

# The Economic and Political Challenges of Technology and Globalization

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LUISS

Turbulent Times

# Developing Countries Convergence

- Before the Industrial Revolution – little growth by modern standards
- 200 years of divergence 1750-1950
- Post World War II: Reversal of the Divergence Pattern
- Now mid-way through a century of convergence of developing and advanced economies
- The convergence process is causing a massive increase in the size of the global economy
  - Likely to triple in size in the next 25 years
- It is also producing, in conjunction with digital technology, huge disequilibrating shifts in structure and jobs

# Why the Pattern Reversal

- After WW I vs. After WW II
- Post war recovery including the vanquished
- Cold War in the Background
- GATT
- Multi-fiber agreement
- Colonial Empires Dismantled
- Transportation, communications and logistics technology and cost

# Growth and Necessary and Sufficient Conditions

- In early stage developing countries, growth is a necessary but not sufficient condition for poverty reduction, rising incomes
- Generally measured inequality rises in these early stage cases
- In middle and high income countries, growth is neither necessary nor sufficient for reducing inequality
- But growth does help with the political economy – redistribution with no or low growth creates losers as well as gainers and hence resistance – with zero growth it is a zero sum game
- Puts the spotlight on policies/investments that support growth and shift the distribution

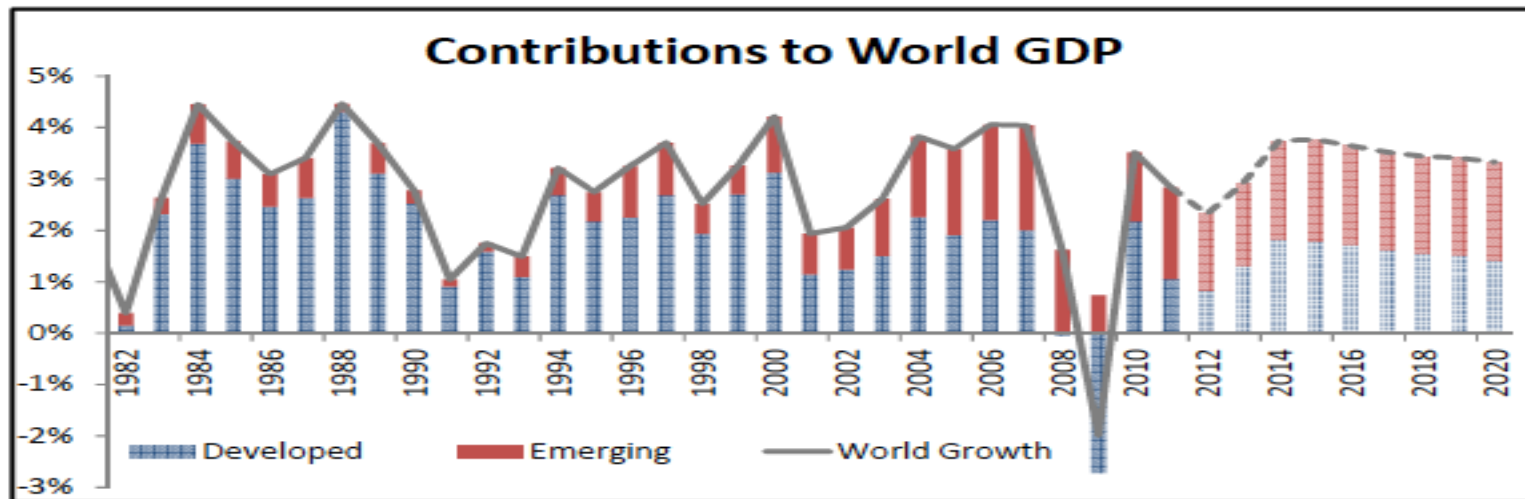
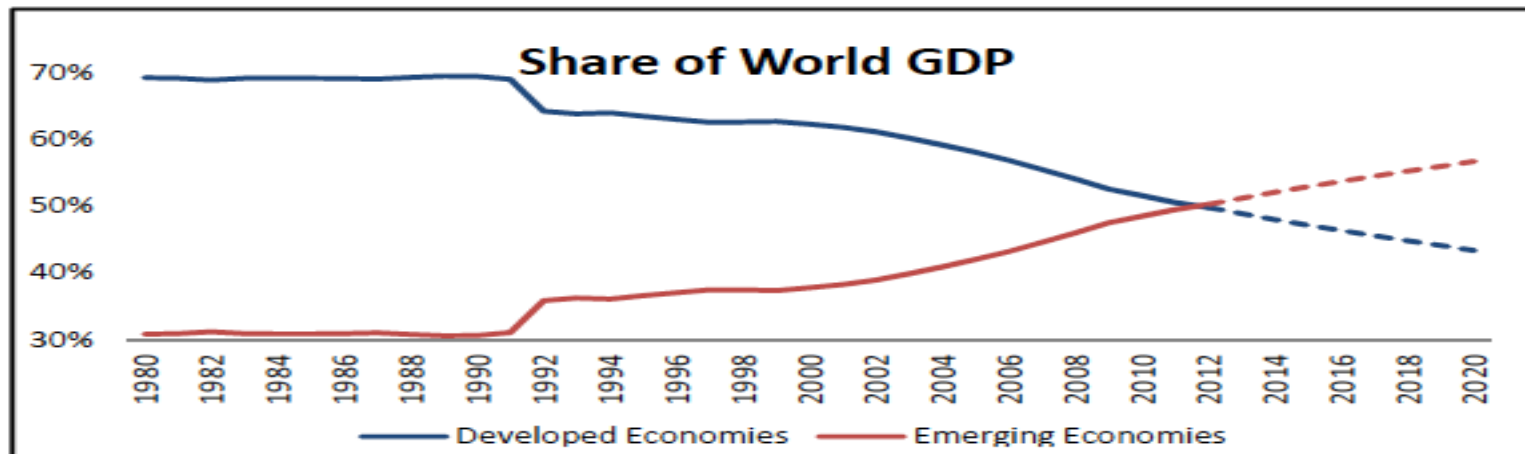
# Global and Local Inequality

- While global inequality has been falling, country level inequality has been rising
- Starting in the mid 1970's
- Prior to that distributional aspects of globalization were relatively benign
- In tandem with (more or less)
  - Scale of developing country entry into global economy
  - Digital Technology
  - Abandonment of micro management of economies in the Reagan Thatcher era
  - This last may have shifted power away from labor in determining labor capital shares

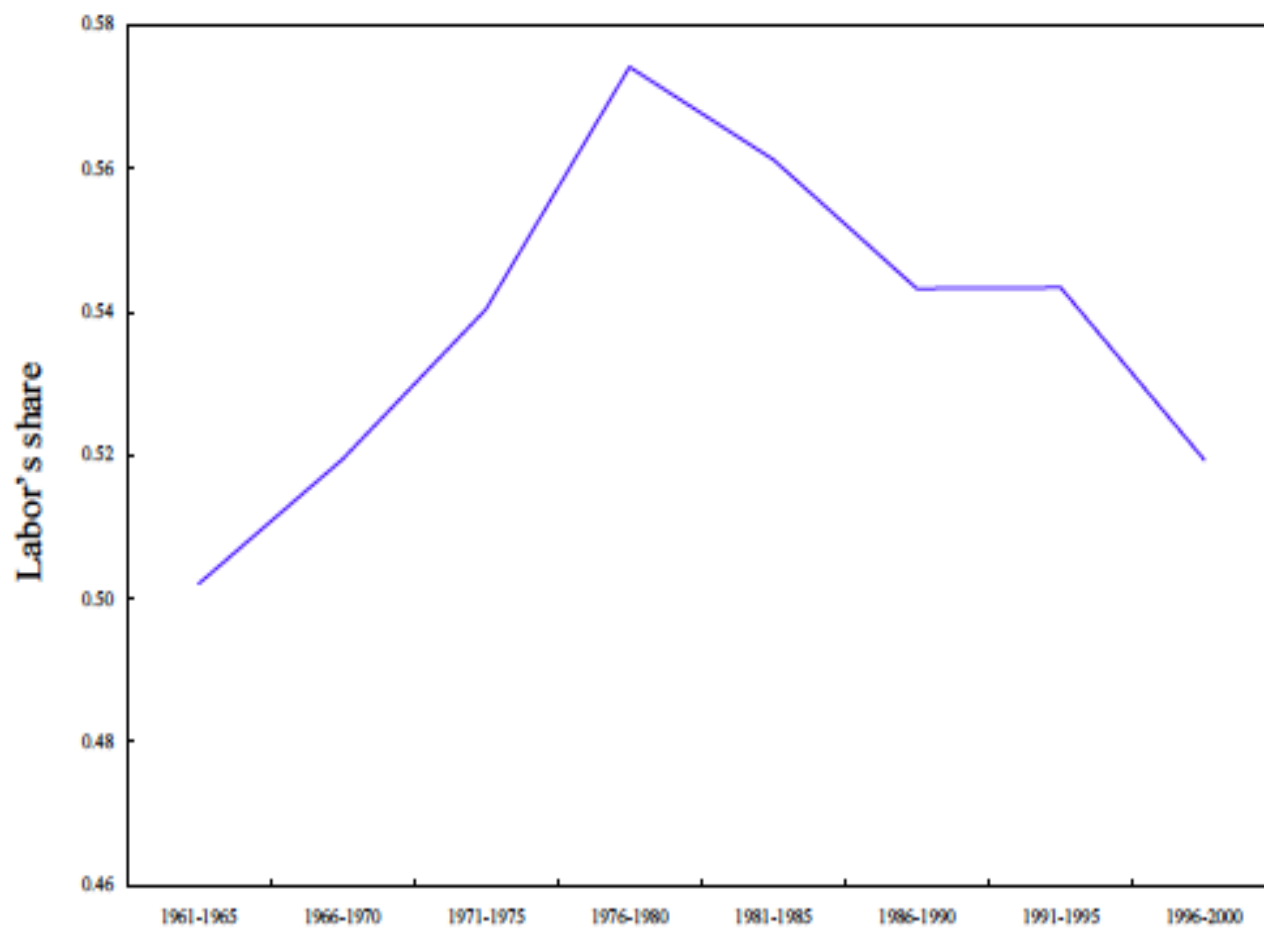
# Digital Technology

- Labor saving dimension
  - Automation
  - AI
- Labor inclusion dimension –
  - think of global supply chains
  - Trade in services
  - The “Sharing” Economy Models

# EM'S GROWTH AND SCALE

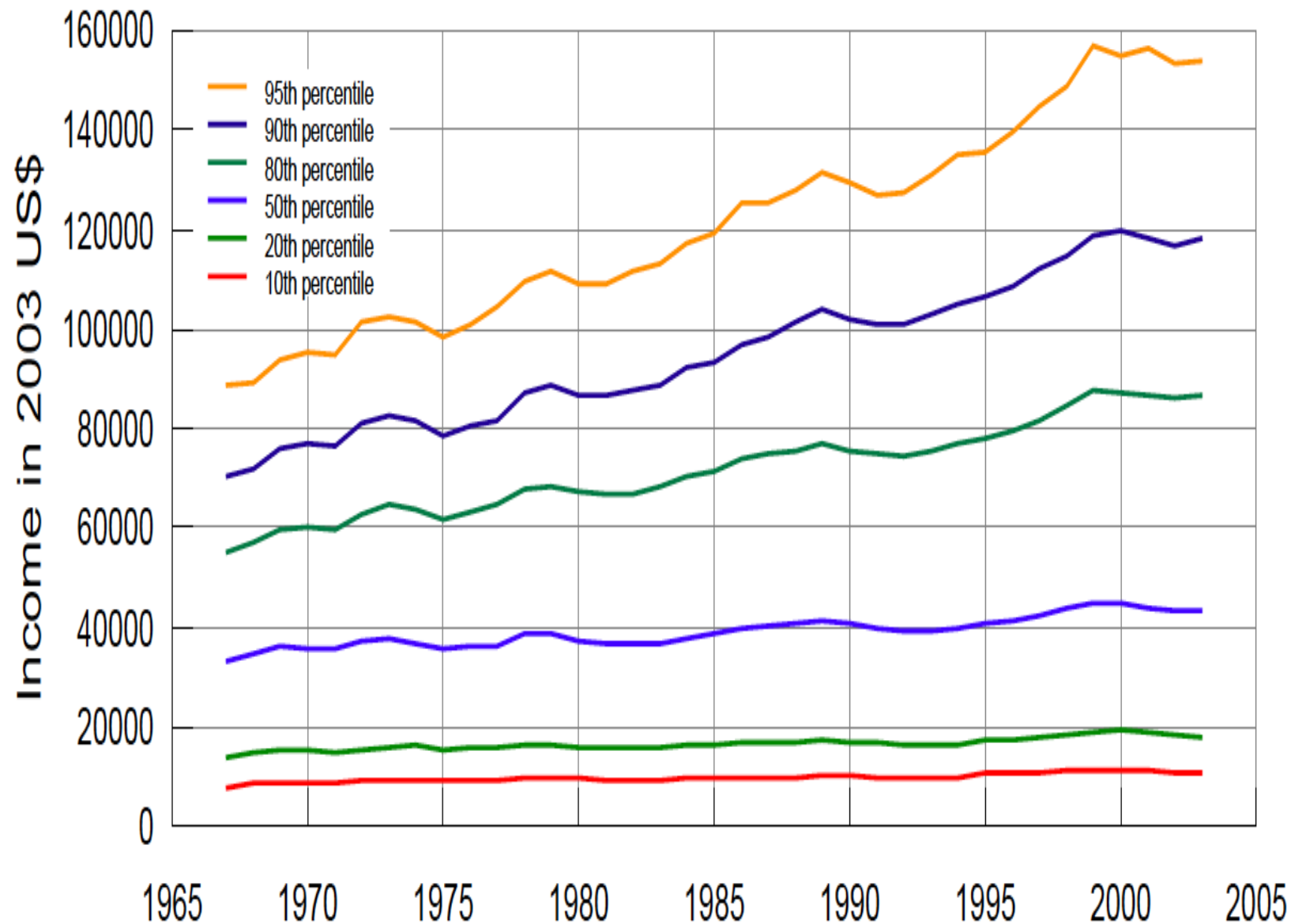


**Figure 1. Cross-Country Average Labor's Share in National Income**  
(Ratio of labor income to national income)



Source: OECD, Structural Analysis Database.





# Average and Median Income

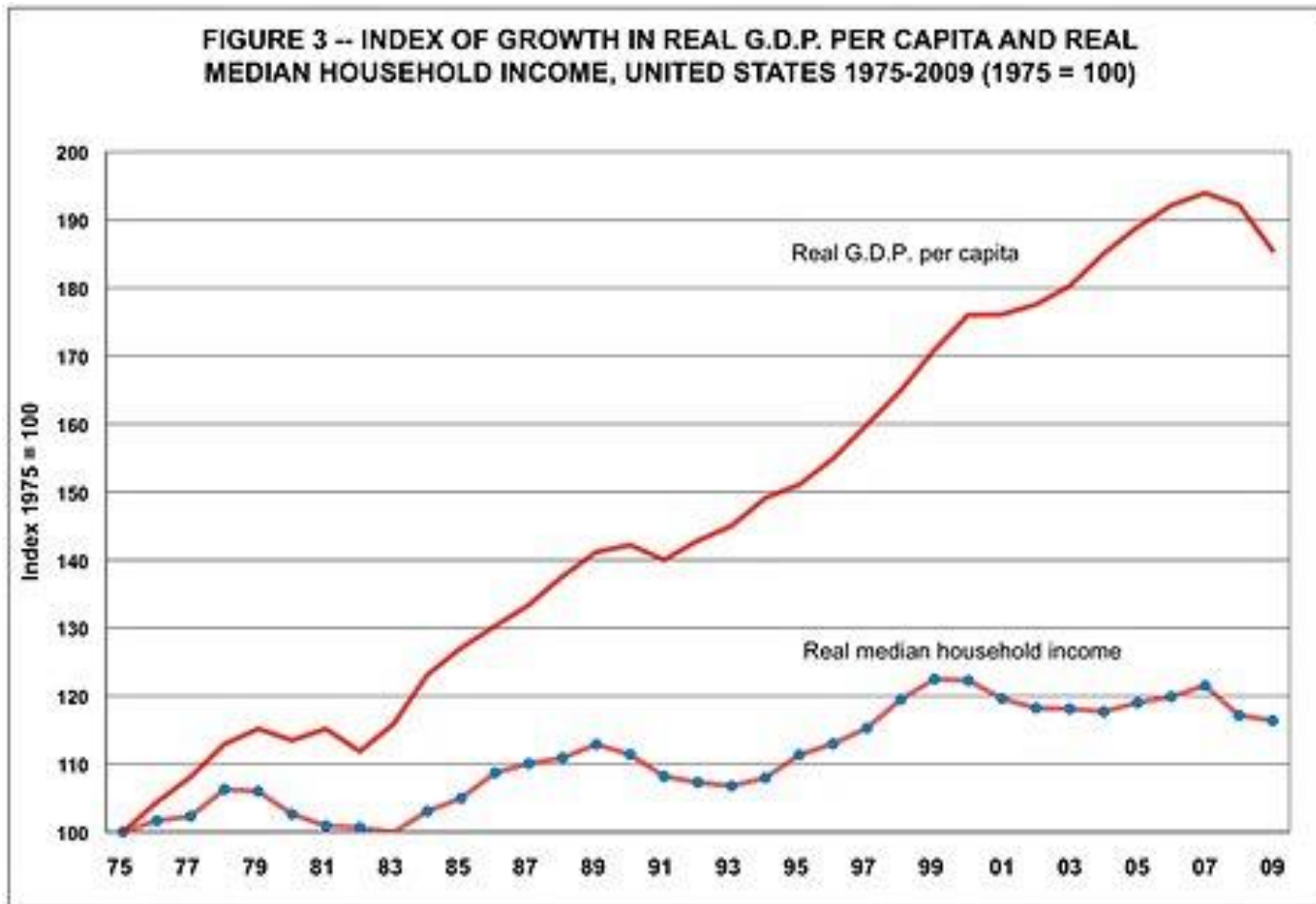
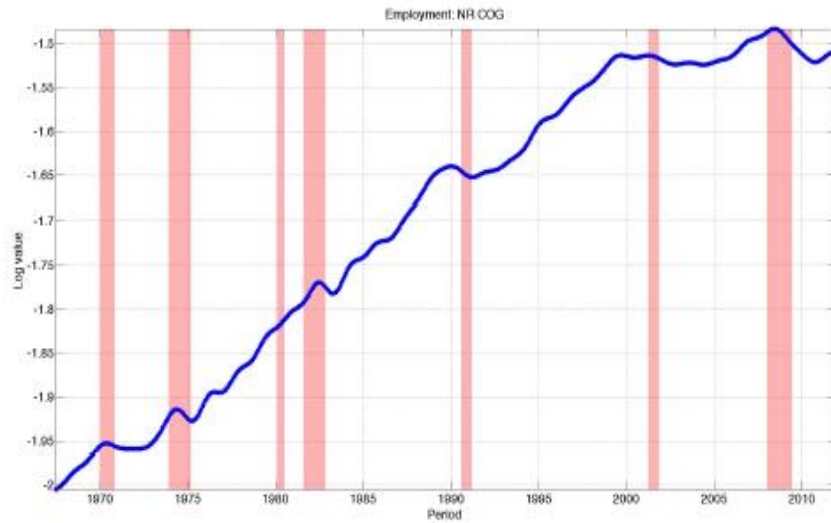
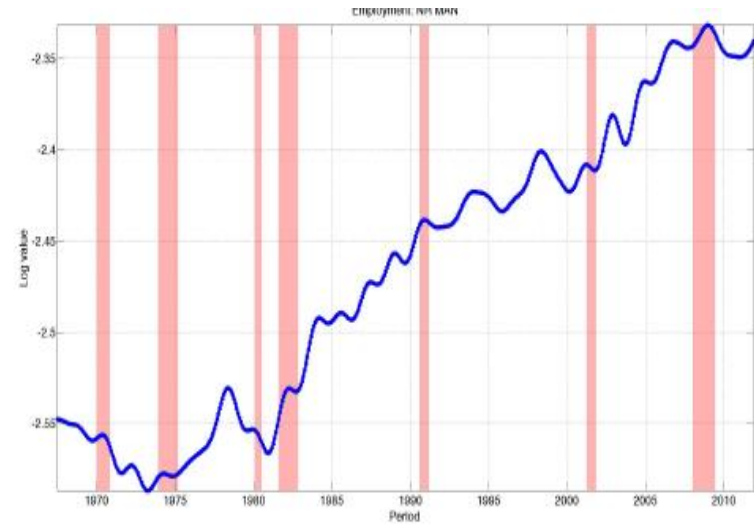


Figure 4: Employment in Occupational Groups: 1967 – 2011



Non-Routine Cognitive



Non-Routine Manual



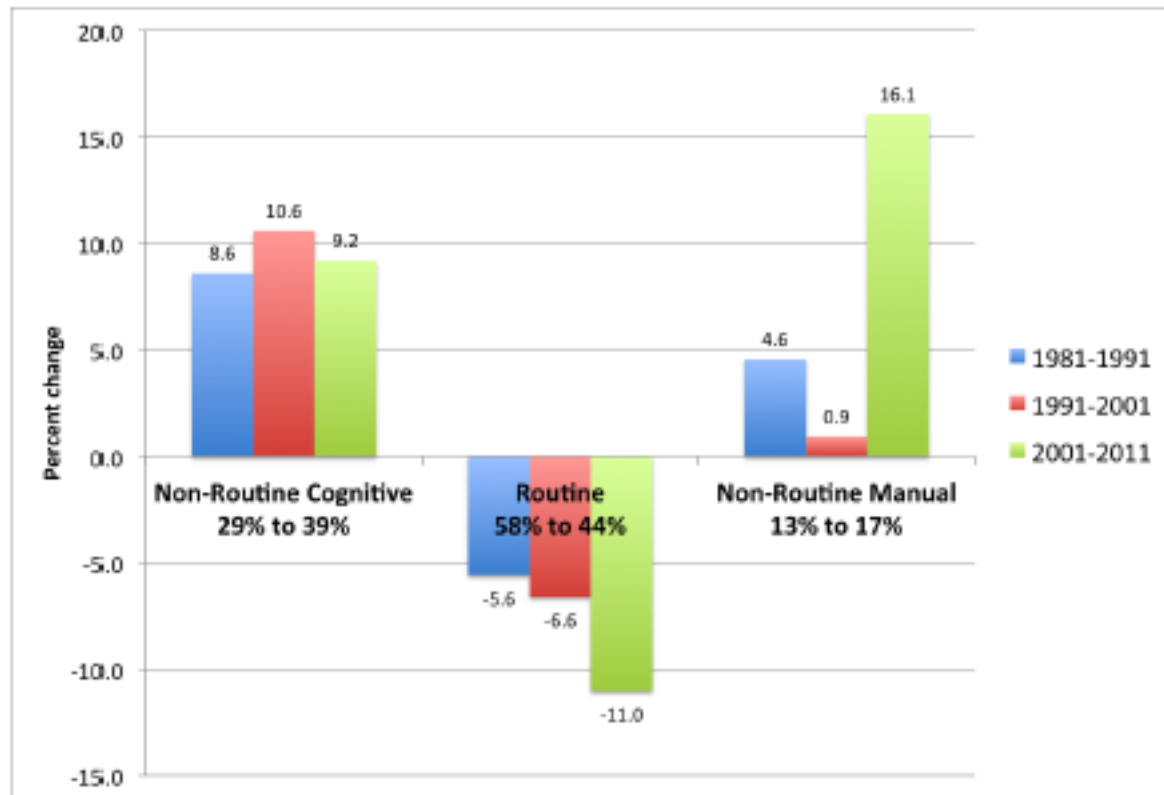
Routine – Manual and Cognitive

THE TREND IS THE CYCLE:  
JOB POLARIZATION AND JOBLESS RECOVERIES

Nir Jaimovich  
Henry E. Siu

# USA Data By Type of Job

Figure 3: Percent Change in Employment Shares by Occupation Group

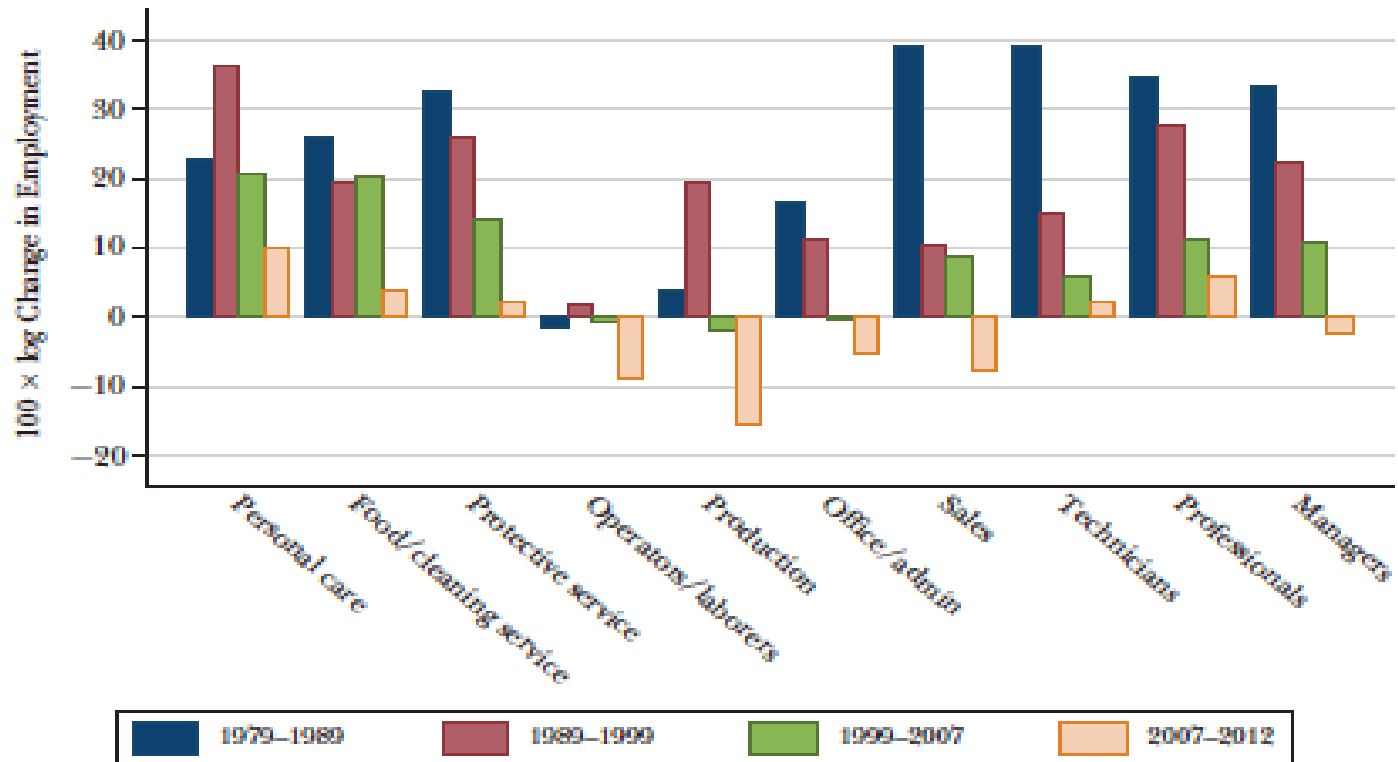


# Employment Changes by Type of Work USA

Figure 2

## Change in Employment by Major Occupational Category, 1979–2012

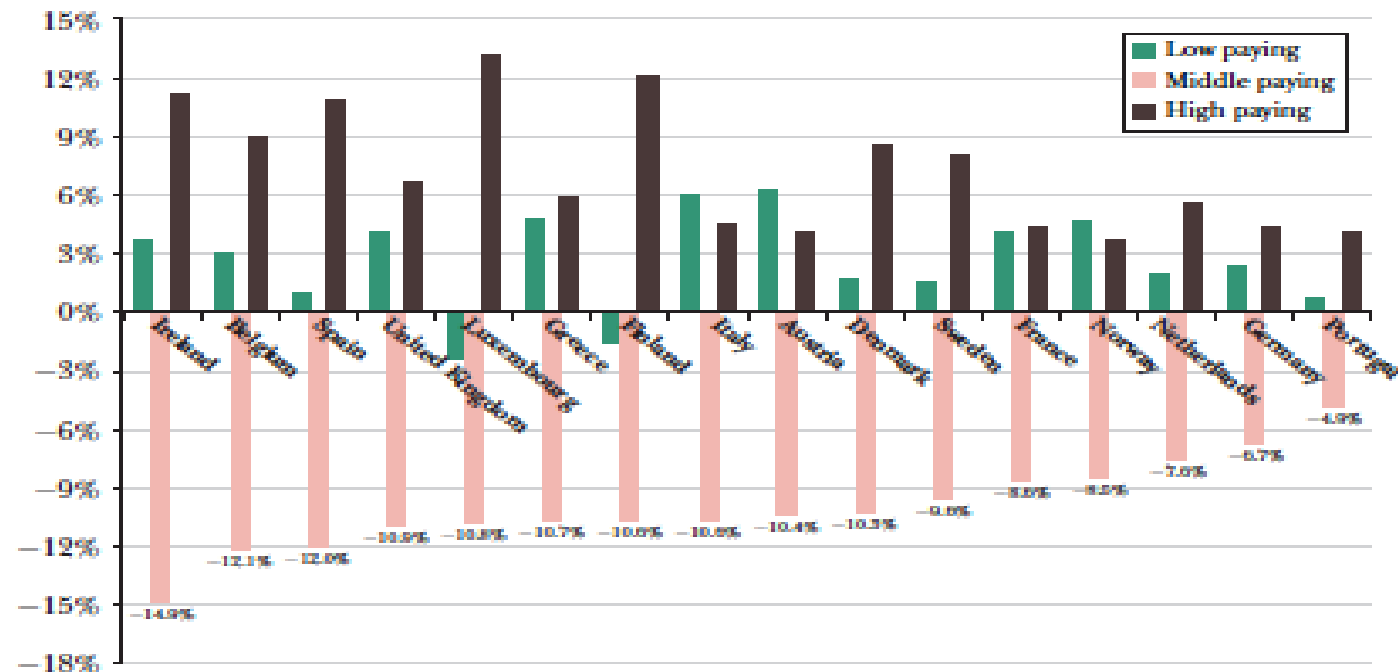
(the y-axis plots 100 times log changes in employment, which is nearly equivalent to percentage points for small changes)



# Job and Income Polarization Not Unique to the USA

*Figure 3*

**Change in Occupational Employment Shares in Low, Middle, and High-Wage Occupations in 16 EU Countries, 1993–2010**

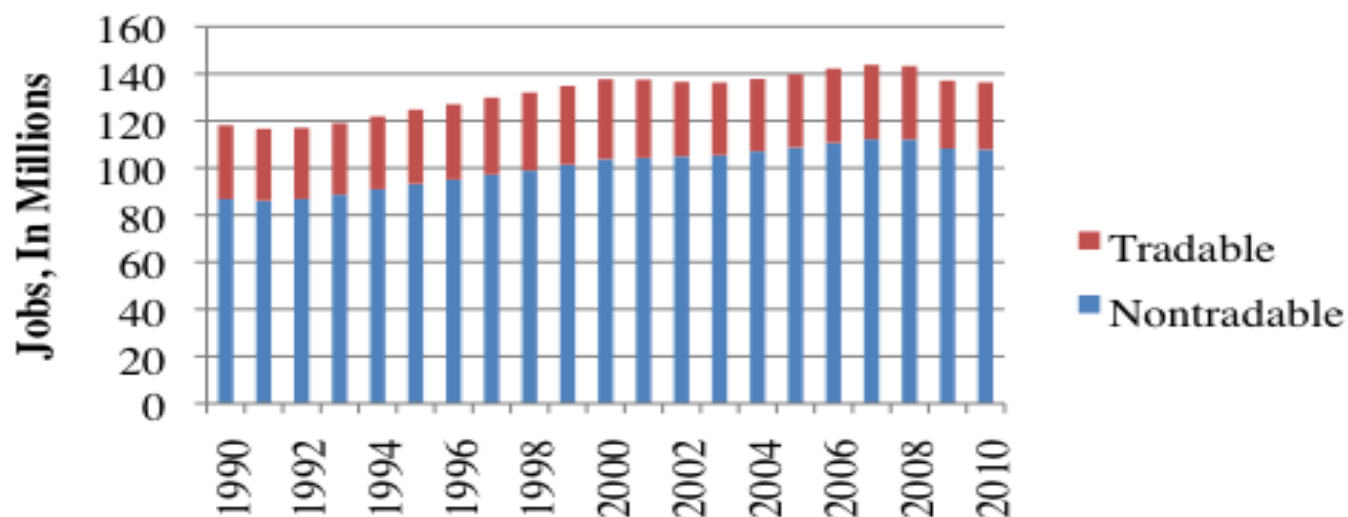


# Structural Shifts

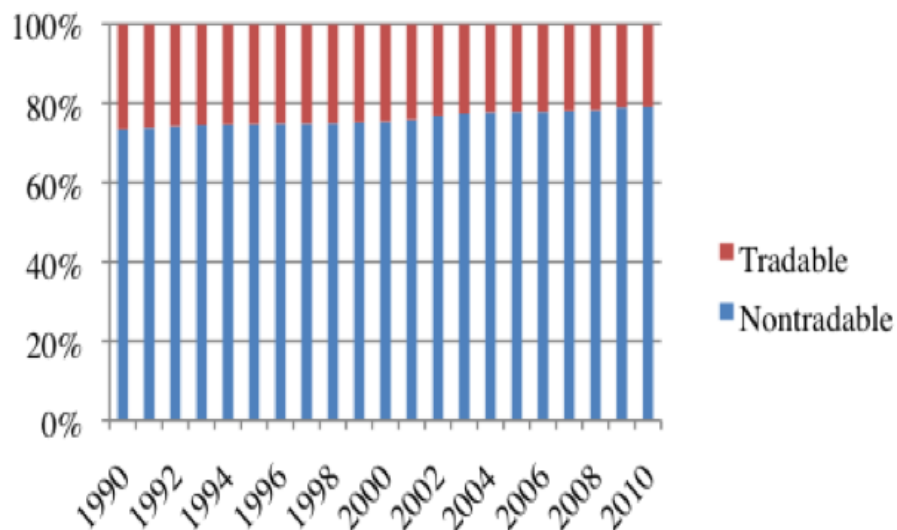
- In the past, technology created (eventually) middle income jobs
- In this round, thus far, technology and globalization have taken out middle income jobs and replaced them with higher income or lower income jobs – hence job and income polarization
- Example: faculty and staff in an academic department
- It may be that what we are seeing is a disequilibrium and that the longer run effect will be the same, a shift to a different set of higher middle income jobs that are complementary to the “machines”
- This tends to be my view
- Its implication is that policy (to the extent permitted by politics) should be focused on accelerating and “easing” the transition

USA

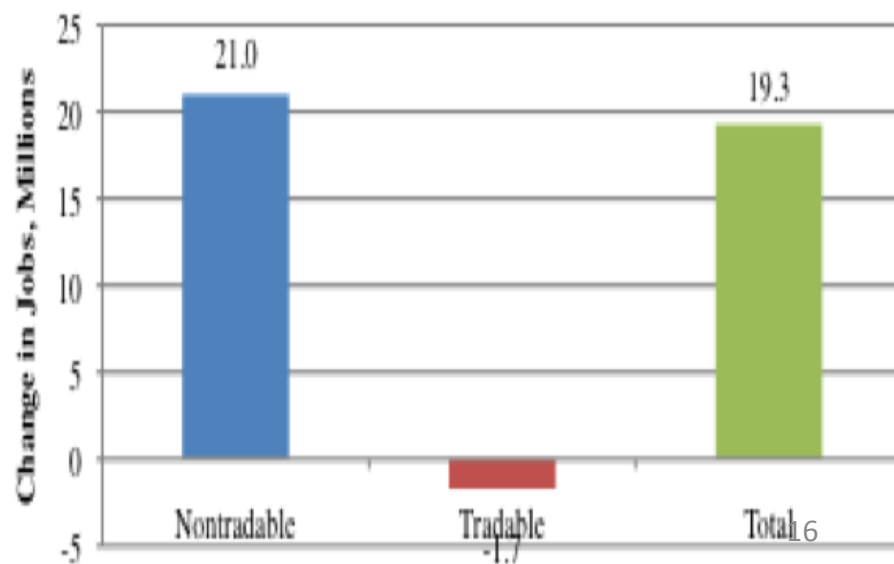
### U.S. Tradable/Nontradable Jobs, 1990-2010



### U.S. Employment Split (%)



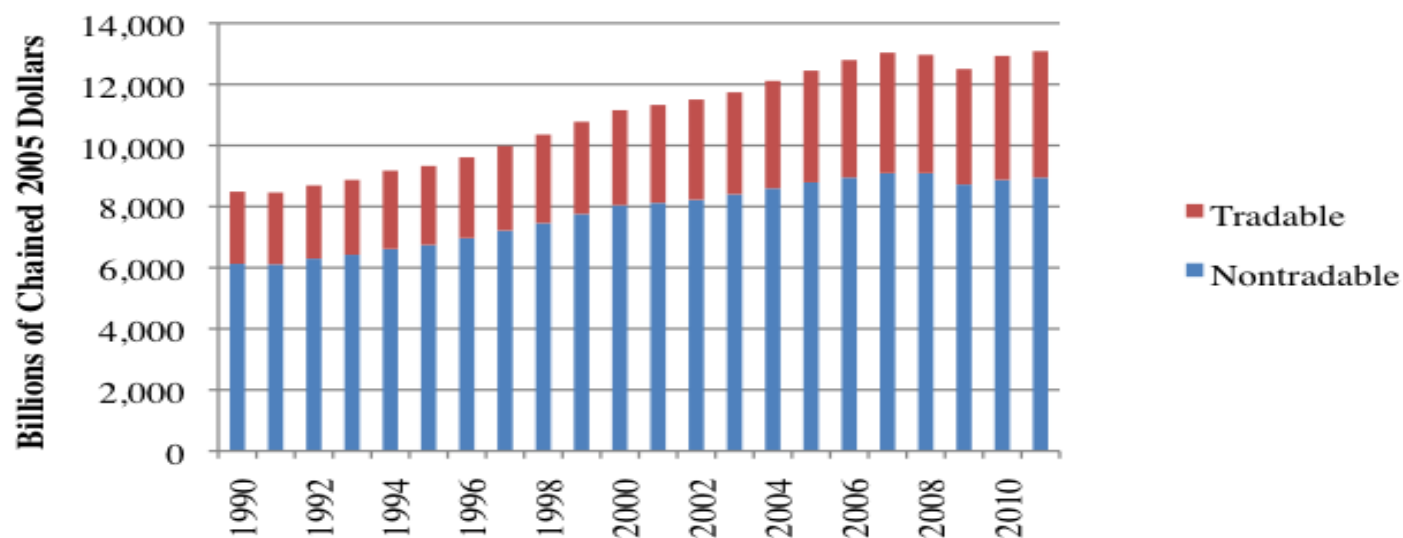
### U.S. Total Change in Jobs, 1992 to 2010



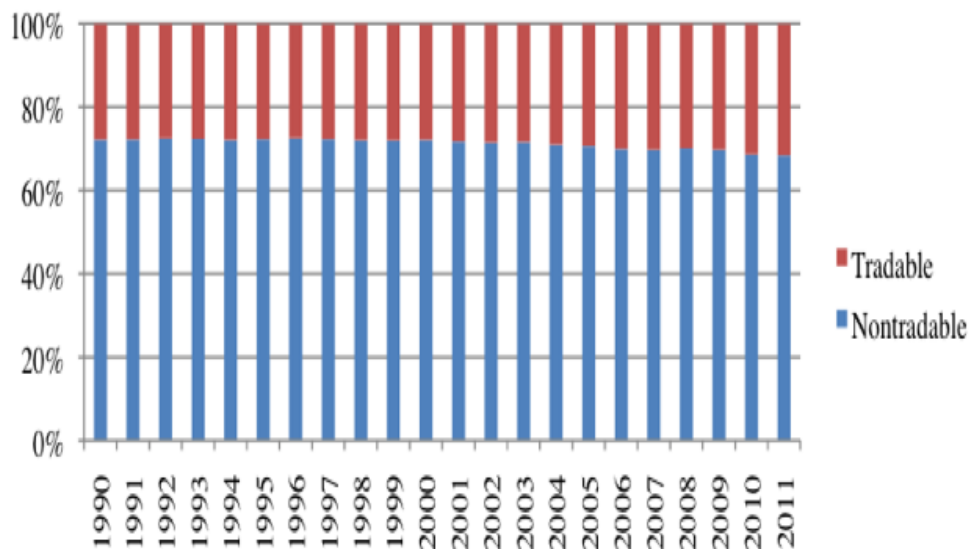


# Value Added

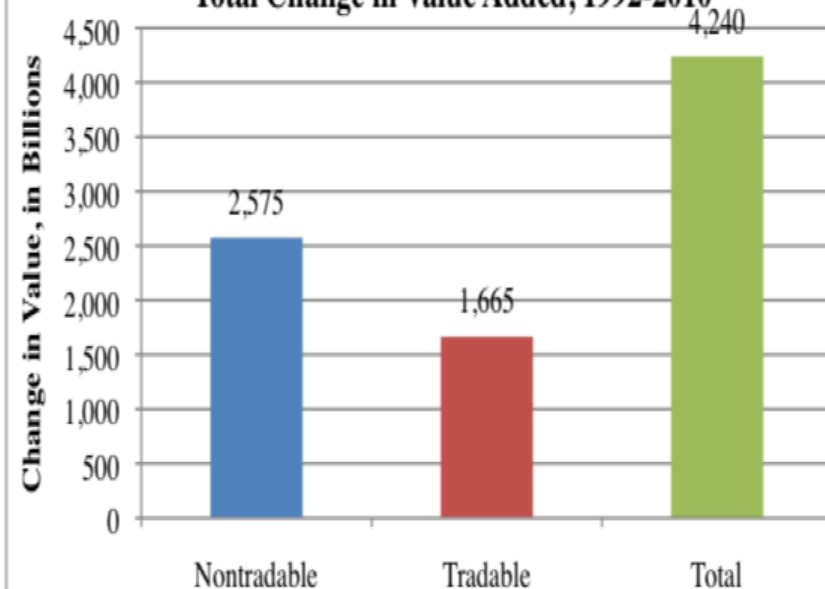
## US Tradable/Nontradable Value Added, 1990-2011



## U.S. Value Added Split (%)

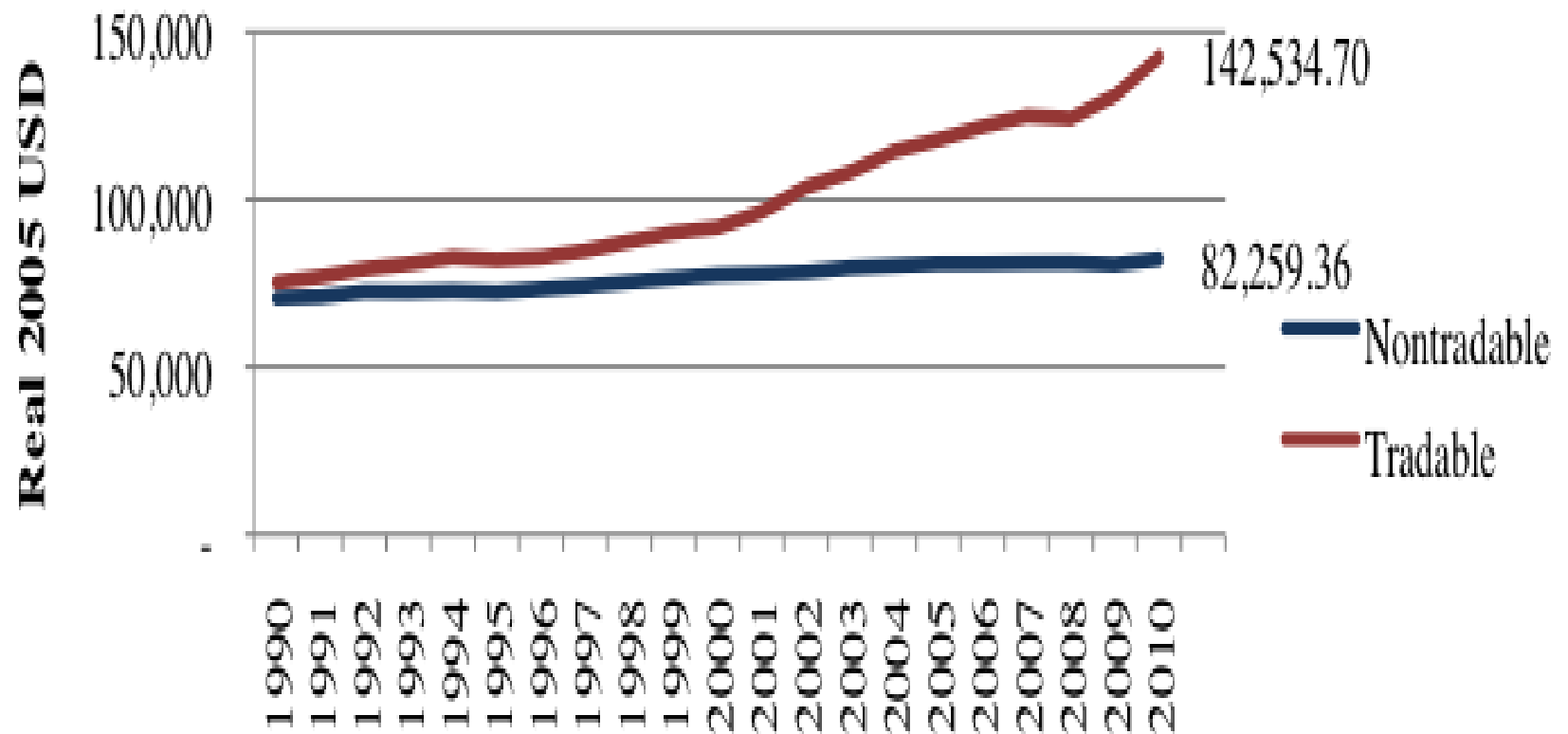


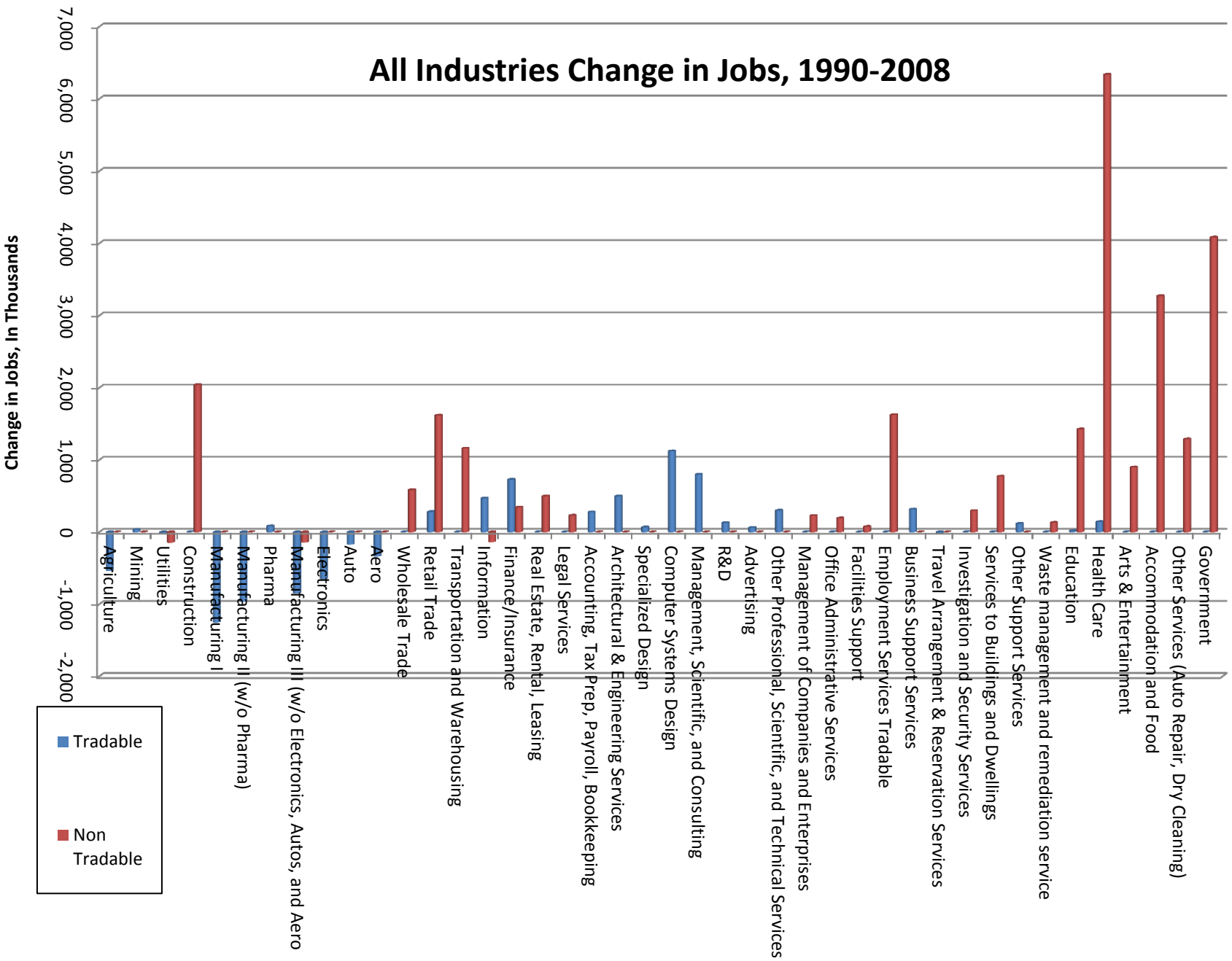
## Total Change in Value Added, 1992-2010



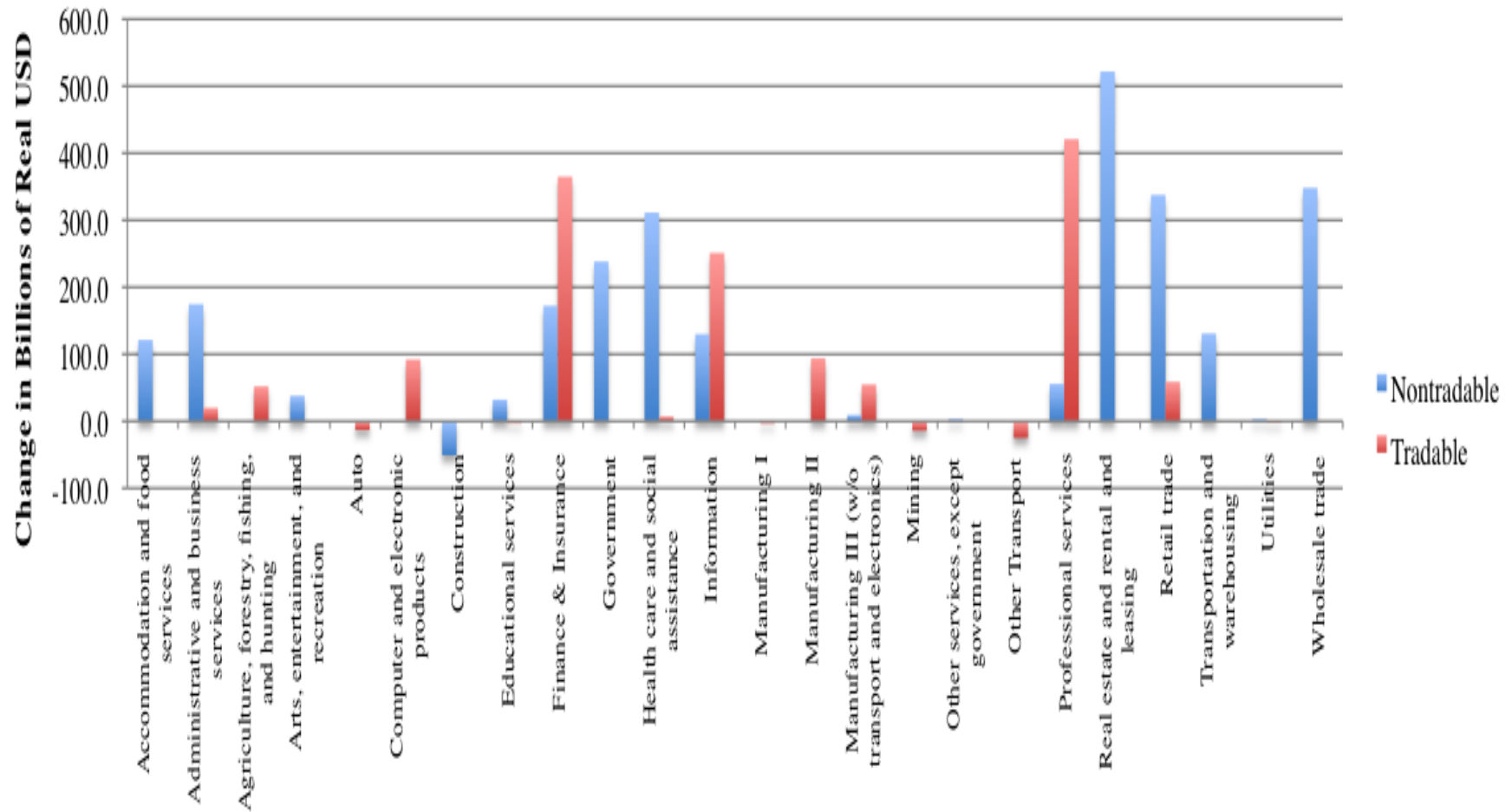
# Value Added per Worker

US Weighted Value Added per Job, 1990-2010

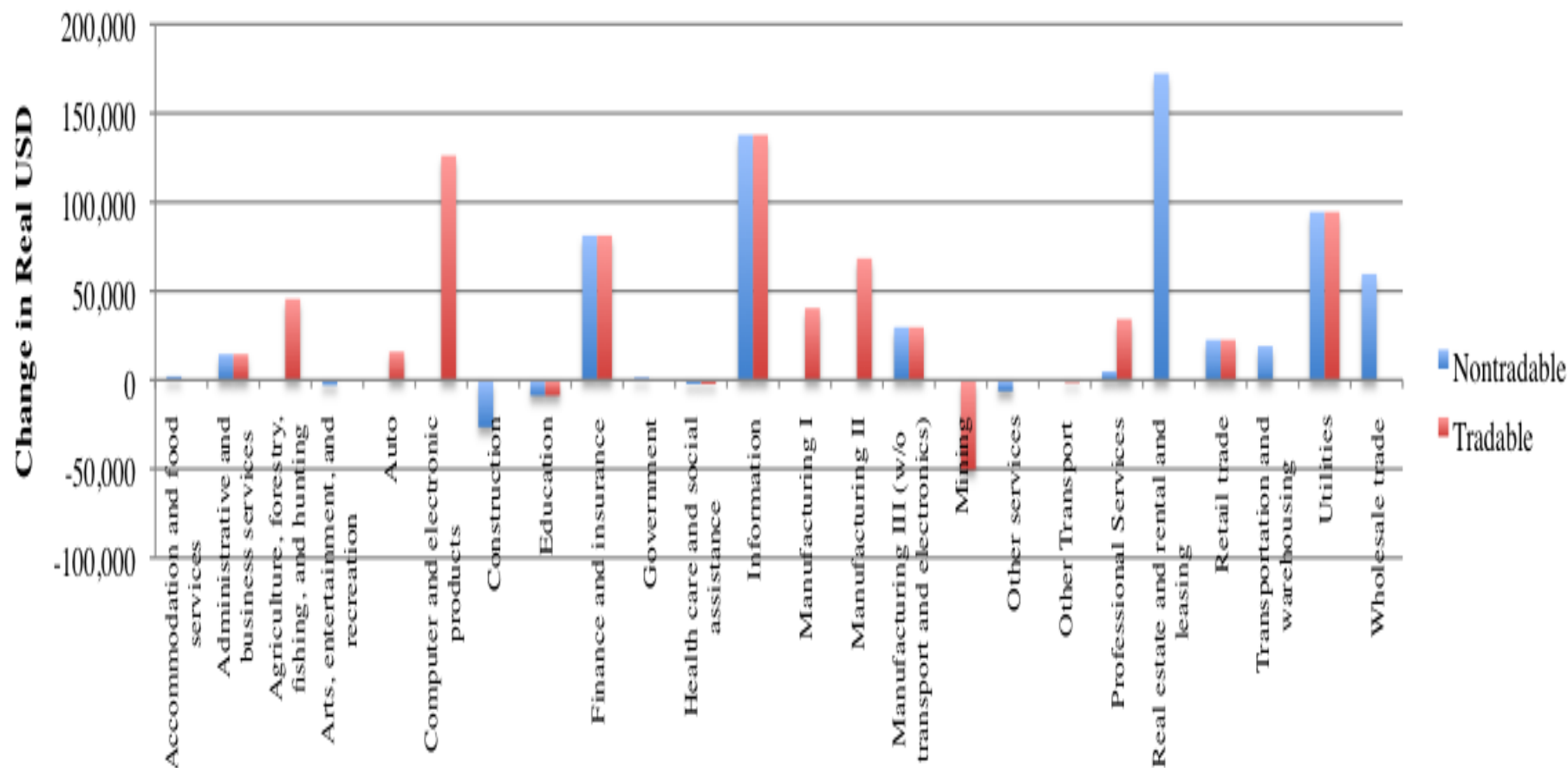




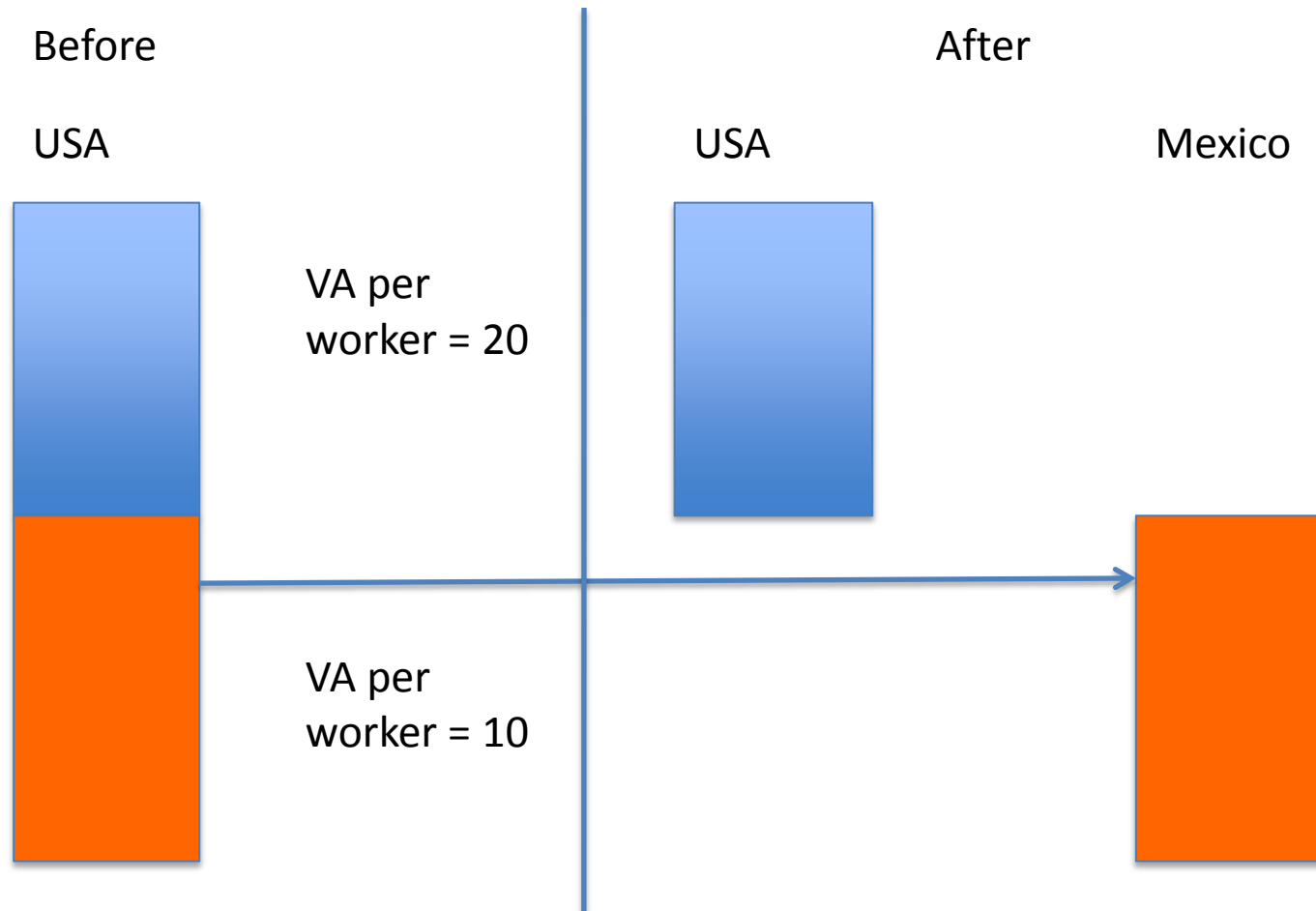
## U.S. Change in Value Added, 1992-2010, in Billions of USD



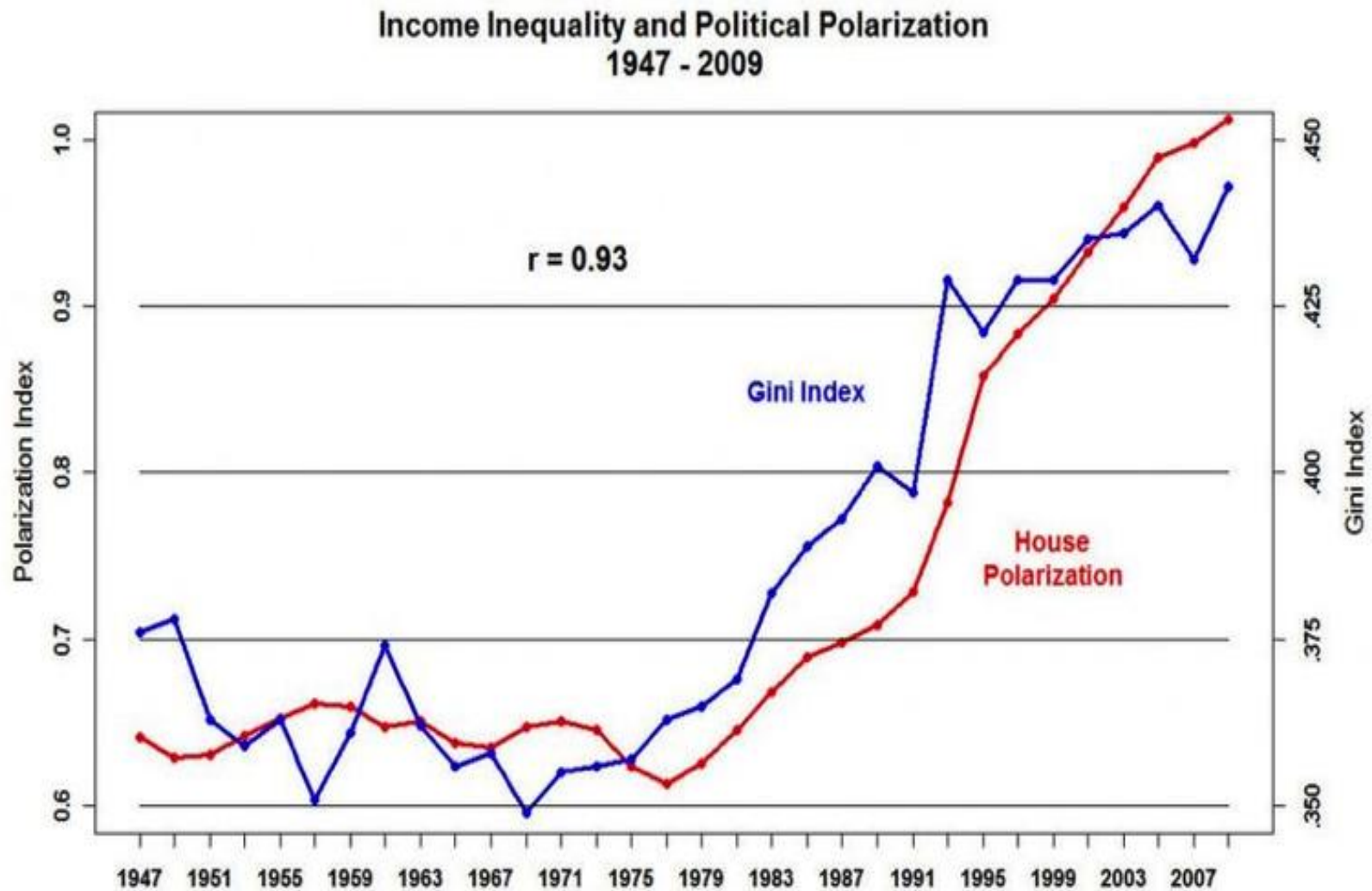
## U.S. Change in Value Added Per Job, 1992 to 2010, in Real USD



# Value added per Worker and Global Supply Chains



# USA Income Distribution and Political Polarization



COUNTRY	INCOME OF THE RICHEST 10% OVER THE POOREST 10%	INCOME OF THE RICHEST 20% OVER THE POOREST 20%	GINI COEFFICIENT
Australia	12.5	7	35.2
Austria	6.9	4.4	29.1
Belgium	8.2	4.9	33
Brazil	51.3	21.8	57
Canada	9.4	5.5	32.6
China (PRC)	21.6	12.2	46.9
Denmark	8.1	4.3	24.7
Finland	5.6	3.8	26.9
France	9.1	5.6	32.7
Germany	6.9	4.3	28.3
Greece	10.2	6.2	34.3
India	8.6	5.6	36.8
Israel	13.4	7.9	39.2
Italy	11.6	6.5	36
Japan	4.5	3.4	24.9
South Korea	7.8	4.7	31.6
Mexico	24.6	12.8	46.1
Netherlands	9.2	5.1	30.9
New Zealand	12.5	6.8	36.2
Norway	6.1	3.9	25.8
Russia	12.7	7.6	39.9
South Africa	33.1	17.9	57.8
Spain	10.3	6	34.7
Sweden	6.2	4	25
Switzerland	9	5.5	33.7
Turkey	16.8	9.3	43.6
United Kingdom	13.8	7.2	36
United States	15.9	8.4	40.8



# 3D Printing



# Electronics Assembly



# Artificial Intelligence and Machine Learning

- A major break through in the past ten years
- Leveraging computer and network speed and access to unimaginably large data bases
- Automation used to be about codifiability
- Meaning machines can do what we can do if we know how we do it and can program the machine precisely
- Now it is about learnability
- Meaning machines can learn to do things much as we do, by trial and error, examples, pattern recognition, huge data bases
- Google's ALPHAGO and its significance

# Summary

- Globalization and digital technology
- Have dramatically alerted the structure of economies
- Made us more interdependent via specialization
- Reduced “sovereignty”
- Put the labor markets out of long run equilibrium
  - Skills a human capital cannot keep up with the demand side shifts
- GLOBALLY
- Physical production (digitally enabled) will move toward the market, not toward pools of labor
- Services will continue to move to valuable and less mobile labor

# Equality of Opportunity and Intergenerational Equity

- In most societies, it is promoted by access to largely publically financed high quality basic services: health care, education, early childhood care and stimulation
- Extreme inequality in outcomes, spills over into adverse effects on equality of opportunity
  - Via the ability to invest
- Redistribution has to lean against the market forces winds

# Why is the Policy Response Weak?

- Complexity
- Over reliance on monetary policy with attendant costs and risks
- Fiscal and other constraints
- Divergent Values
- Economists oversold globalization by highlighting benefits and minimizing the distributional aspects
  - People are pissed (technical term)
- Developing country growth is worth it
- Most likely: traditional political coalitions have broken down and not yet been replaced by new ones
- Use of resources tipped to who will govern as opposed to governing

# What you see now

- Incomplete and unbalanced growth strategies
- Free riding
- Deflation
- Demand constrained growth
- Little effective response to distributional trends
- Investment (public and private) way too low
- Headwinds to international cooperation
  - WTO
  - Decline of multilateral system
  - G20 sound bites
  - Competitive devaluations