



# The Economic Consequences Of IT: The IT Revolution's Meager Benefits & Major Schisms

Tamim Bayoumi, Visiting Scholar, King's College London

Thursday, 04 May 2023



## A Word From Today's Chairman

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# Today's Agenda



- 14:00 – 14:05            Chairman's Introduction
- 14:05 – 14:25            Keynote Presentation – Tamim Bayoumi
- 14:25 – 14:45            Question & Answer





## Today's Speaker

**Tamim Bayoumi**  
Visiting Scholar  
King's College London



# **Economic Consequences of IT: The IT Revolution's Meager Benefits and Major Schisms**

Tamim Bayoumi,

Visiting Scholar King's College London  
(joint work with Jelle Barkema)

Yzen, May 4 2023



# Growing Inequalities After 1980

- Post-WW2 high growth and income convergence reversed around 1980 accompanied by four trends:
  - growing prosperity and rising house prices in successful “superstar” cities.
  - wage stagnation in less fortunate metro areas
  - mediocre growth in output and productivity
  - falling long-distance internal migration
- This unleashed social tensions, especially for those stranded in decaying areas
- A locational model can explain these trends based on a technological change.

# From Manufacturing- to IT-Driven Growth

- Before 1980, productivity growth mainly in manufacturing. Needed unskilled labour and capital and went to poorer areas, generating income convergence.
- After 1980 productivity growth was increasingly centered on IT whose primary input was skilled labour.
- Productivity growth swiveled to prosperous and crowded superstar cities where skilled labour was plentiful. House prices and wages in prosperous cities boomed, labour misallocation rose, and national productivity growth stagnated.



# Toyota Versus Amazon

- Symptomatic of this change are the choices of major US investments by Toyota in the 1980s and Amazon in the 2010s
- In 1986, when cars firms were still at the forefront of technological change, Toyota announced its first US factory in Georgetown Kentucky, population 35,847
- In 2019 Amazon chose superstar cities of New York and the Washington DC area for its second headquarters.
- This switch in the location of cutting-edge firms drove the trends discussed above

# Impact of a Rise in Productivity

- The impact of a productivity shock depends on 5 effects
- The *national gain* to wages and output as the economy expands.
- The *technological effect* on relative wages; if an industry uses skilled workers relatively intensively then the relative wages of skilled workers will rise nationally.
- The *distortion effect* on wages and output that comes from changes in housing costs which acts like a tax on local labour; it is largest in places where the cost of housing is more sensitive to changes in employment.
- The *local effect* on wages from the need to induce new workers to move; depends on the factor-bias of the industry as well as the propensity to migrate.
- The *industrial structure effect* as less favored industries move away from places where successful industry is.

# Assumptions for Illustrative Model

- There are two regions, a city with high house prices that are sensitive to employment and a set of towns with the opposite characteristics
- Towns specialize in making manufactures using mostly unskilled labour and capital, city mainly makes IT goods with skilled labour
- Unskilled labour is less mobile and spends a higher proportion of its income on housing. Rents go to rich rentiers who live mainly in city
- The city is more prosperous, with higher wages and house prices, but more inequality from more skilled workers and rentiers

# Rise in Manufacturing Productivity

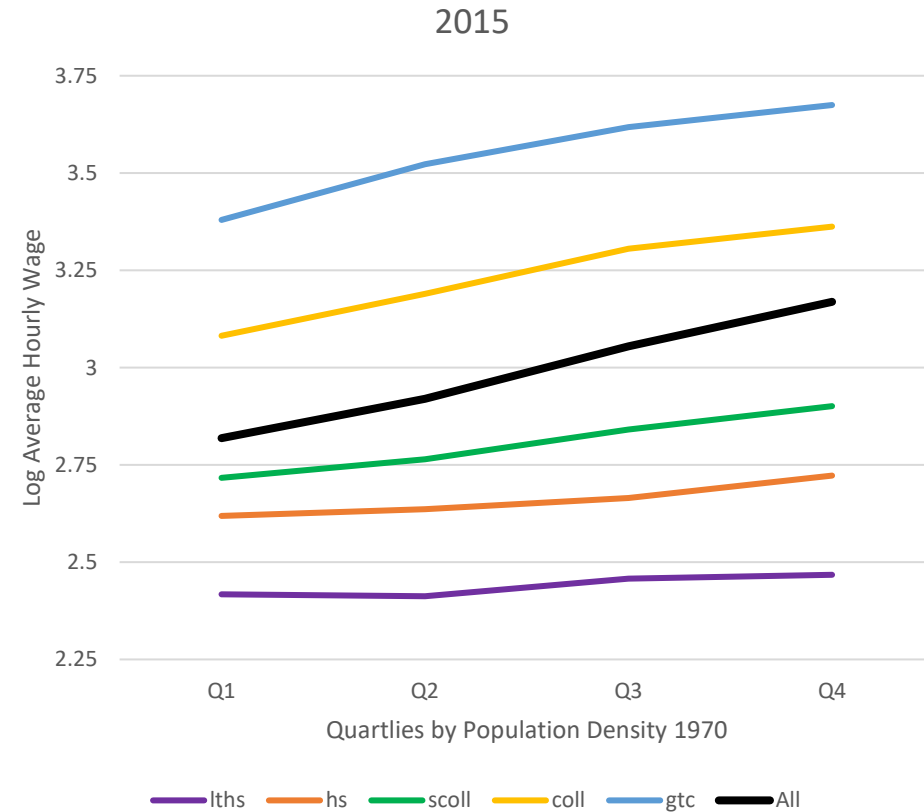
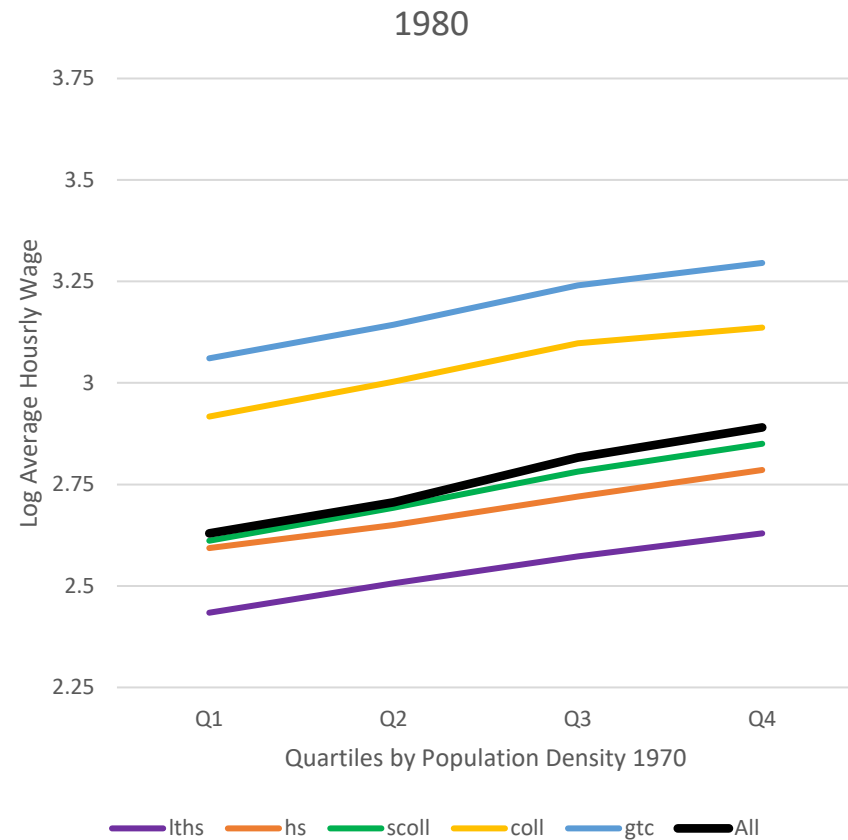
- Higher manufacturing productivity creates rapid growth and income convergence:
- Unskilled wages rise nationally (technological effect)
- Growth boosted as migration lowers city housing costs (distortion effect)
- Wages rise in towns, especially for unskilled since they are in higher demand and less willing to move (local effect)
- Rentiers income is squeezed.

# Rise in IT Productivity

- Rise in IT productivity has opposite effects with some subtleties coming from higher house prices:
- Skilled wages rise, especially in city. Higher house prices increase distortions and lower growth and productivity.
- Demand for unskilled in city is crimped by high housing costs and loss of manufacturing. *Unskilled leave city and local wages fall versus towns*
- Migration falls as high house prices make it difficult to move to prosperity, especially for the poor.
- So IT revolution increases inequality between skilled and unskilled, city and town, young and old. *People feel stranded, unable to move to prosperity*

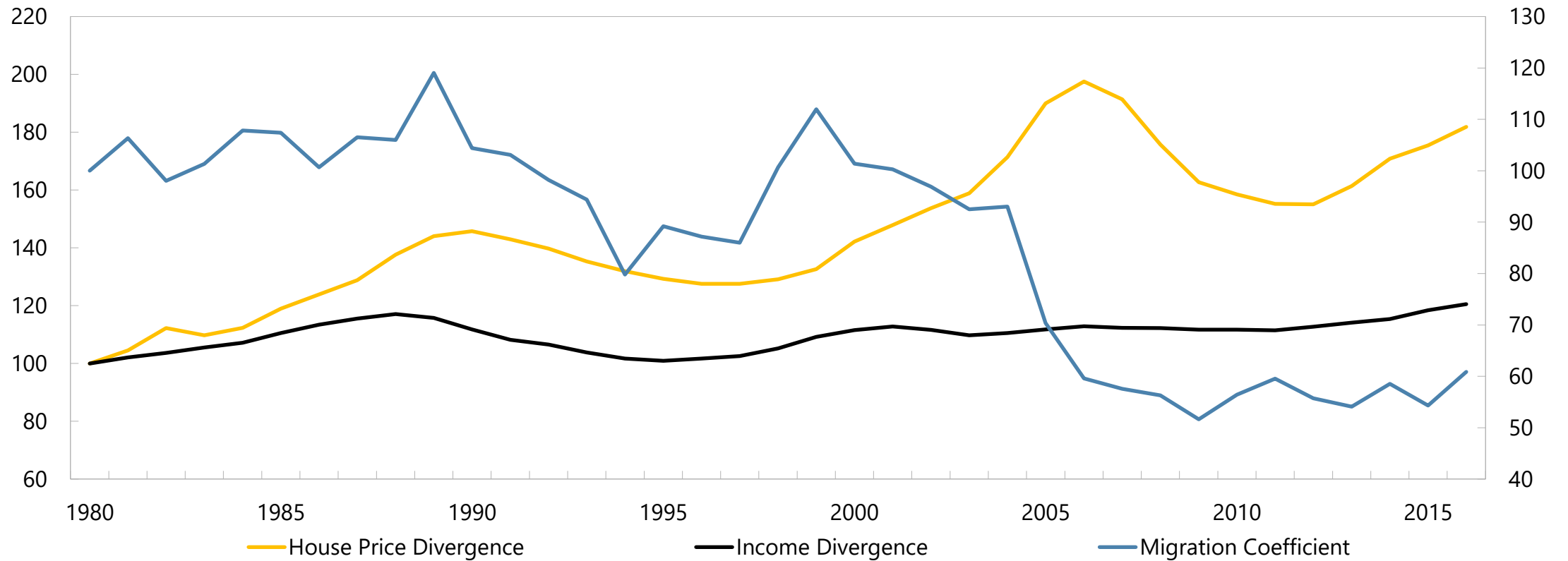


# Wages by Skill and Population Density (Autor)



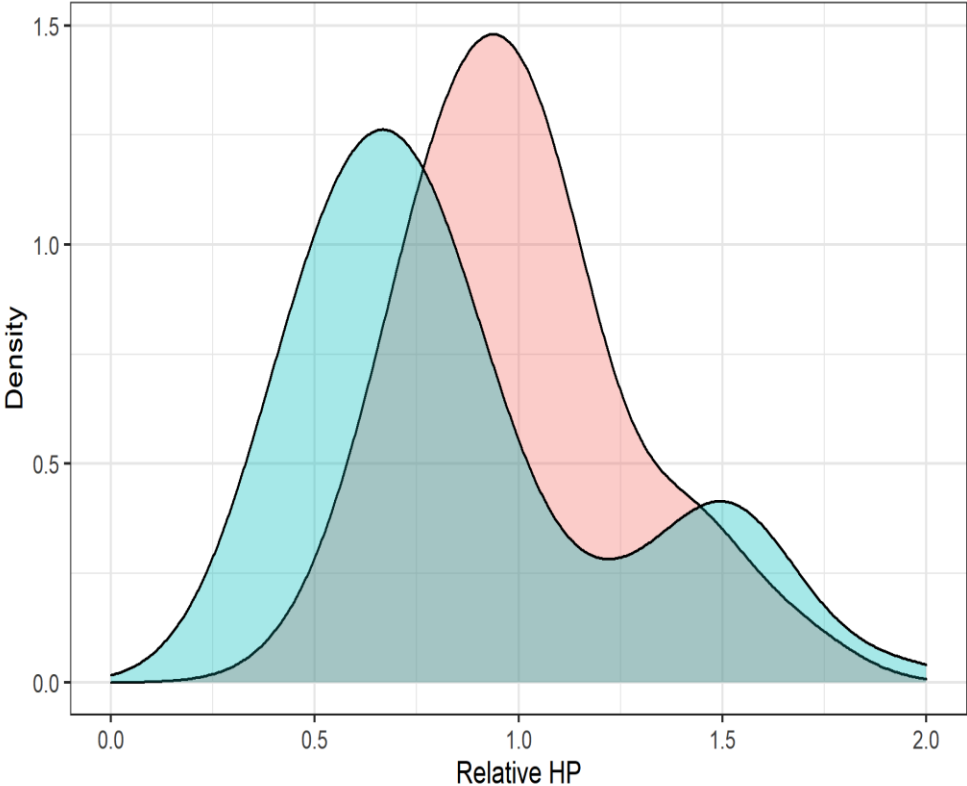
# House Prices, Wages, and Migration

(Standard deviation of HP and Income in logs (lhs), Migration coefficient (rhs), 1980-2016, 1980=100)

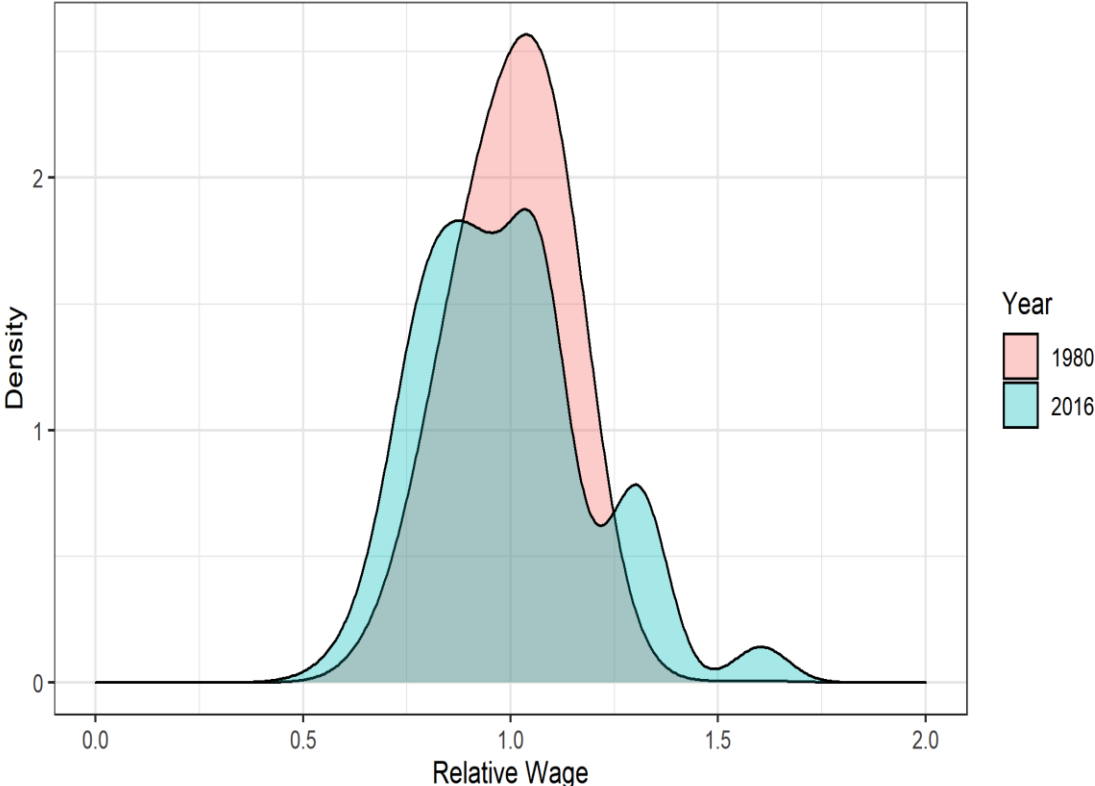


# Distribution of House Prices and Wages

Distribution of Relative HP  
(1980 vs. 2016; Employment-weighted)

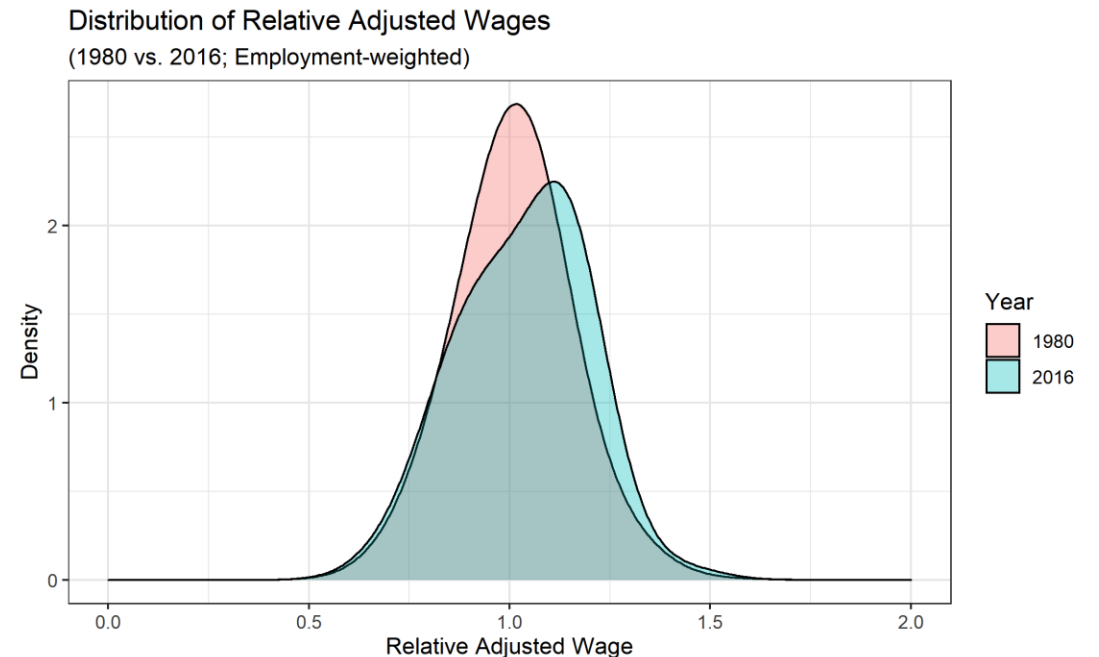


Distribution of Relative Wages  
(1980 vs. 2016; Employment-weighted)



# Distribution of Wages After Housing Costs

- In 1980 high post-housing wages in small manufacturing towns. Top 10% = 8% of employment, half in Detroit and Pittsburg.
- In 2016 top 10% included Boston, New York, San Francisco, San Jose, Seattle, Washington DC. Top 10% represents 34% of employment and supercities are 40% of these jobs.



# Labor Distortions Lowered Productivity

- People have moved *away* from opportunity. Proportion of employment in 6 supercities fell slightly from 1980 to 2016.
- If house prices/relative wages stayed at 1980 levels, productivity growth would have been 1.7% not 0.9%, similar to rates in 1950s/60s.
- IT remains a very small sector, 2.3% of jobs in 2016.



# Conclusions

- The IT revolution has been characterized by mediocre growth and increasing economic schisms: Skilled/unskilled; city/town; young/old. This stands in stark contrast to the 1950s/60s.
- These experiences can be explained in a spatial model in which productivity switched from manufacturing to IT.
- Policy solutions? (1) Reduce distortions. Better land use although benefits likely marginal. (2) Palliative. More income redistribution.

**The End**



# Comments, Questions & Answers



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## Forthcoming Events

- Wed, 10 May (11:00-11:45) Giant Funds & Market Mispricing
- Thu, 11 May (08:00-09:30) Developing Emissions Trading Schemes - BizTech Huìhuà Chat
- Thu, 11 May (17:00-18:30) A Walk Round The Financial Centre Of The City – Exploring Its History, Dark Secrets & Challenges – Post Brexit, Post Covid
- Tue, 16 May (16:00-16:45) Transforming Retail Banking For Streamlined International Transactions

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