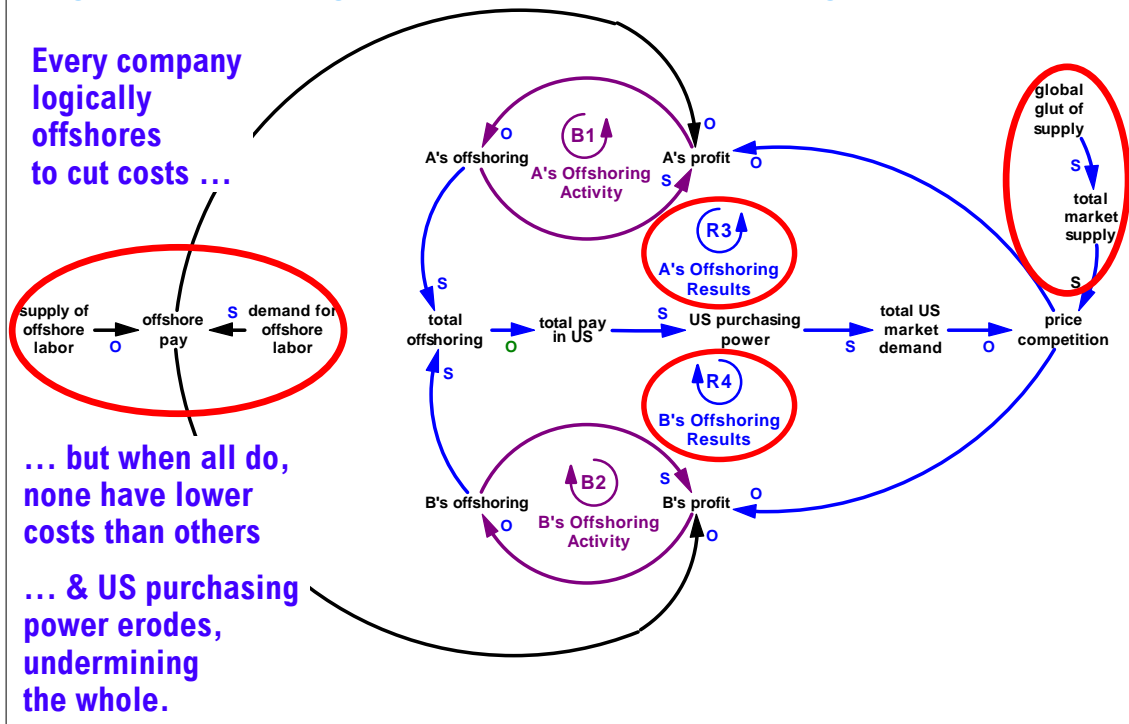
## Offshoring - reduces total pay in US



## Offshoring - reduces US purchasing power & market demand

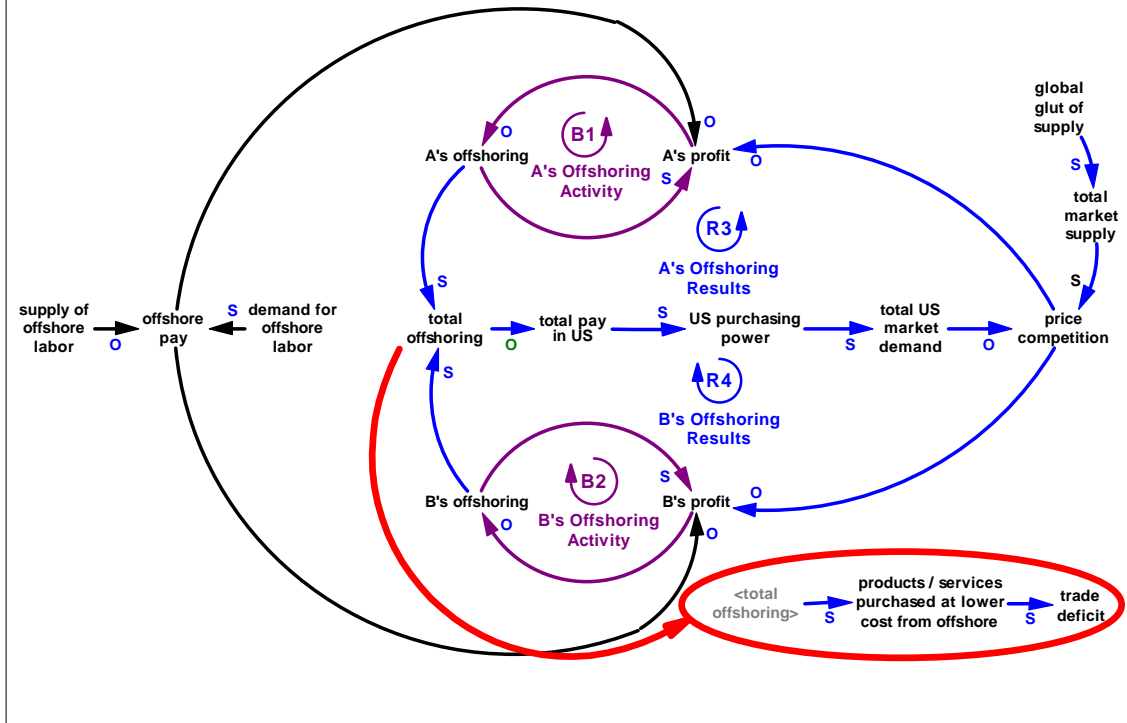


## Offshoring - driven by offshore pay and global glut, reinforcing feedback powers offshoring



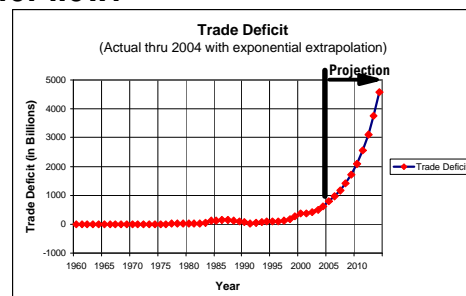


## Offshoring - linked to trade deficit



## Offshoring - Summary

- **Reinforcing feedback will continue long as**
  - there's a global glut of supply relative to demand
  - large US-offshore wage disparities exist
  - the US economy doesn't collapse
  - ... exponential increases are unsustainable
- **What's individually logical can be collectively irrational.**
- **Note: Nations don't "trade" ... companies do. It's not their job to look out for the good of the nation; that's government's job.**
- **Exponential growth is slow at first**  
... lots of frogs are being boiled ... for now!
- **What to do? See papers at: [exponentialimprovement.com](http://exponentialimprovement.com)**
  - **A Systems Thinking Perspective on Manufacturing & Trade Policy**
  - **Why Offshoring is Economically Unsustainable**

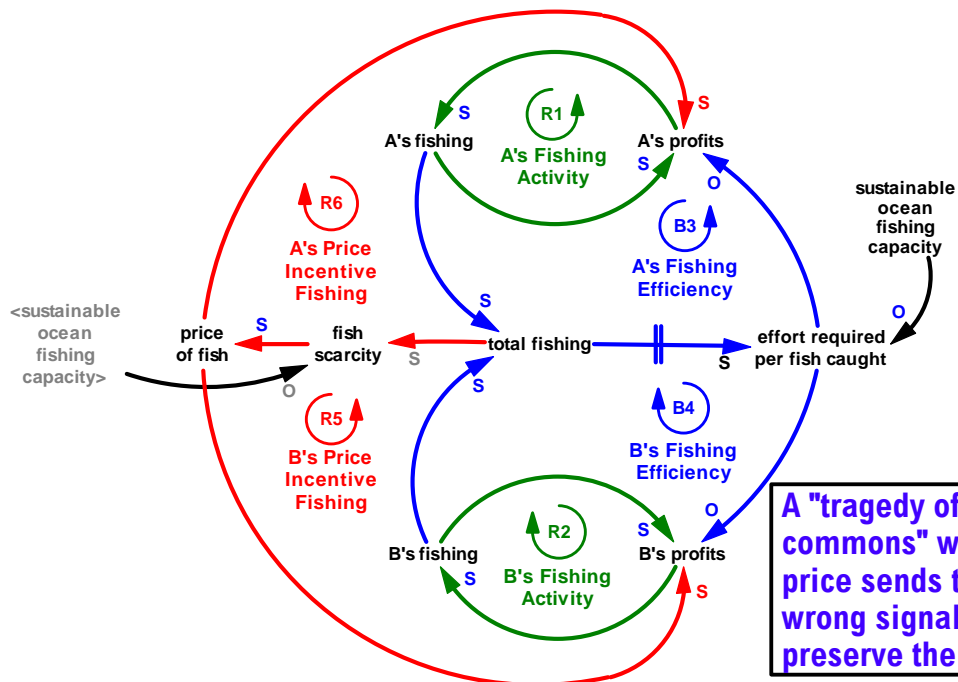


## Systems Thinking: Good Catch!

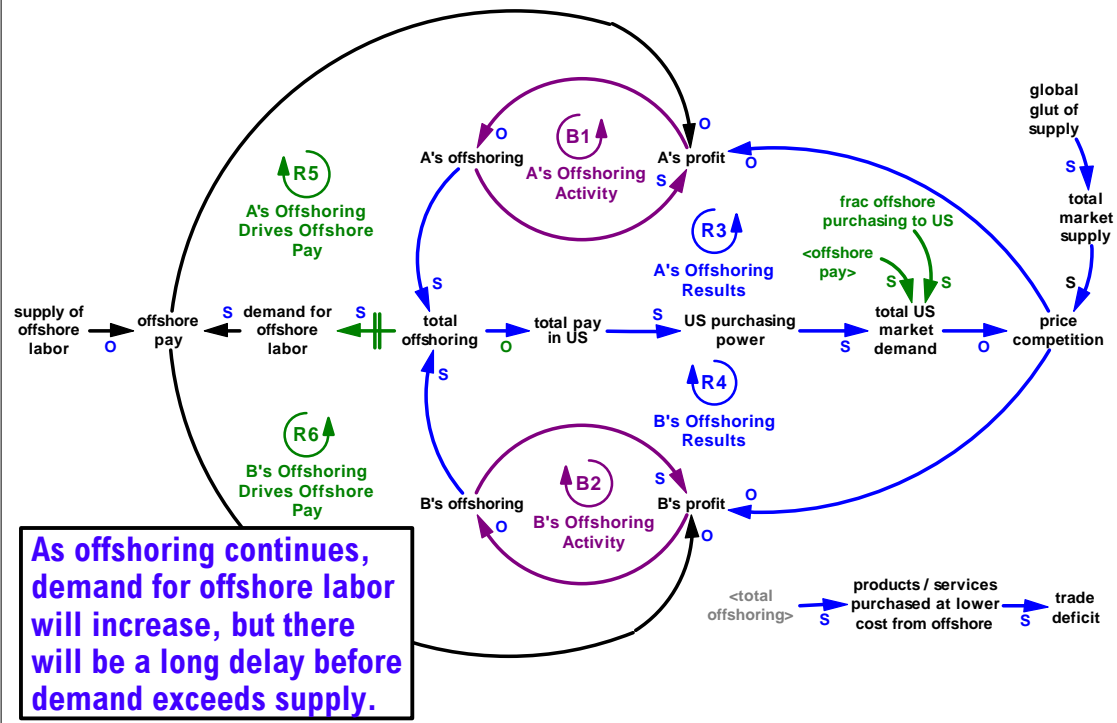


- Continuous Improvement Associates • E-mail: scuba@usa.net •
- Web: exponentialimprovement.com • Ph: 719 599-0977 •

## Ocean Fishing - and more fishing by B



# Offshoring



# Wages

- "Using official Bureau of Labor statistics, Johns Hopkins University economist Arnold Packer calculates that employees' share of the value added in the U.S. economy has fallen to its lowest point since records were first kept in 1947 -- and the rate of decline is accelerating."

"Maybe We Could All Deliver Pizza . . .,"

Jodie T. Allen, 3/06/04, The Washington Post,

<http://www.washingtonpost.com/wp-dyn/articles/A35469-2004Mar6.html>

- The recession in the U.S. has been over for more than three years. The economy has been growing at better than a 4% annual clip for the past two. Profits, at least until recently, have been up. Growth in worker productivity has remained strong. ... Yet wages for the typical worker aren't even keeping up with inflation. Wages are growing unusually slowly for this point in the economic cycle, especially given persistently strong growth in productivity ...

Workers' Wages Trail Growth in Economy By DAVID WESSEL

Wall Street Journal - April 21, 2005; Page A2