

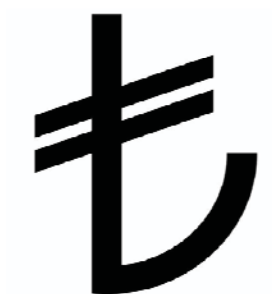
# Demographic Transition, Impact of ICT, and Globalization: A Long View of the Post-Crisis World

Speech at the Central Bank of the Republic of Turkey

Kiyohiko G. Nishimura

Deputy Governor

Bank of Japan



INTRODUCTION

## **TURKEY AND JAPAN: FRIENDSHIP AND COOPERATION ON THE RIM OF ASIA**

# Plan of Speech

- Part 1: Three emerging trends that seem to define the post-crisis economy
  - Mismatch, Lower Trend Growth, End of Wage Deflation
- Part 2: Root causes of these trends
  - Demography, B/S Adjustment, ICT, Globalization
- Part 3: Future changes and policy implications

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Part 1

**ECONOMY AFTER THE CRISIS: LABOR  
MARKET MISMATCH, LOW TREND GROWTH  
AND INFLATION -- US AND JAPAN --**

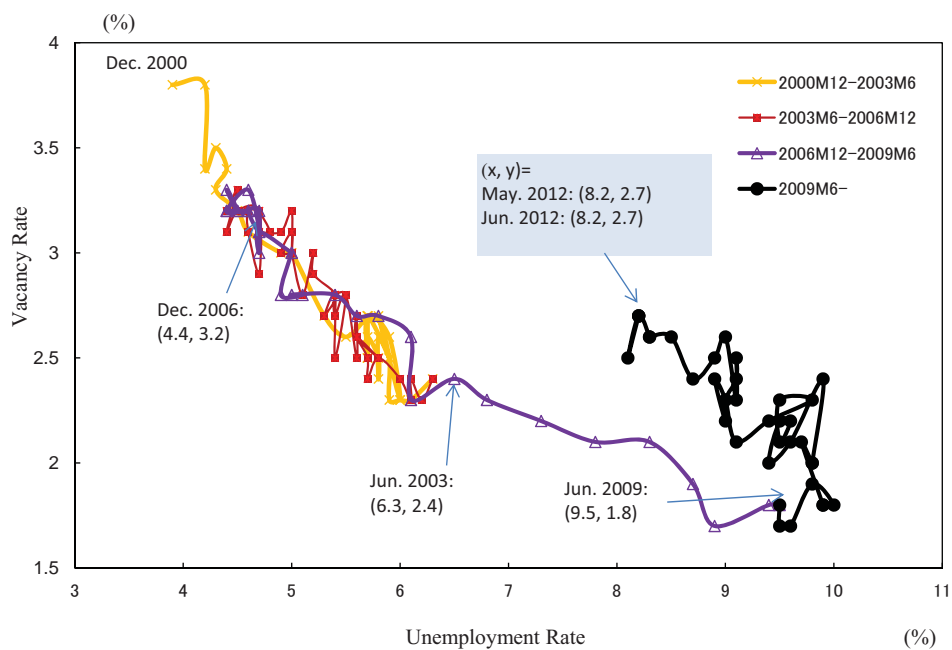
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# Features of the post-Crisis economy

- Increasing mismatches in the labor market
- Lower trend growth
- End of services wage disinflation

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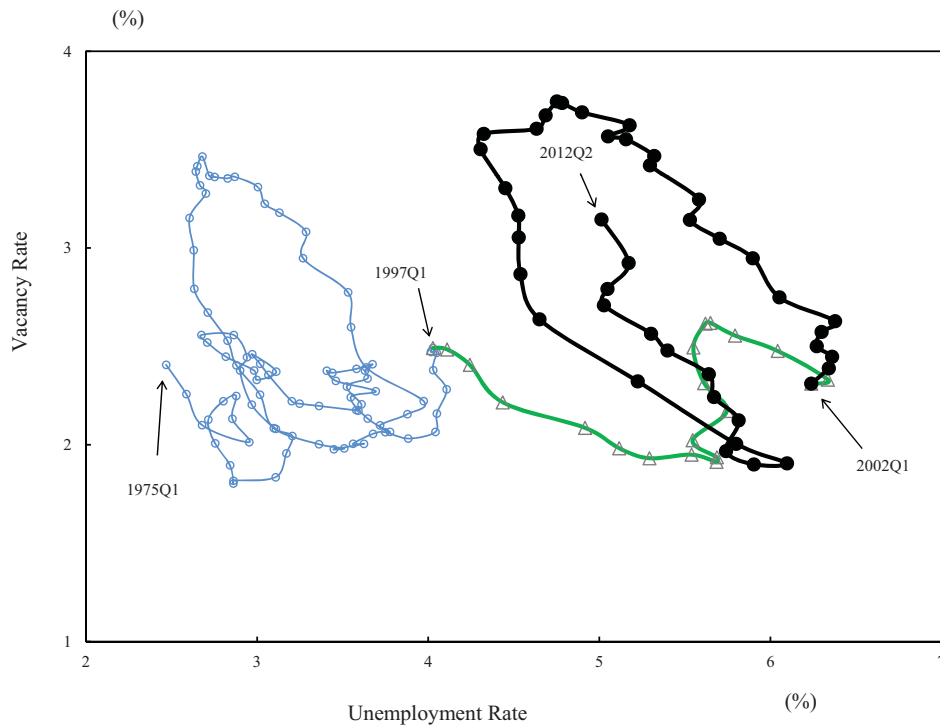
## Outward shift of the US Beveridge Curve



Higher unemployment rate in coming years?

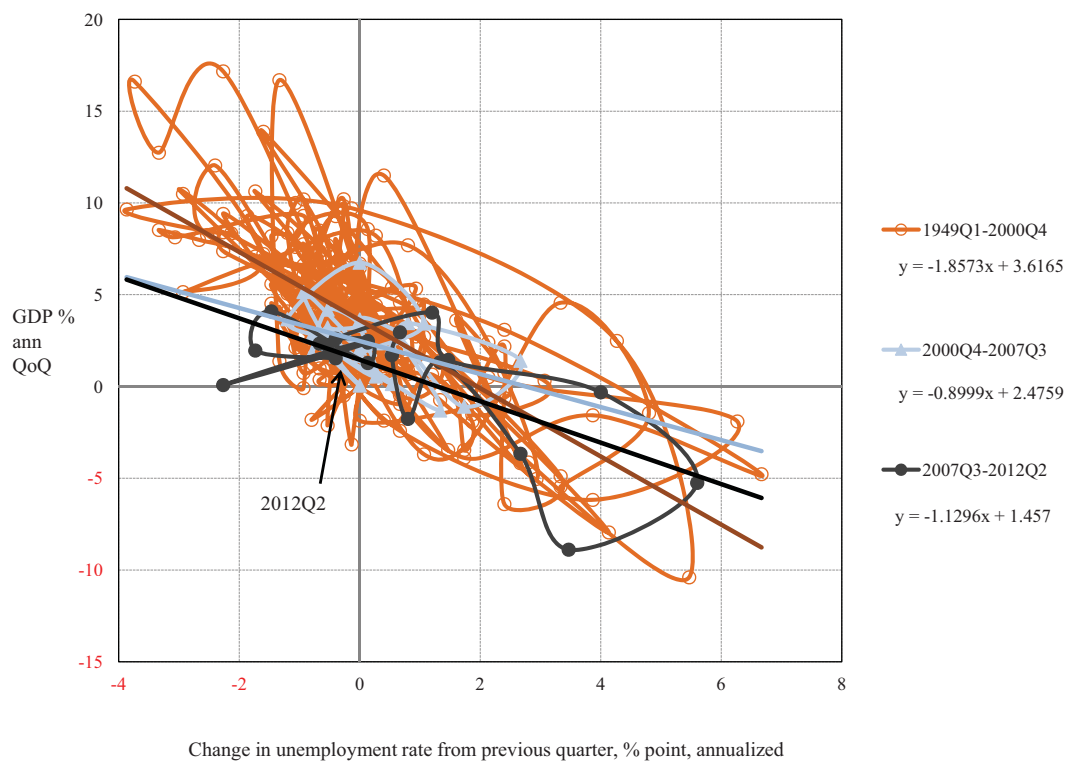
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# The Beveridge Curve in Japan



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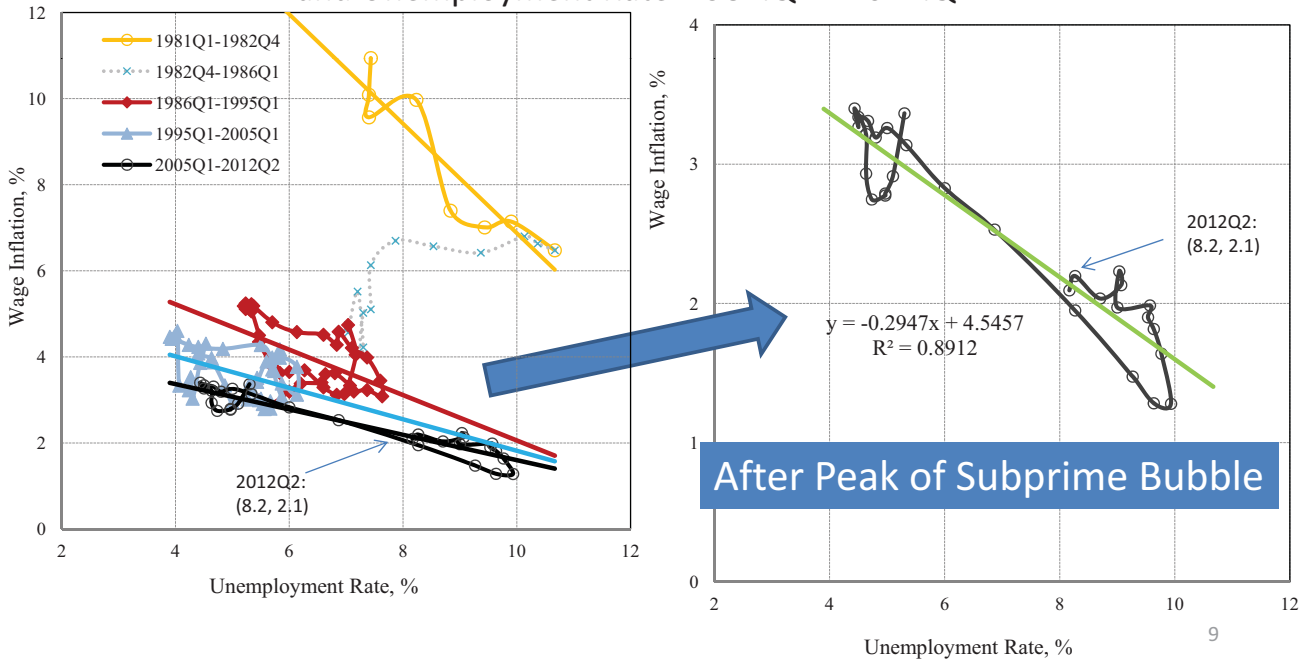
# Okun's Law and trend growth in U.S.



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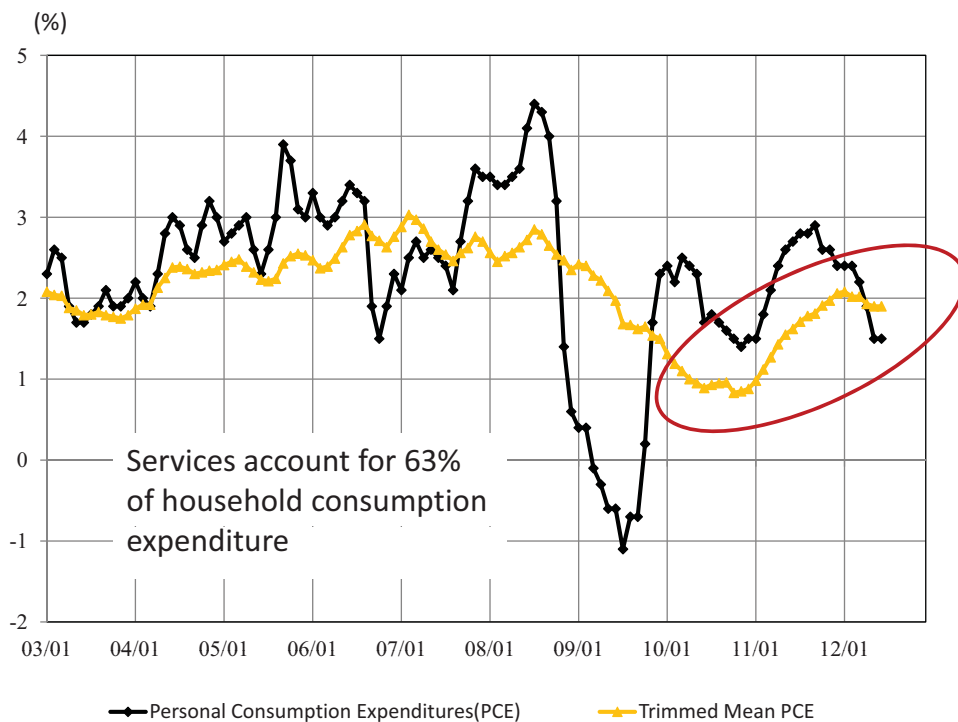
# U.S. short-term Phillips Curve (service industries)

Employment Cost Inflation in Service Industries  
and Unemployment Rate 1981.Q1—2012.Q2

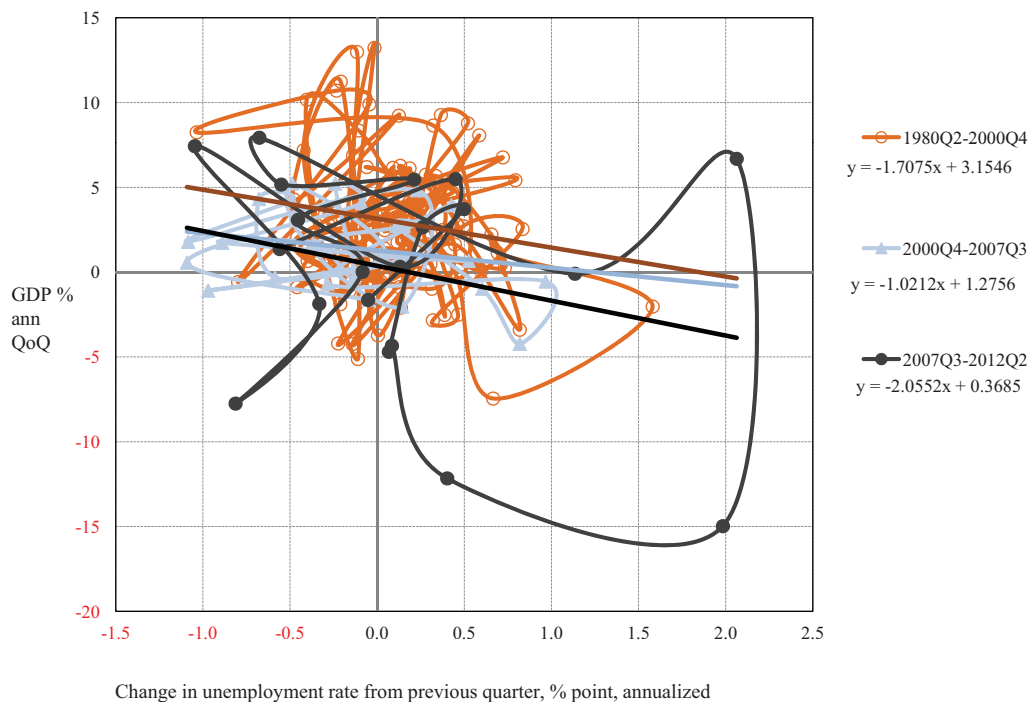


## Positive trend inflation in U.S.

Trend in year-on-year PCE inflation rate (trimmed mean)



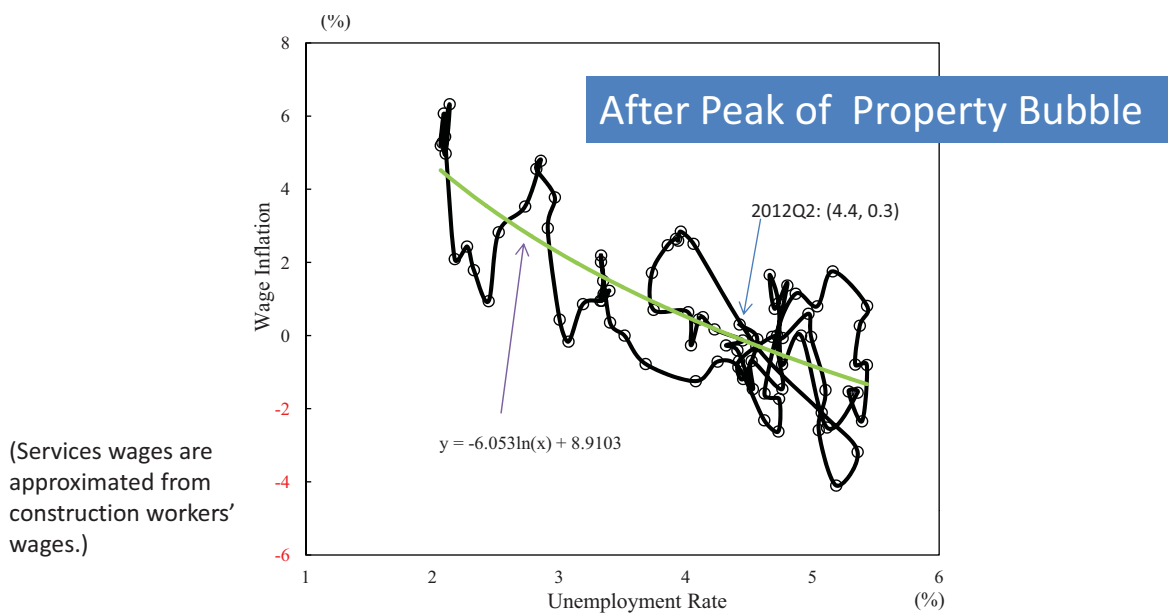
# Okun's Law and trend growth in Japan



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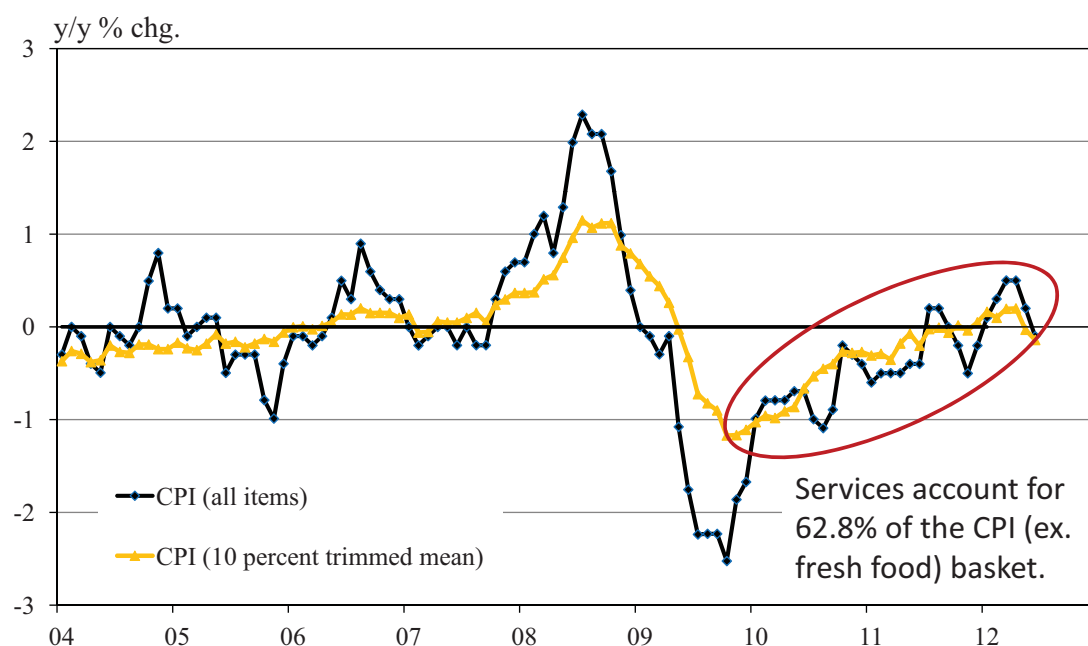
## Japanese short-term Phillips Curve (service industries)

Services Wage Inflation and Unemployment Rate  
1991.Q1—2012.Q2



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# Positive trend inflation in Japan



Note: Figures for the 10 percent trimmed mean are weighted averages of items; these items are obtained by rearranging year-on-year rates of price change in ascending order and then excluding items in both the upper and lower 10 percent tails by weight.  
Source: Ministry of Internal Affairs and Communications.

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## Temporary or permanent?

- Majority view in U.S.=temporary
  - No structural change
  - Reflection of huge negative shock from GFC
  - Possibility of jump-starting demand

### CBO's projection on potential growth

(Average annual growth, in percent)

Total Economy	History			Projections	
	1950-1991	1992-2001	2002-2011	2012-2013	2014-2022
Potential GDP	3.6	3.2	2.3	1.7	2.3
Potential Labor Force	1.7	1.3	0.9	0.4	0.5
Potential Labor Productivity*	1.8	1.9	1.4	1.3	1.8

\* The ratio of potential GDP to the potential labor force.

Source: Congressional Budget Office

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# Possibility of prolonged sluggishness

- Very slow (though steady) recovery until now (8/2012)
- Recovery patterns are different from past recoveries
- Nature of financial crises (Reinhart and Rogoff thesis)
- Internationally similar patterns suggest international undercurrents

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Part 2

**WHAT LIES BEHIND MISMATCH AND LOW TREND GROWTH: AGEING, BALANCE SHEET ADJUSTMENT, THE IMPACT OF ICT ON WORKPLACE AND VALUE CHAIN, AND GLOBALIZATION**

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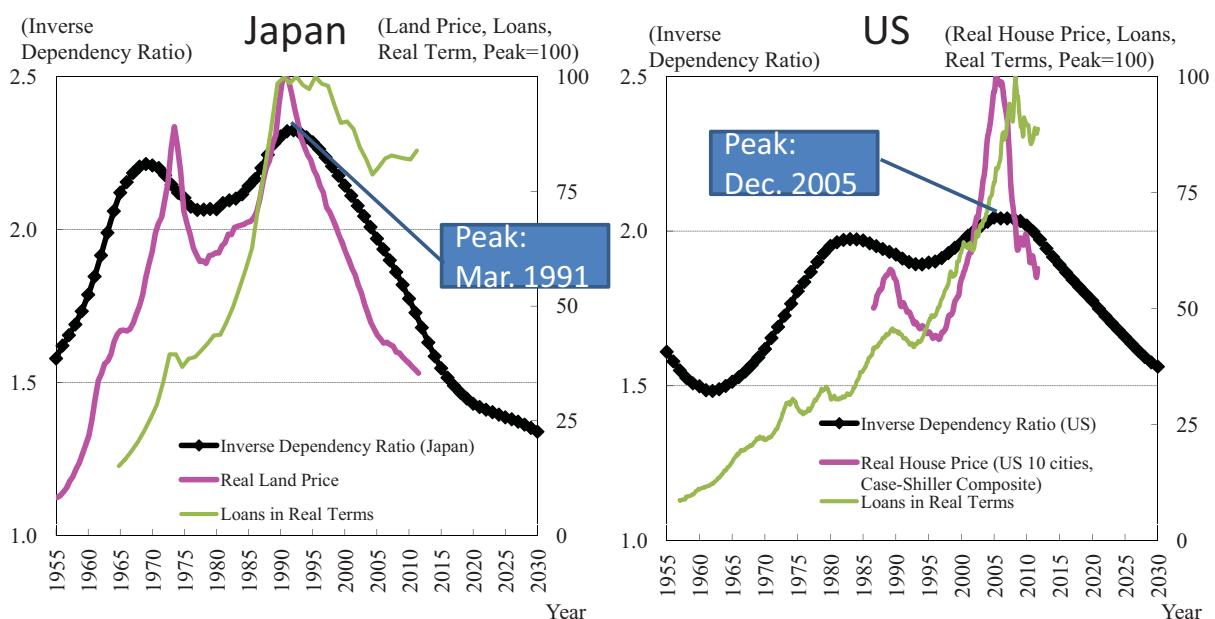


# Four Common Forces

- Transition from demographic bonus to demographic onus
- Severe balance-sheet adjustment after the collapse of the bubble
- Ubiquitous application of information and communication technologies
- Globalization

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# Demographic transition and bubbles



Note: Loans: (Japan) Loans of Depository corporations, Flow of Funds, Bank of Japan  
 (US) Loans and leases in bank credit, all commercial banks, not seasonally adjusted, Federal Reserve

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# Theory and Empirical Evidence

- Demographic change has a significant effect on:
  - Property prices
    - Takáts (*Journal of Housing Economics* 2012), also Nishimura (*Cambridge Speech* 2011)
  - Long-term interest rates
    - Ichiue et al (*Bank of Japan WP* 2012)
  - Demand for money and property prices
    - Nishimura and Takáts (*Bank for International Settlements WP* 2012)
- Confounding factors: excessive optimism (“this time is different”)

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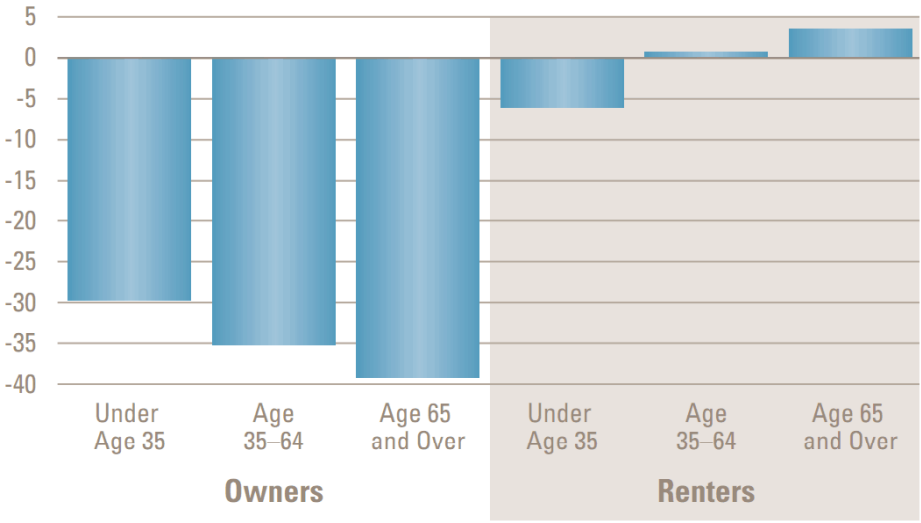
## Bubbles and demographic onus

- Reduced flexibility/mobility
- More severe balance sheet adjustment

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# Declining mobility in U.S.

Effects of Aging and Declining House Prices  
Changes in Householder Mobility Rate, 2005–9 (Percent)

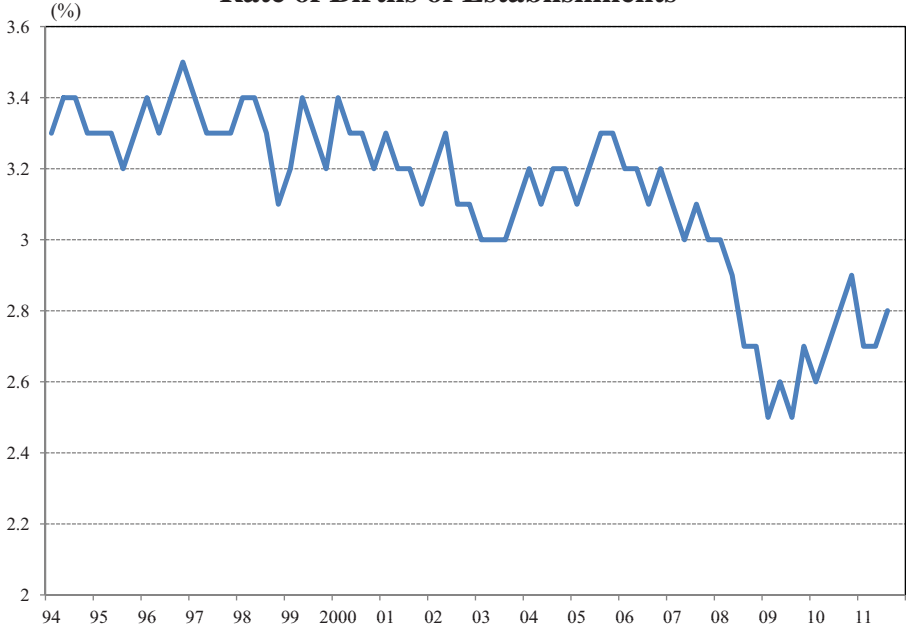


Note: Mobility rate is defined as the share of householders who reported having moved in the previous 12 months.

Source: The Joint Center for Housing Studies of Harvard University, "The State of the Nation's Housing 2010."

# Declining establishment birth-rate in U.S.

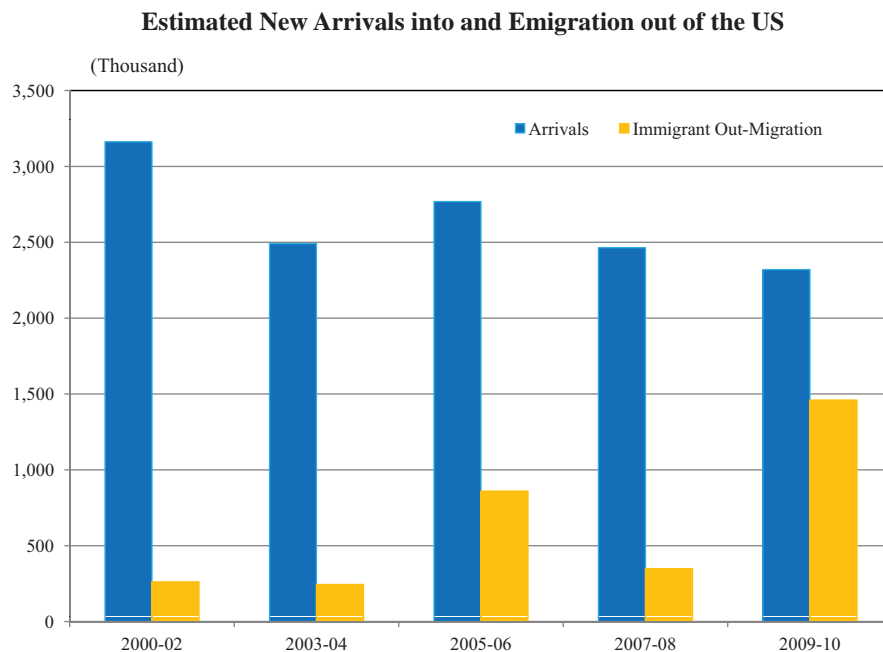
Rate of Births of Establishments



Source: U.S. Bureau of Labor Statistics

# Reduced U.S. immigration flows

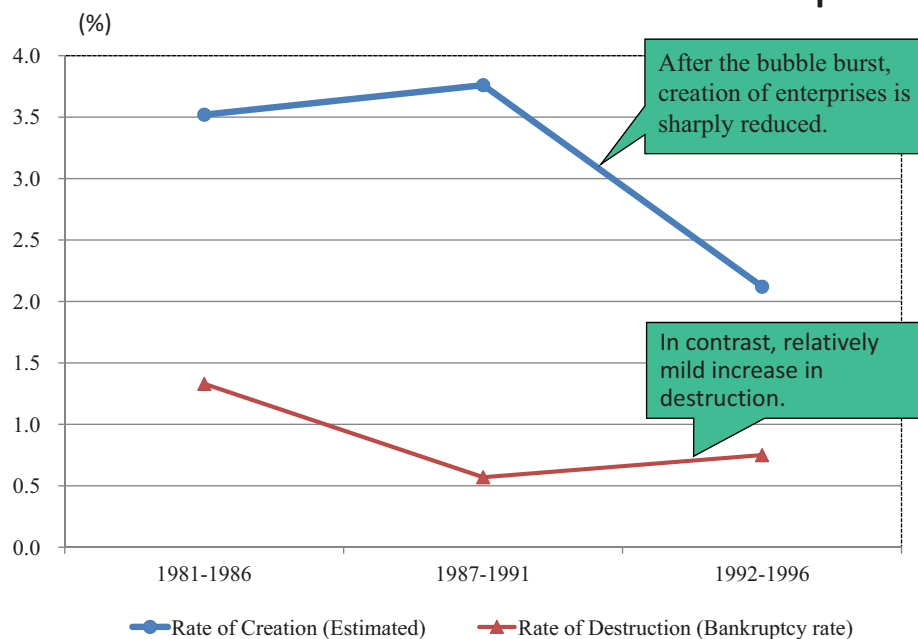
Immigrants are most mobile and considered as major contributor to US flexibility. But ...



Source: Steven A. Camarota "Immigration and Economic Stagnation: An Examination of Trends 2000 to 2010"

# Reduced flexibility/mobility in Japan

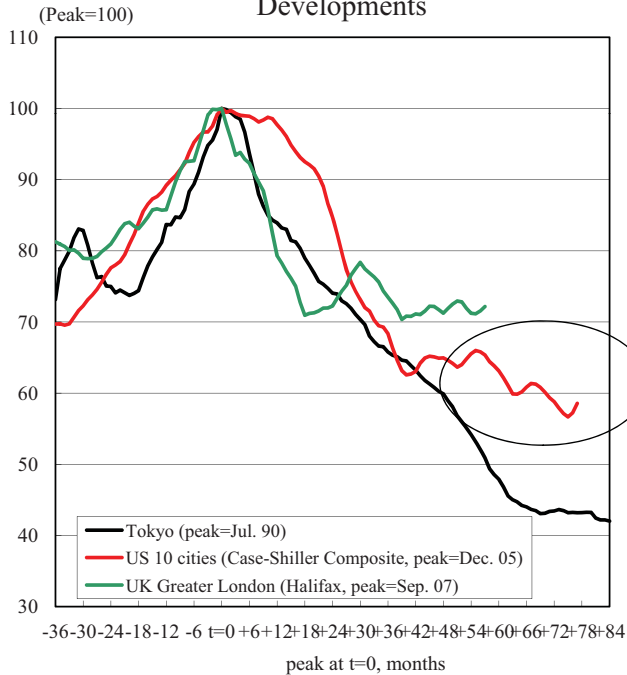
## Creation and Destruction of Enterprises



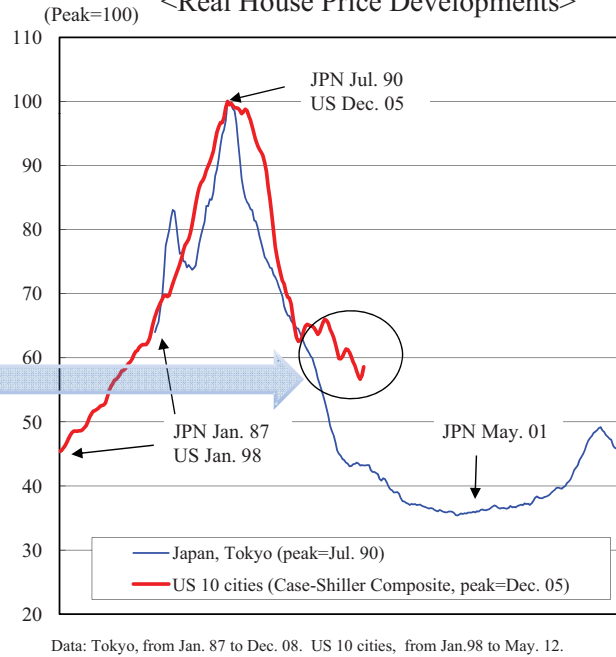
Source: Nishimura and Kawamoto (2003), "Why Does the Problem Persist?: "Rational Rigidity" and the Plight of Japanese Banks," The World Economy, 26 (2003), 301-324

# Severity of balance-sheet adjustment

Comparison of Real House Price Developments



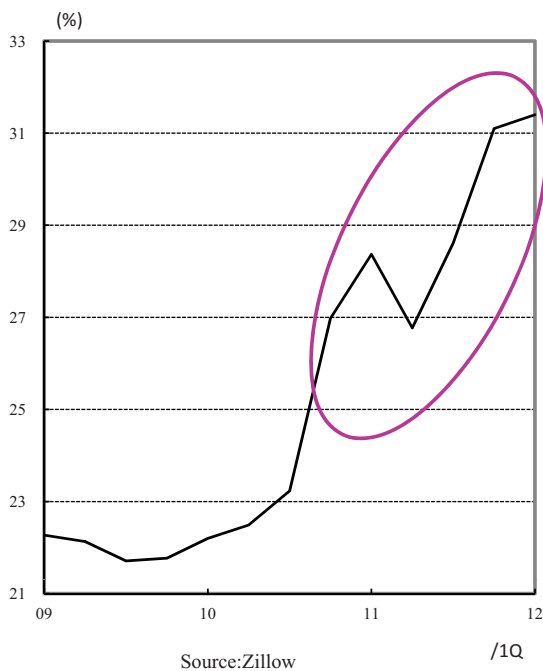
The Current US Position <Real House Price Developments>



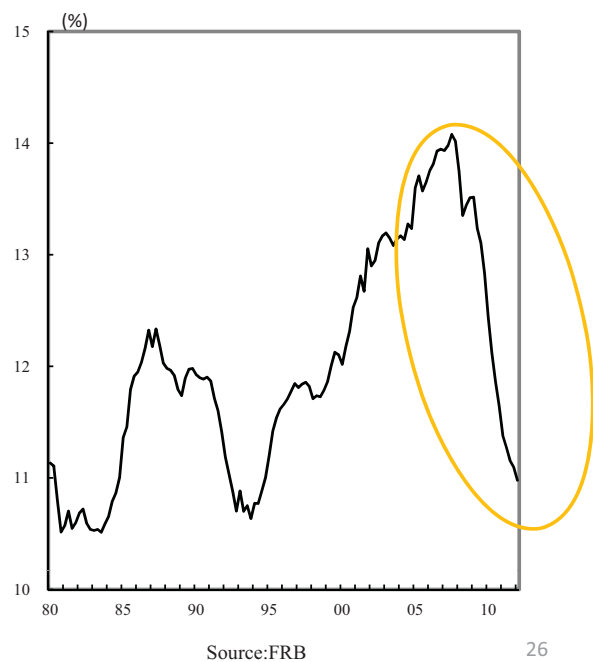
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# Different impact of B/S adjustment in U.S.

Negative Equity Share



Debt Service Ratio

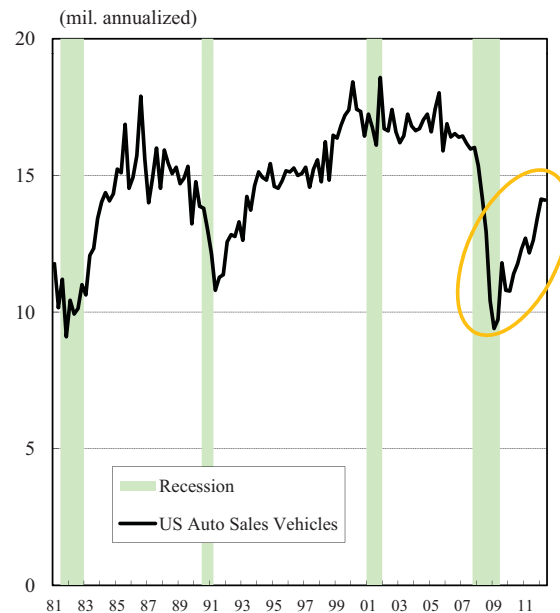


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# Divergence between industries in U.S.

Depressed Housing Markets

Recovering Automotive Sales



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## Dysfunction of financial system and B/S adjustment

- Severe balance sheet adjustment may hamper financial institutions' efficient functioning as financial intermediaries (e.g. Japan around 1997)
- Pile-up of non-performing loans led to breakdown of market selection mechanism

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# Nishimura, Nakajima and Kiyota

## Large Scale Firm-Level Panel Data of Japanese Firms, 1994-1998

Total Factor Productivity of surviving and exiting firms

Shaded: exiting firms are more productive than surviving firms

Table 6  
Breakdown of the natural selection mechanism

	1994–1995		1995–1996		1996–1997		1997–1998	
	Survive	Exit	Survive	Exit	Survive	Exit	Survive	Exit
All industry								
More than 100 workers	2.02	1.47	1.85	1.52	2.04 <	2.07	2.08	1.92
More than 50 workers	2.01	1.54	1.85	1.53	2.02 <	2.03	2.06	1.90
Manufacturing								
More than 100 workers	1.66	1.35	1.89	1.84	2.24 <	2.41	2.42	2.18
More than 50 workers	1.66	1.51	1.87	1.77	2.22 <	2.32	2.38	2.09

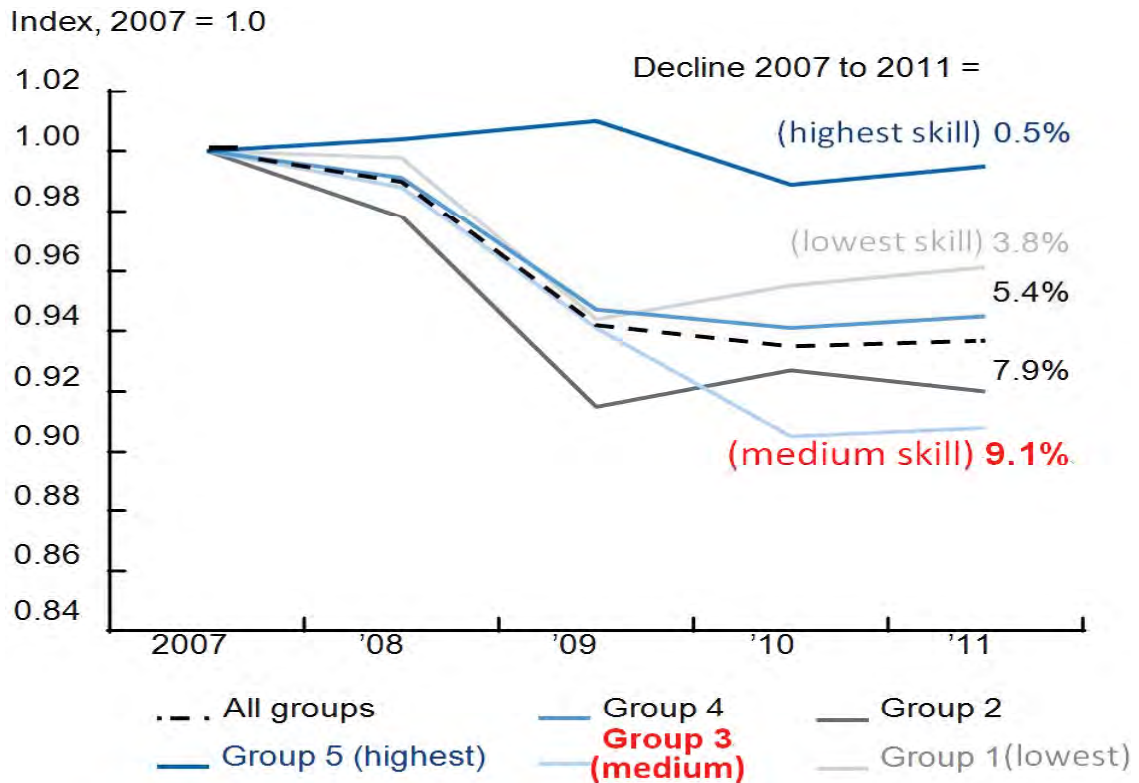
Note: Shaded areas indicate weighted mean of TFP of exiting firms is greater than that of surviving firms.

Nishimura, Nakajima, Kiyota (2005) “Does Natural Selection Mechanism Still Work in Severe Recessions? –Examination of the Japanese Economy in the 1990s-“ *Journal of Economic Behavior and Organization*, 58:1 (2005), 53-78

## Ubiquitous impact of ICT

- Polarizing impact on workforce (labor markets)
  - Moderately complicated tasks can be cheaply “programmed” (AI etc.)
- Polarizing impact on value chain (product markets)
  - Skills in mass manufacturing are no longer the source of profits (replaced by ICT-related capital goods like robots etc.)
- Facilitate flexible choice of location (globalization)

# Loss of Medium-Skill Employment in U.S.

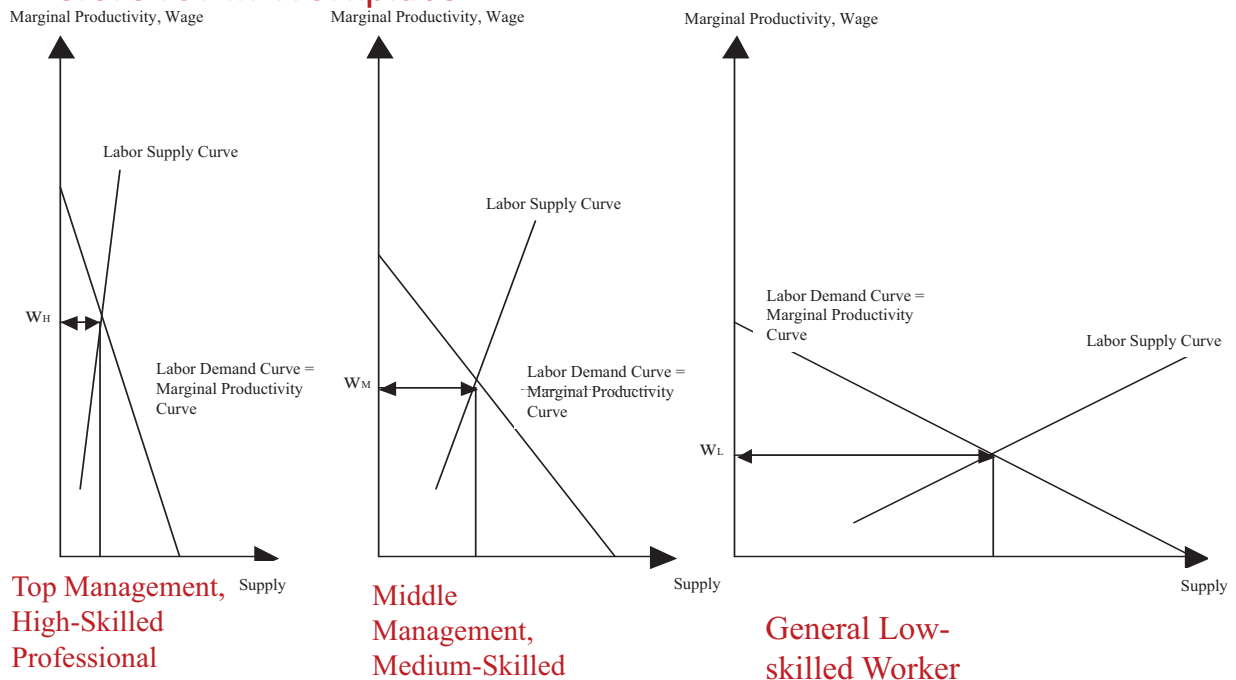


Source: Faberman, R. Jason, and Bhashkar Mazumder, "Is there a skills mismatch in the labor market?" Chicago Fed Letter, July 2012, Figure 4.

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# Impact of ICT in the workplace

## Before ICT in Workplace



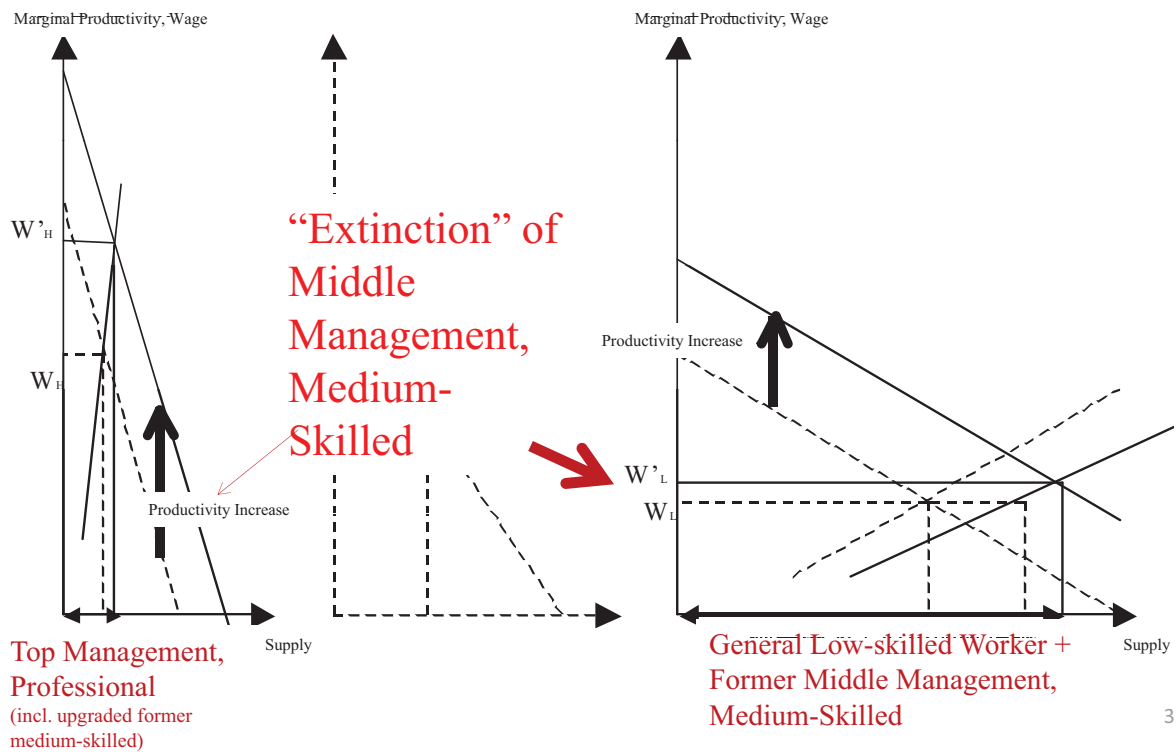
Kiyohiko G. Nishimura, *The Japanese Economy: Inconspicuous Structural Transformation*, (in Japanese) 268 pages, Tokyo: Nihon Keizai Shinbun, September 2004, pp. 76-81

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# Impact of ICT in the workplace (cont.)

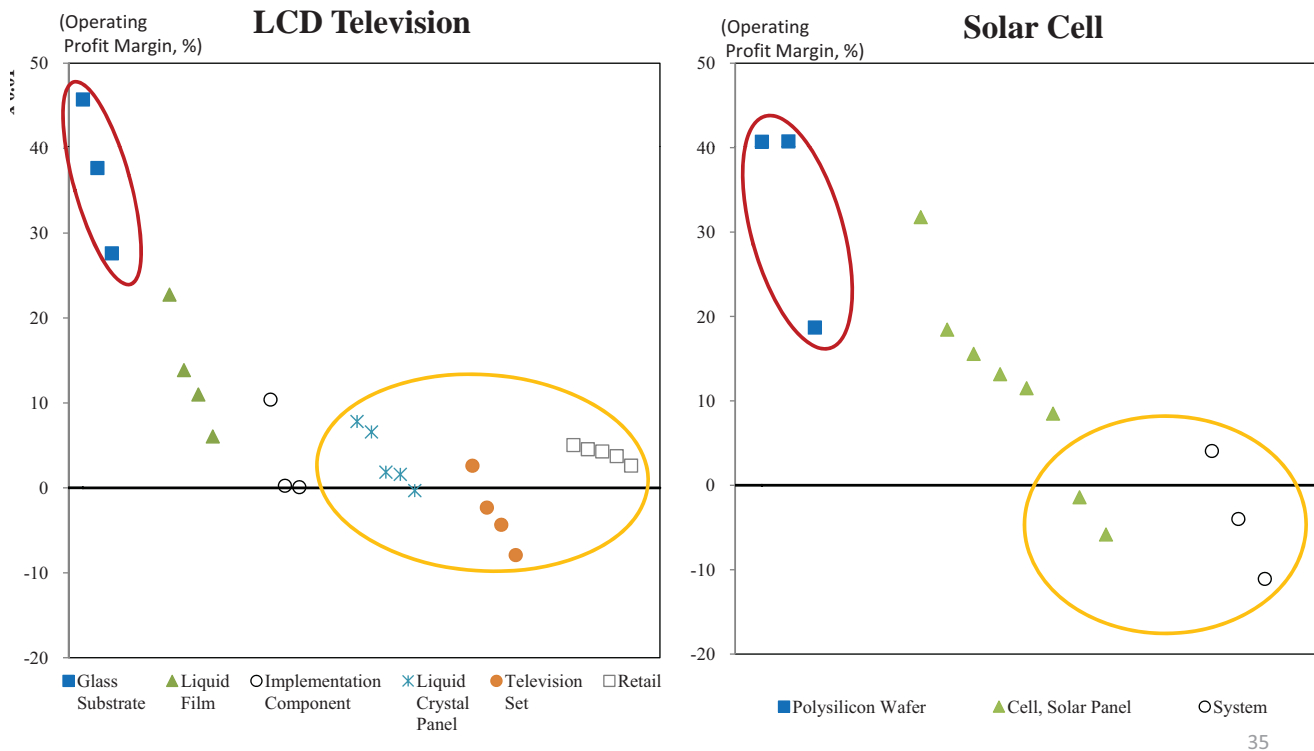
After ICT in Workplace: Productivity is substantially increased, but...



## Impact of ICT on the value chain

- Impact on business organization
  - Improved communication and information processing diminished the value of skills in organizing production
- Impact on business models
  - Extremely low marginal cost of production results in ever lower prices
- Interaction with the labor market
  - Less employment creation

# Operating Profit Margin: Upstream / Downstream



## ICT and globalization

- Reduction in the cost of communication and coordination across borders
  - Creation of networks that attain maximum output at minimum cost
  - Flexibility of changing the network
- Pressure on wages (more polarization)

# Where are we now?

- Prolonged period of low trend growth in advanced economies
- More vulnerable to occasional downward shocks
- More pronounced polarization

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Part 3

## **WHAT LIES AHEAD OF US?**

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# Outlook for the global forces

- Demographic bonus to demographic onus
- Increasing influences of ICT
- (B/S adjustment and Globalization/Polarization are not discussed here)

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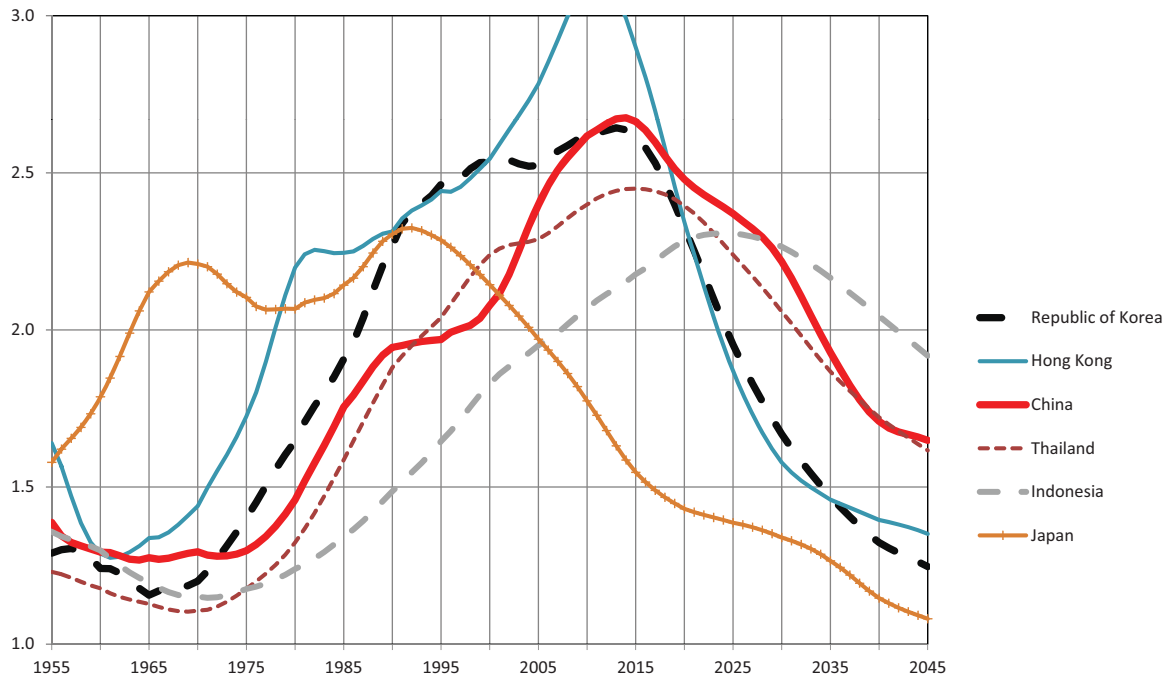
## Demographic bonus to onus

- Demographic bonus is giving way to demographic onus in many areas around the globe
- Turning point:
  - Asia ca. 2015
  - Latin America (Brazil and Chile) ca. 2015-2020
- Inflexibility/immobility/declining growth potential will set in before long

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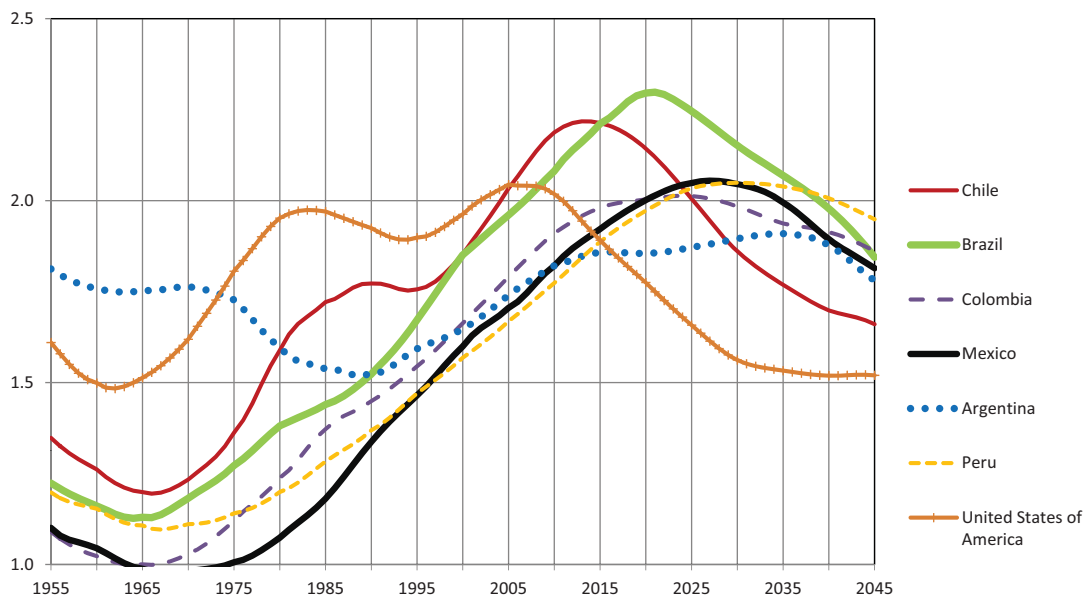
# Demographic trends in Asia

Inverse Dependency Ratio



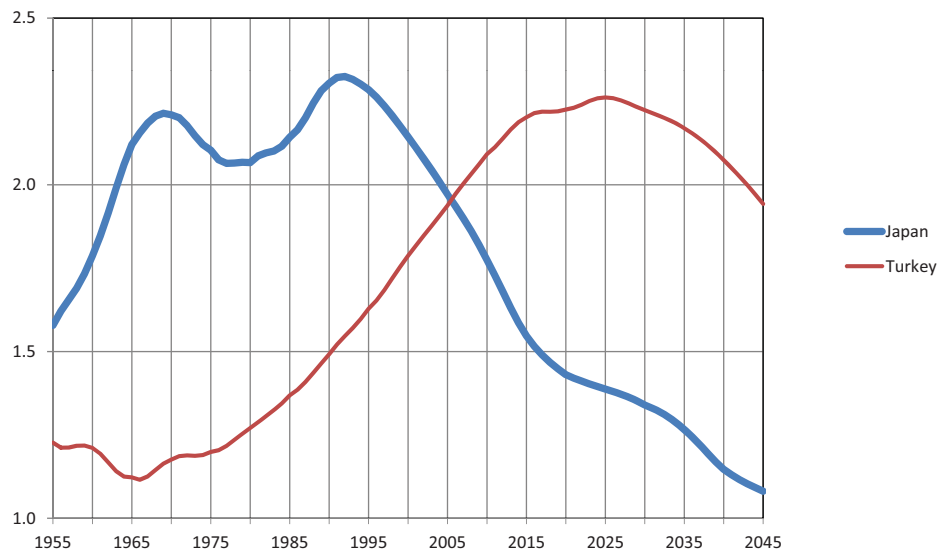
# Brazil, Chile and other Latin American countries

Inverse Dependency Ratio



# Ageing is not synchronous

## Inverse dependency ratios of Japan and Turkey



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## Responses to demographic trends

- The number of young people is diminishing
  - Businesses cannot grow if only selling to young people
- Older generation is more diverse
  - Need for non-mass-market strategies
- Some encouraging signs
  - Especially in Japanese retail businesses

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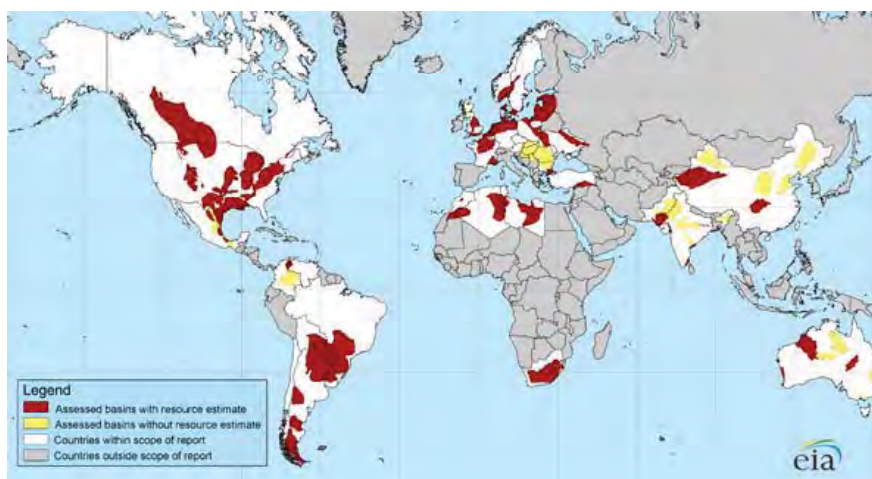
# Adjusting to ubiquitous ICT

- New patterns of competitive advantages
- Reappraisal of the value chain
  - Moving upstream or downstream?
- ICT and demographic transition
  - Opportunities and challenges both in advanced and emerging economies

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# Changing energy endowment

- Shale gas and tight oil will change resource endowment and hence comparative advantages between economies



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## What are the challenges for the Aged Society?

- Ageing: from homogeneous mass consumption of the young to heterogeneous niche consumption of the old → costly “catering” (higher costs)
- ICT-plus-Ageing → market returns (based on marginal utility) fall, but social returns (based on average utility) are higher
- Thus, we must find new ways of promoting and paying for socially beneficial but privately less-profitable projects and services

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## What are the challenges when the population is young and growing?

- Young population in the age of ICT: well-equipped, well-informed, demanding, career-oriented
- ICT-plus-growing young population → need to produce significant number of new “career jobs” as opposed to “dead-end jobs”
- However, ubiquitous ICT is likely to reduce the number of medium-skill career jobs
- Thus, new types of career jobs must be created and promoted

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# Challenges facing central banks

- Adoption of unconventional policies
- Growth Foundation Strengthening Facility (Bank of Japan, since June 2010)
  - Possibly “Funding for Lending” in U.K. too
- Admittedly, a long way to go...

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End



Dusk at the BOJ Courtyard

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