ISIGrowth
INNOVATION-FUELLED, SUSTAINABLE, INCLUSIVE GROWTH

The end of the Fordism and the emergence of a IV Industrial Revolution

Patterns and policy challenges

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A Blade Runner scenario?

- A blossoming debate on the effects of robotization upon both employment and inequality is now spurring among scholars in the economic discipline.
- Should we expect an age of medieval techno-feudalism governed by a plutocracy which owns machines and robots, which will enjoy high standard of living, together with the most part of the population deprived of the benefits of technology?

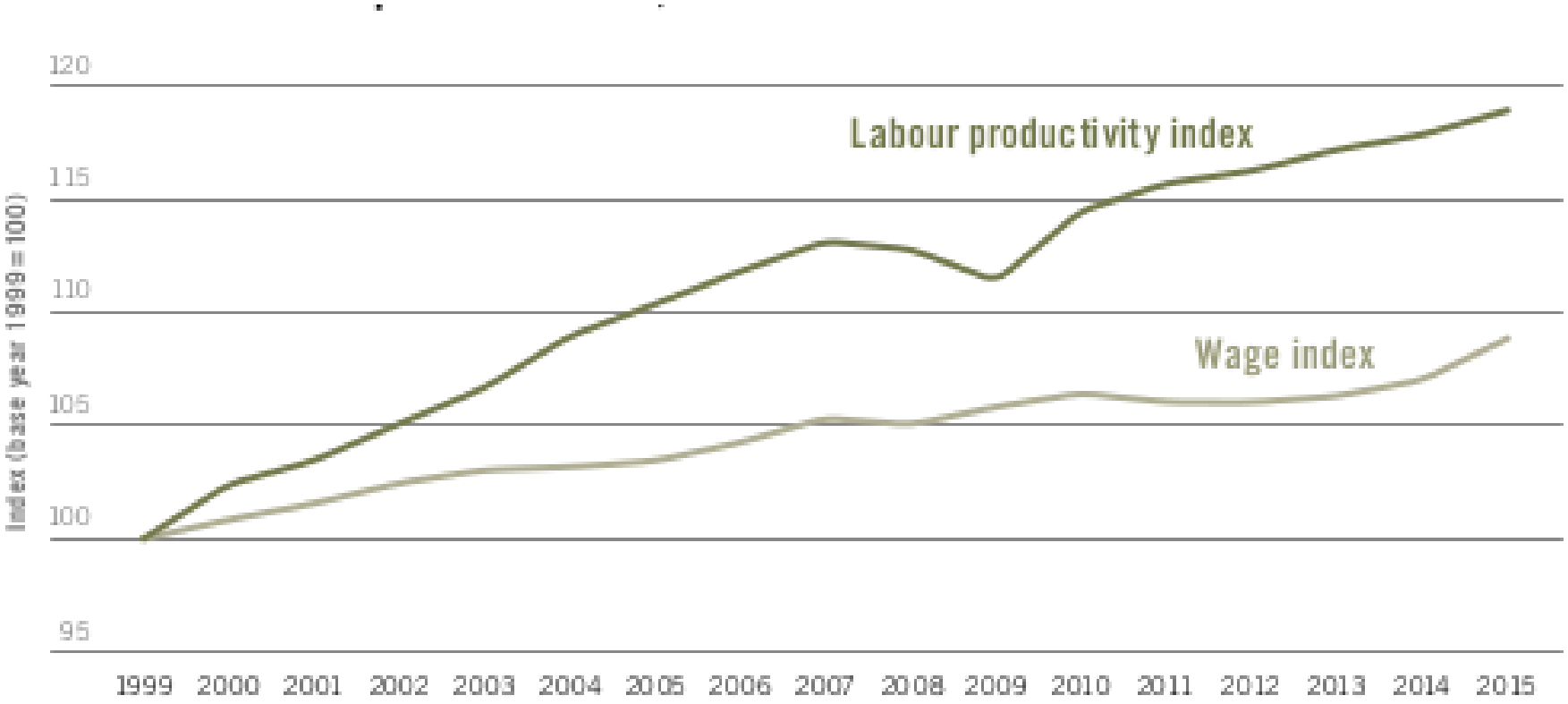
Is this time really different?

- The Industrial Revolution was no marriage party for the working classes: it was largely an era of degradation of social conditions and it took decades for productivity growth to trickle down to the working classes.
- Today there are worrying factors which hint that it might not be so in near future. And they have to do with both the impact of the new technologies and, even more so, with the ways the old socio-economic regime, call it “Fordist”, progressively exhausted its driving force.

Some long term patterns

1. De-industrialization
2. Stagnant wages and divergence between productivity growth and wage growth
3. Declining labour share and related
4. Massive surge in corporate profits, especially financial ones
5. Declining net job creation
6. Soaring inequality
7. Polarization and growing number of part-time jobs (gig-economy)

The global wage-productivity gap



Note: Wage growth is calculated as a weighted average of year-on-year growth in average monthly real wage in 36 economies (for a description of the methodology see Appendix I). The base year is set in 1999 for reasons of data availability.

Source: ILO Global Wage Database; ILO *Global Employment Trends* (GET).

Real wage growth 1973-2012

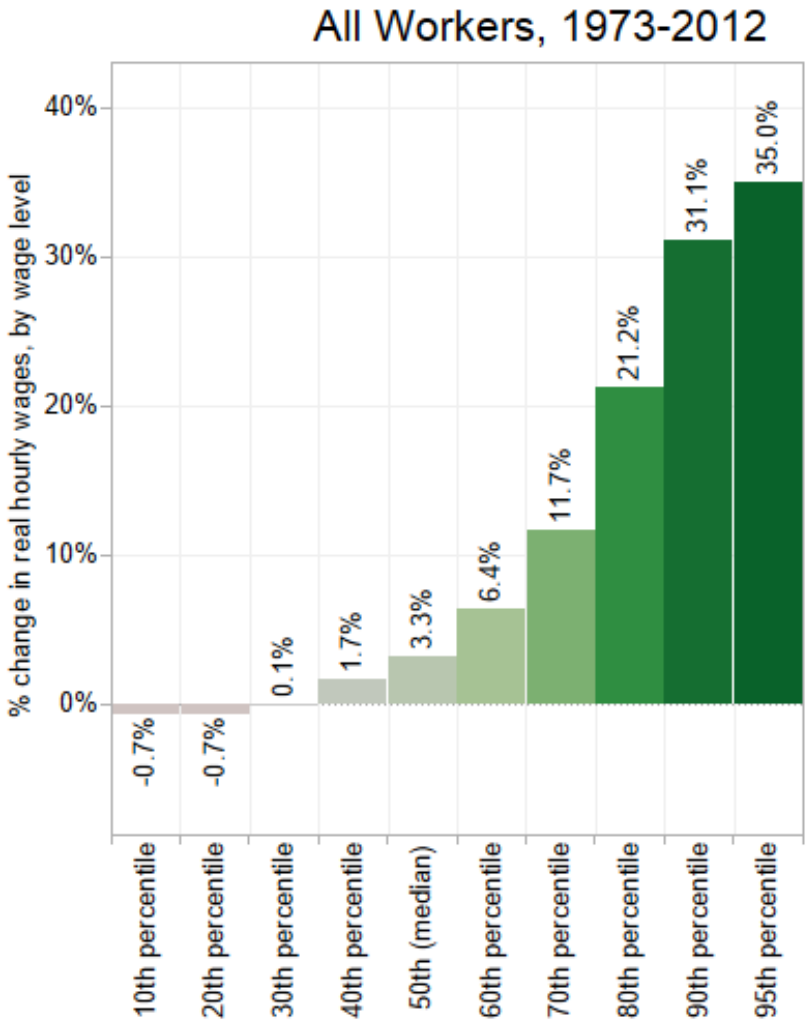


Figure: Source: Economic Policy Institute

Real wage growth 2007-2012

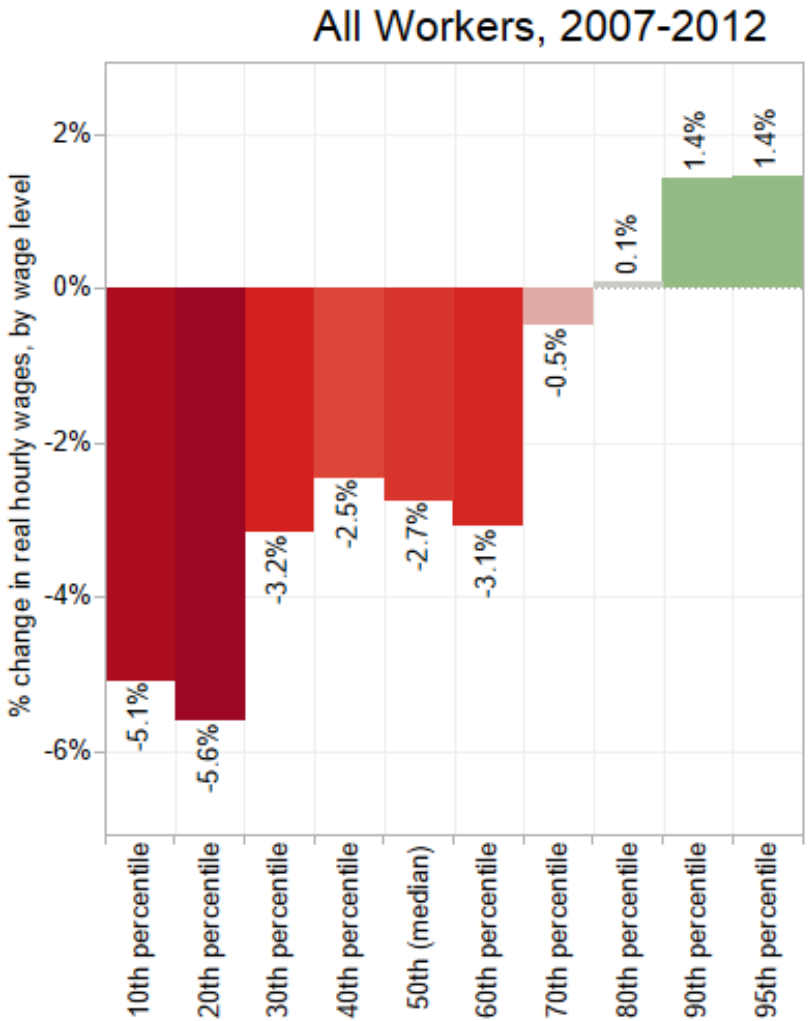
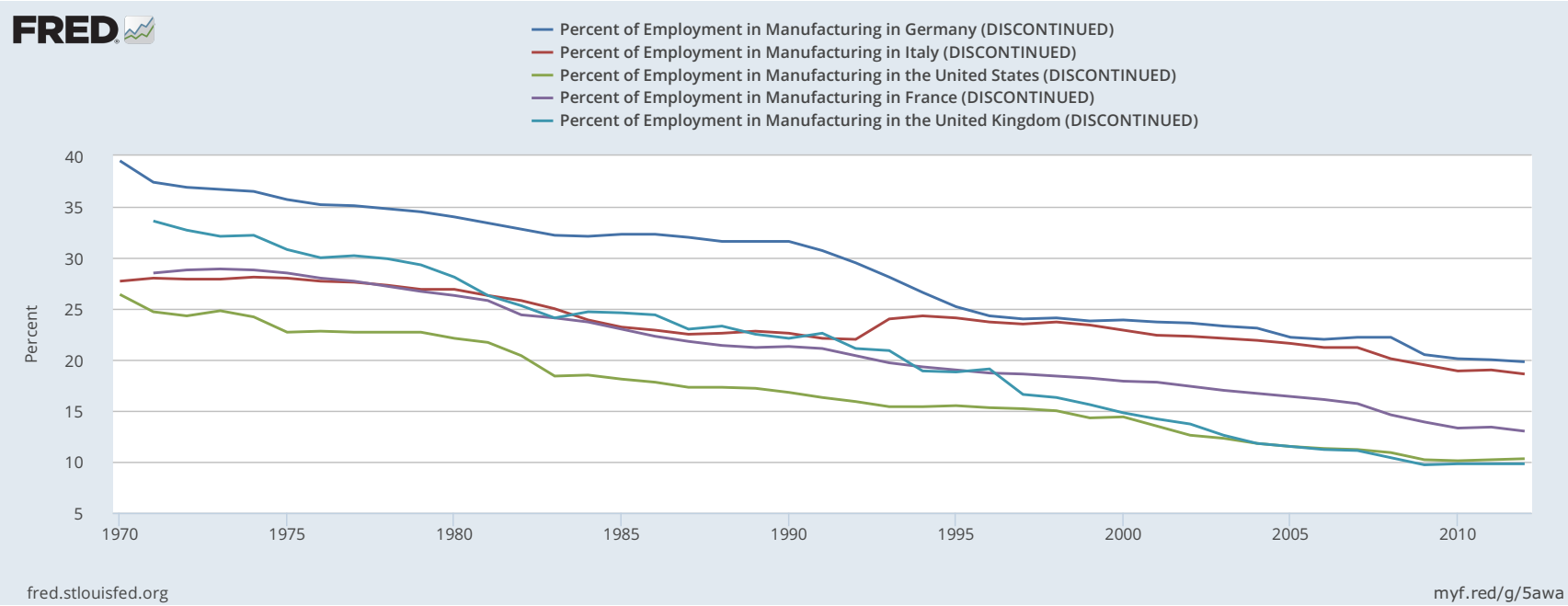
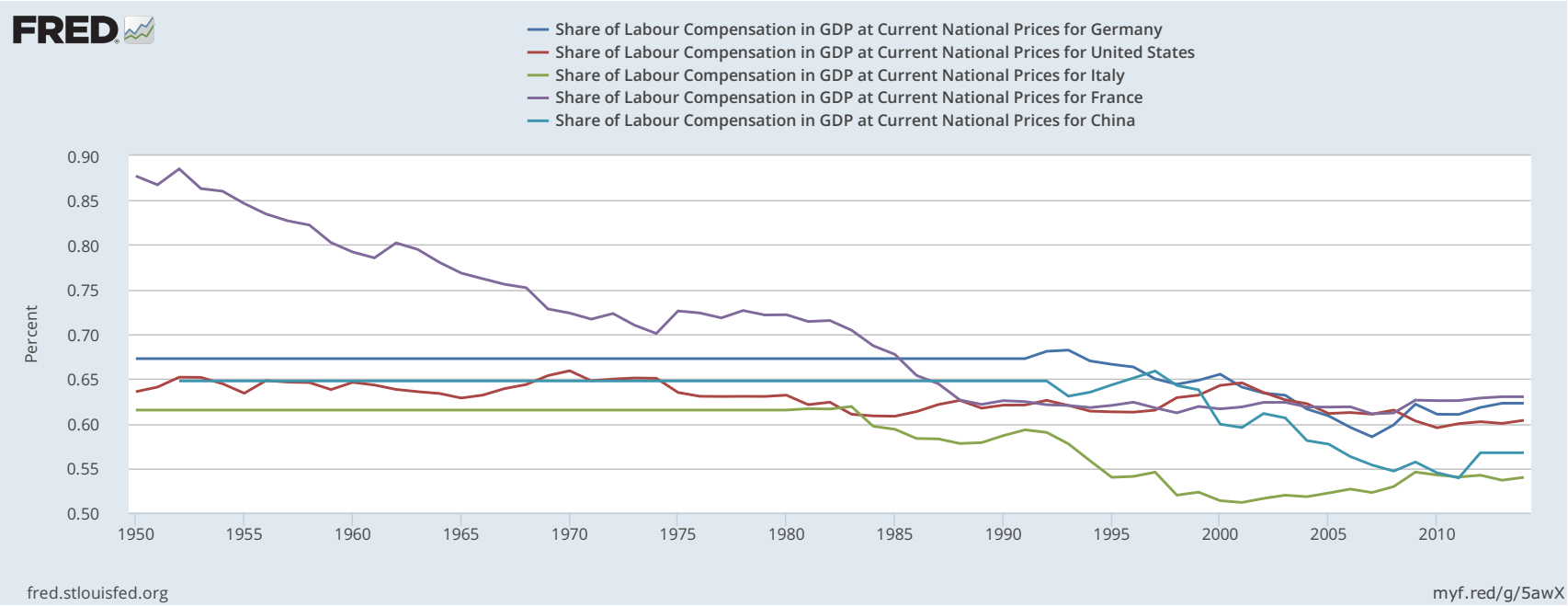


Figure: Source: Economic Policy Institute

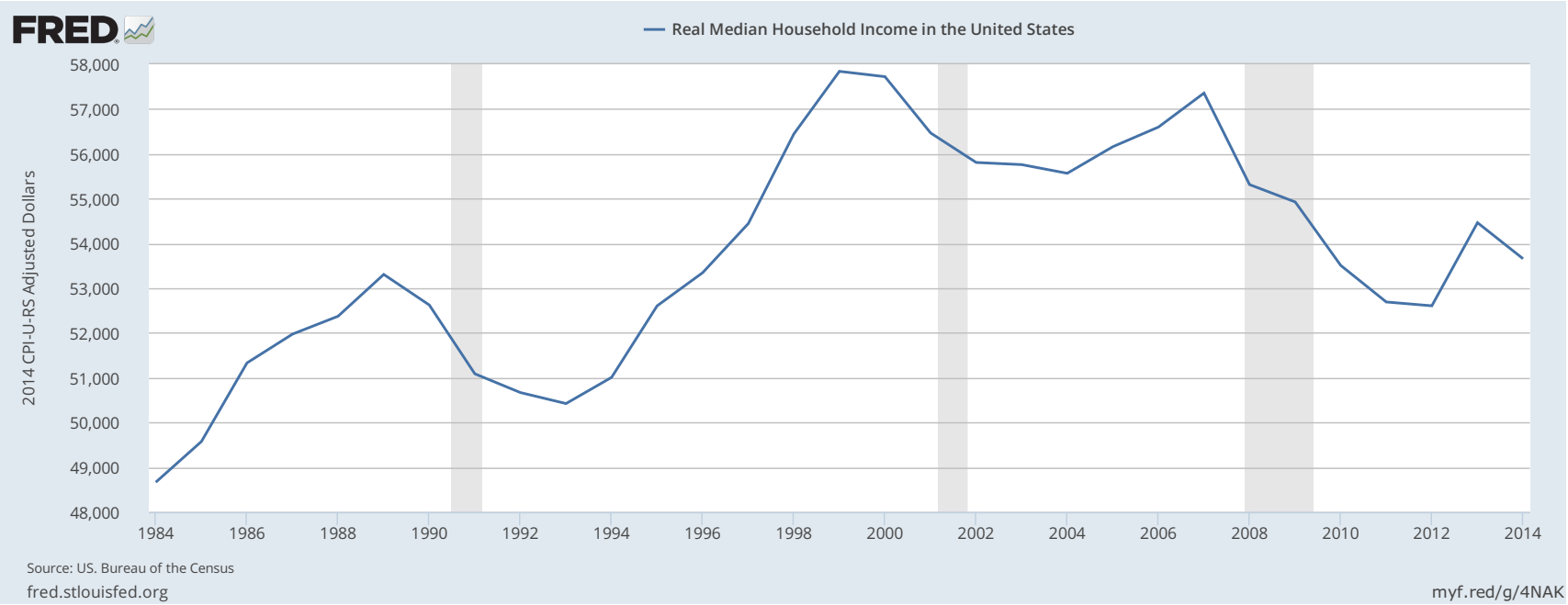
Decline of manufacturing shares



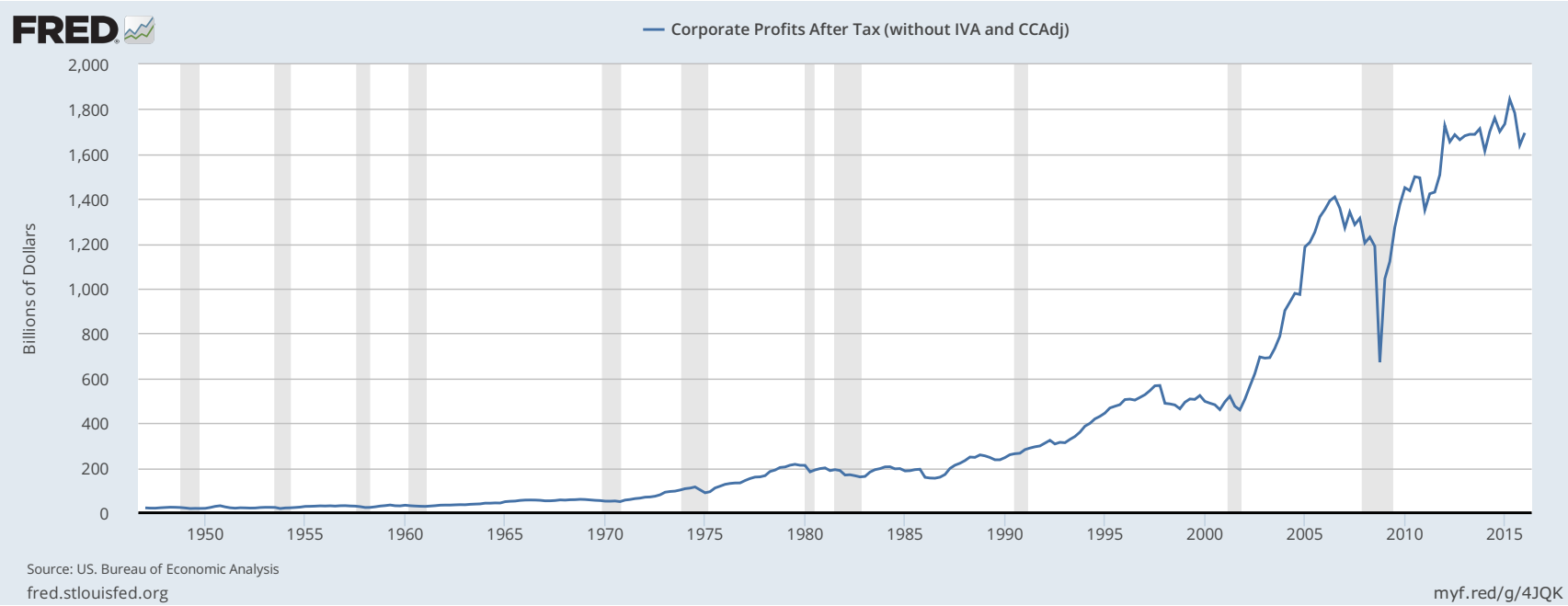
Decline of labour compensation shares



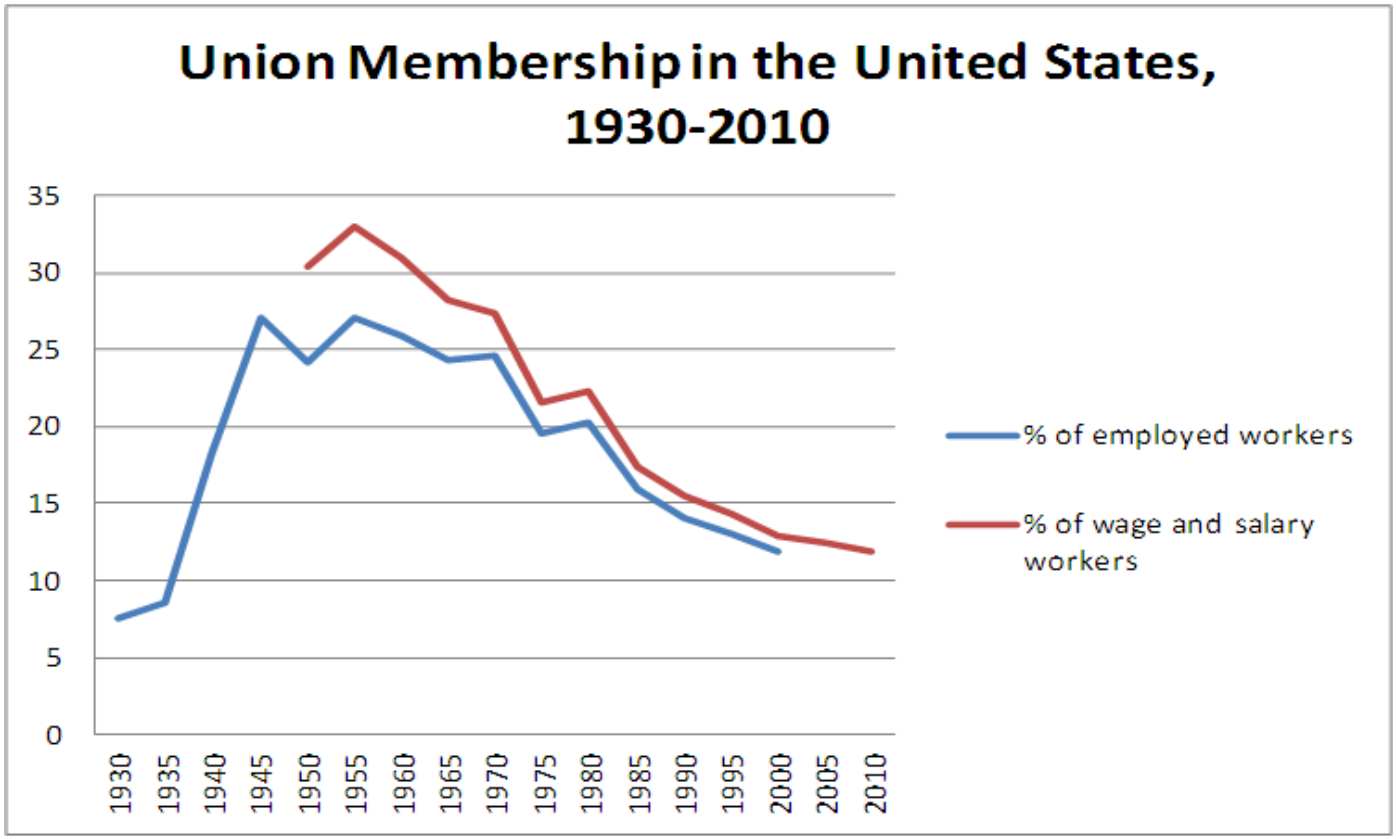
Declining median income



Surge of profits

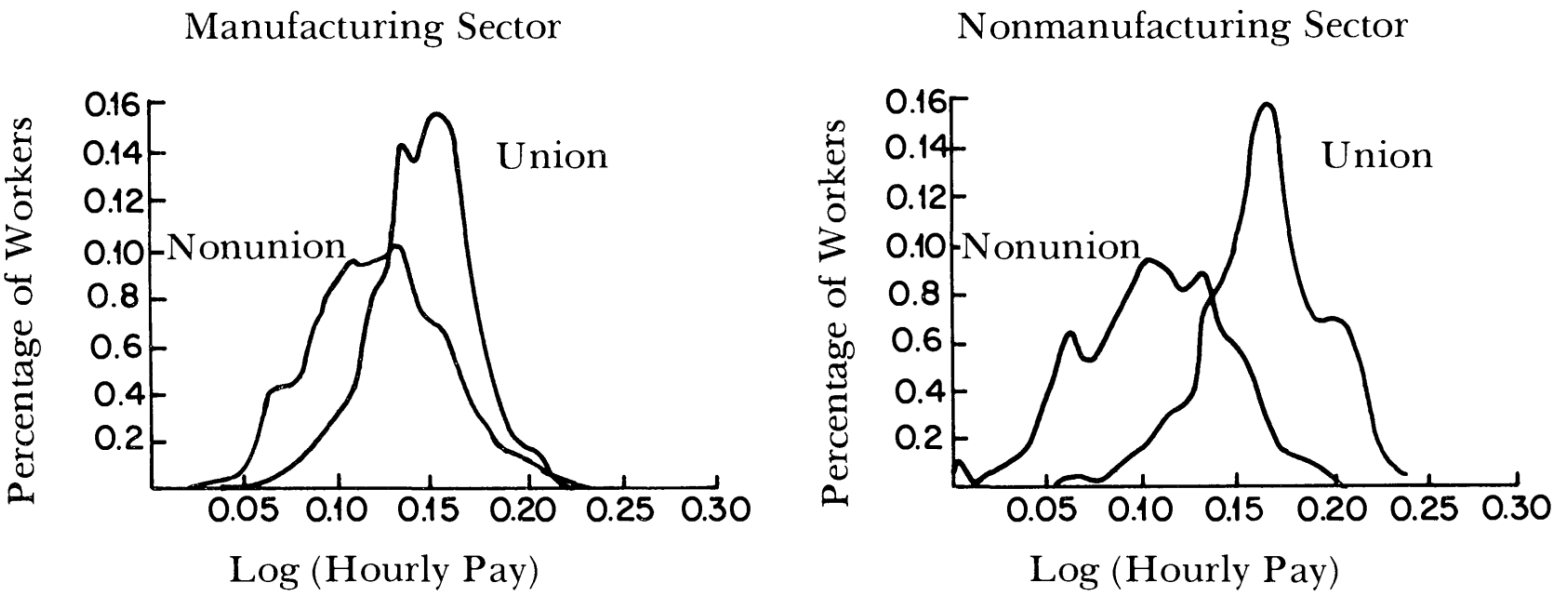


Declining labor force unionization rate

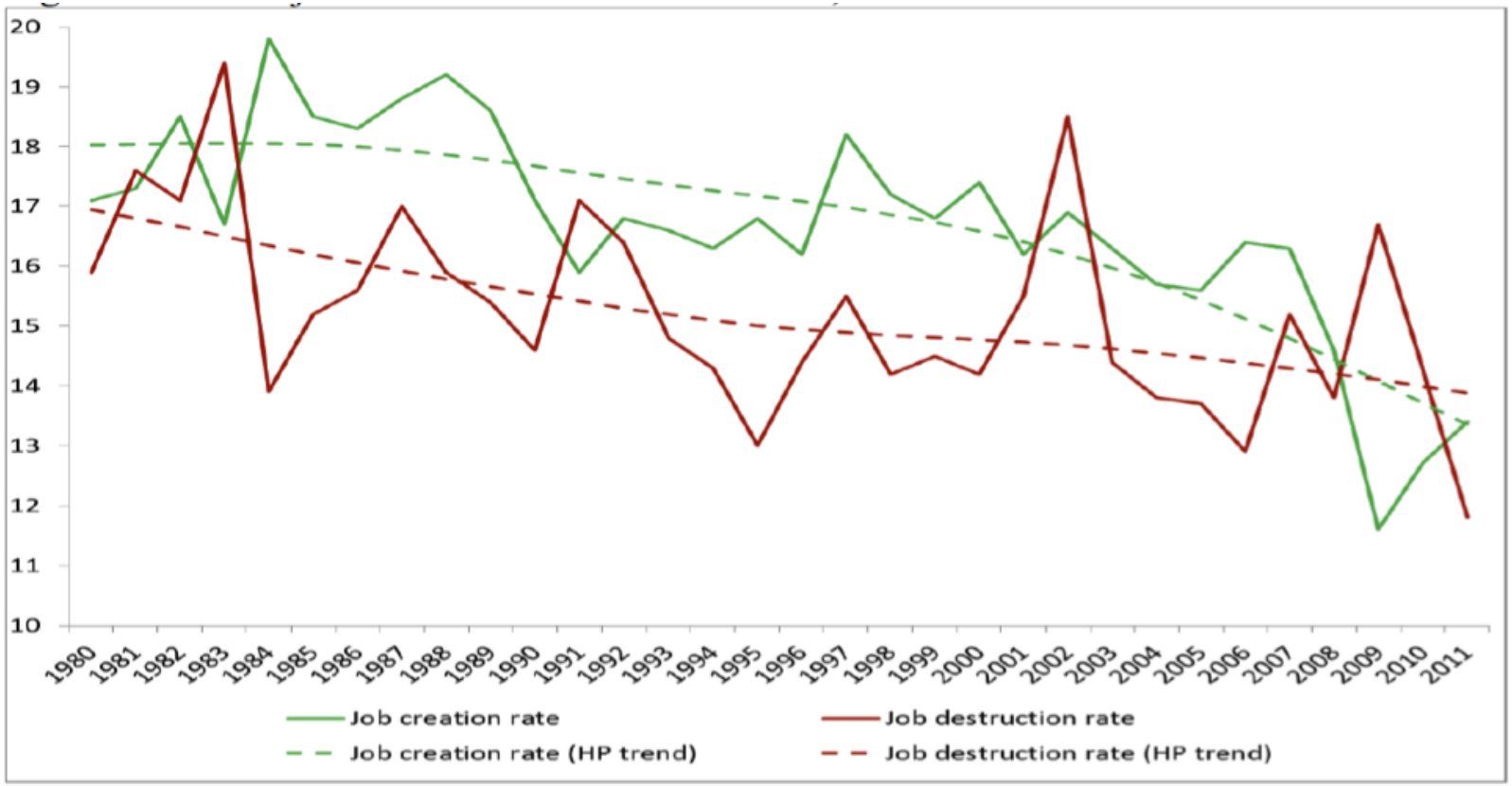


Declining labor force unionization rate

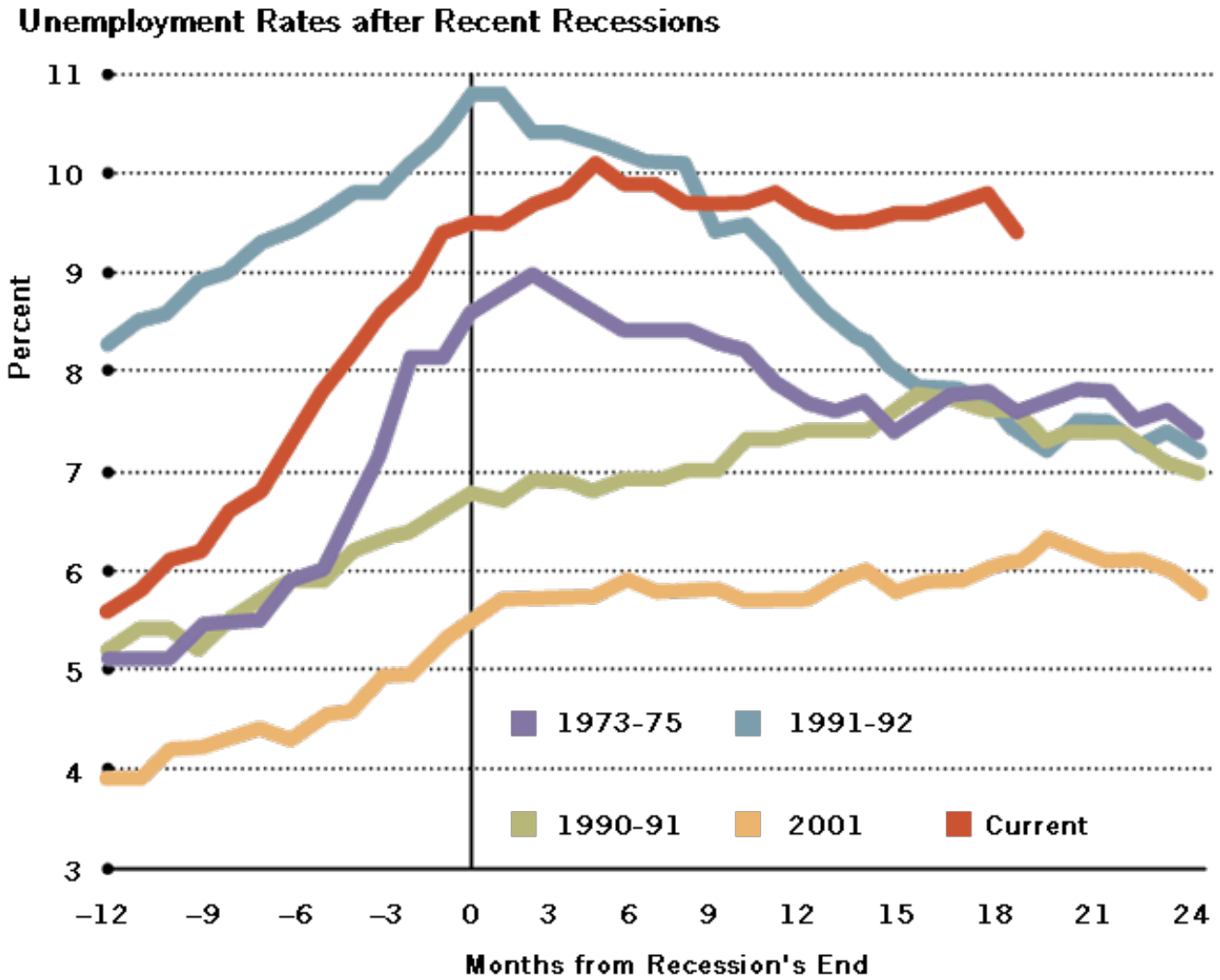
Figure: The beneficial effects of unionization - Freeman, 1980, JOLE



Declining Job creation rate

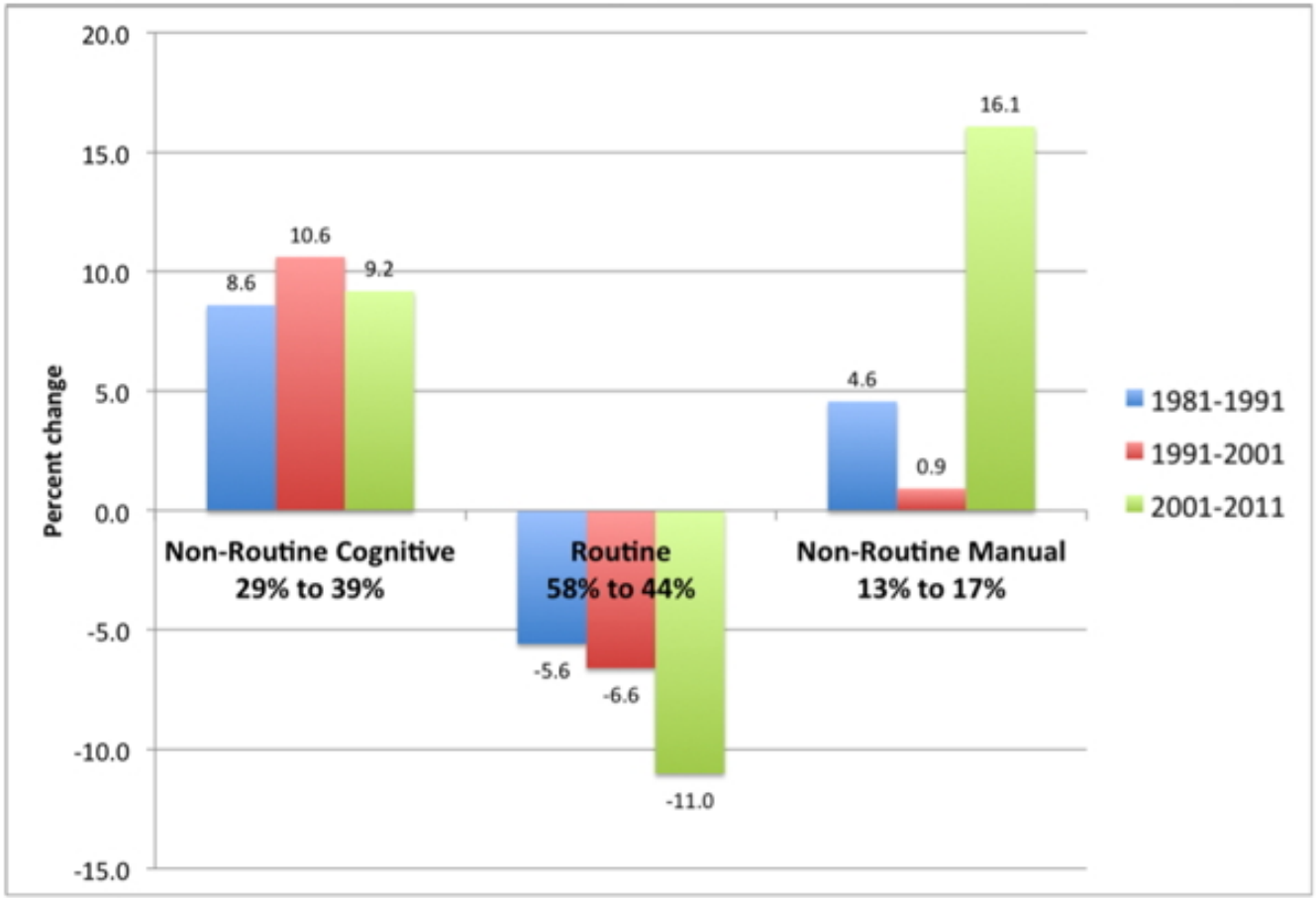


Jobless recovery



Polarization

Figure 3: Percent Change in Employment Shares by Occupation Group



Matching or mismatching between three subsystems

1. The system of technologies
2. The economic machine
3. The system of social relations and institutions

The main question

The emergence of a new techno-economic paradigm?

The massive introduction of robotized work certainly characterizes the industrial sectors, with robotic arms able to substitute for repetitive and routinized activities.

But, artificial intelligence, algorithms and software developments become increasingly relevant also in the service sectors, which nowadays employs the largest labour share.

As a direct consequence, robotization and AI do not represent a threat only for blue-collars workers, but for the white-collars as well.

How can humans cope with machines?

- Many emerging start-ups in the Silicon Valley or in the Boston Area are explicitly meant at creating and developing technologies able to entirely substitute for human labour.
- Sectors like medicine and health care are lacking the introduction of robots and machine learning algorithms whose massive usage can be complementary to human activity rather than replacing it.
- Potentially, there is ample room to go well beyond the use of robots and artificial intelligence in already standardized and high productive sectors, like fast-food production and delivery, to less routinised ones like medicine and health care.

Coexistence of Old Taylorism and Digital Taylorism but without Fordism!

Two archetypes of labour relations:

- Old Taylorism: clear control and subordinate working activity, vertical industrial relation
- Digital Taylorism: soft-power, fictitious independence, myth of creativity and self-organization

Old Taylorism in the ICT era

The Foxconn archetype: Source: Pun Ngai,"Nella fabbrica globale", 2015

Among the biggest worldwide employers and the first Chinese exporter.

- Massive migration from agricultural areas of young workers (born after 1980s)
- Factory-cum-dormitory: *Dormitory Labour Regime*
- Every factory building and dormitory has security checkpoints with guards standing by 24 hours a day
- All employees, whether they are going to the toilet or going to eat, must be checked
- Physical and verbal violence is systemic in Foxconn system. Workers are harassed and beaten up without serious cause

Old Taylorism

The iPad case

The global value chain

- International brand-name corporations (Apple) who squeeze their suppliers
- To secure contracts, Foxconn minimizes costs, and transfers the pressure of low profit margins to frontline workers.
- Average wage quite close to the province minimum wage
- Massive reliance upon overtime hours

- price of the iPad : $\$ - 499$
- manufacturing costs: 9\$ equivalent to 1.8% $\Rightarrow$ *Foxconn*
- costs of components: 250\$ equivalent to 50%

Source: Pun Ngai,"Nella fabbrica globale", 2015

More on workers conditions

In 2010, 18 workers committed a suicide

A worker blog (after the 12 suicide at Foxconn)

To die is the only way to testify that we ever lived.
Perhaps for the Foxconn employees and employees like us – we who are called nongmingong, rural migrant workers, in China – the use of death is simply to testify that we were ever alive at all, and that while we lived, we had only despair. Source: Pun Ngai,"Nella fabbrica globale", 2015

Digital Taylorism - The Uber-Foodora-Deliveroo archetype

- Based on cheap, generally educated workers
- Without a workplace
- Being “your own boss”
- Transfer of the entreprenerial risk from firms to workers
- Managed not by people but by an algorithm that communicates with workers via smartphones
- Disappearance of both collective and even individual labour contracts

When your boss is an algorithm? Source FT

How the App changes the salary - UberEats

- Started paying £20 an hour
- Then it moved to £3.30 a delivery plus £1 a mile, minus a 25 per cent "Uber service fee", plus a £5 "trip reward"
- Then the "trip reward" had been cut to £4 for weekday lunch and weekend dinner times, and to £3 for weekday dinner and weekend lunch times.

When your boss is an algorithm? Source FT

Algorithmic management - Control

How to instruct, track and evaluate a crowd of casual workers you do not employ, so they deliver a responsive, seamless, standardised service.

- monitoring of the workers
- sending productivity evaluation messages (time to accept orders, time to deliver, travel time to restaurant, travel to customers, late orders)
- but... drivers can't be deemed employees because they have no obligation at all to log on to the app (Uber).

What to do?

- Be there also on the production side (see the German Program on Industry 4.0)
- Prevent de-industrialization
- Major mission-oriented programs
- Income and working hours redistributions

The bottom line

We are at the cross road between a *Blade Runner Scenario* and *Keynes's vision* (*Economic Possibilities for our Grandchildren, 1930*)

Public policies will make the difference

Revenue/Employees Rank : Examples

	4TH		3RD			2ND		
	Google	Facebook	IBM	HP	Cisco	P&G	GM	CocaCola
R&D % on revenue	15%	18%	5%	3%	1%	2%	5%	2%
Revenue/Employee (M$)	1,2	1,5	0,2	0,3	0,5	0,7	0,7	0,3
Revenue (B$)	68	13	90	110	41	82	156	46
Employees (000)	54	9	379	302	74	118	216	150

NOTE: No Statistical Significance

How a 2.0 Company ‘Produces’- A new Segmentation of Labor ?

Use of the Internet		Type of worker
Mixed		• Traditional Employees
Partially On Line		• Freelancing (R&D, Start Ups, Universities Spin Offs, Outsourcers)
Fully On Line		• **Microworkers-Crowdworkers (i.e Amazon Mechanical Turk)**
Fully On Line		• **Machine Learning (Unaware Workers-Meatware –Crowd Turfing)**