Declining labor-labor exchange rates as a cause of inequality growth

Andranik Tangian

Institute of Economic and Social Research (WSI),
Hans Böckler Foundation and
Karlsruhe Institute of Technology
andranik-tangian@boeckler.de

at &

Fakten für eine faire Arbeitswelt.

Explanation of inequality growth

Thomas Piketty (2013) *Capital in the 21st century*: Inequality is caused by accumulation of capital; the role of capital increases with the income share of capital owners and capital managers

Capital's marginal productivity decreases as its stock increases, i.e. `too much capital kills the return on capital'. Hence, to keep up a constant return on capital, its income share must grow. Labor is remunerated to guarantee its (decent) reproduction

Decreasing labor–labor exchange rate

My car service station charges clients with 50 EUR for an hour of work, of which a worker receives 25 EUR. If the worker decided to repair his car at his own station he would pay twice more compared with his earnings for the same work. In other words, the return on own labor expressed in equivalent labor of others is 50%, resulting in labor–labor exchange rate (LLER) of 50%.

Twenty years ago the service station has charged the clients with 25 EUR while having paid the workers 15 EUR, resulting in the return on labor in labor units of 60%. Thus, twenty years ago a labor unit was exchanged for 0.6 labor units and now for 0.5 units. Thus, the LLER decreased by 1/6, or ca. 17%. The capital income share increased correspondingly.

Illusion of well-being growth

In the 1980s, an average salary was hardly sufficient to purchase a personal computer. In 2016, three much better PCs are affordable for an average salary, creating an illusion of growing value of earnings (own labor).

>
?
<

In fact, due to innovations (productivity growth), the amount of labor embodied in three modern PCs is smaller than that in one PC 30 years ago. Thus, the labor return on the labor rewarded with an average salary decreased, contrary to a growing purchase power of a medium salary

What happens to housing prices?

Norman-French real estate agent:

Now the villas of the rich are purchased almost exclusively by superrich foreigners; the rich purchase the houses of the middle class, the middle class purchases workers' houses, and workers cannot afford own housing and stay in rented apartments

To put it in another way, the houses purchased 40 years ago by middle-class families with one earner, now are only affordable for middle-class families with two earners
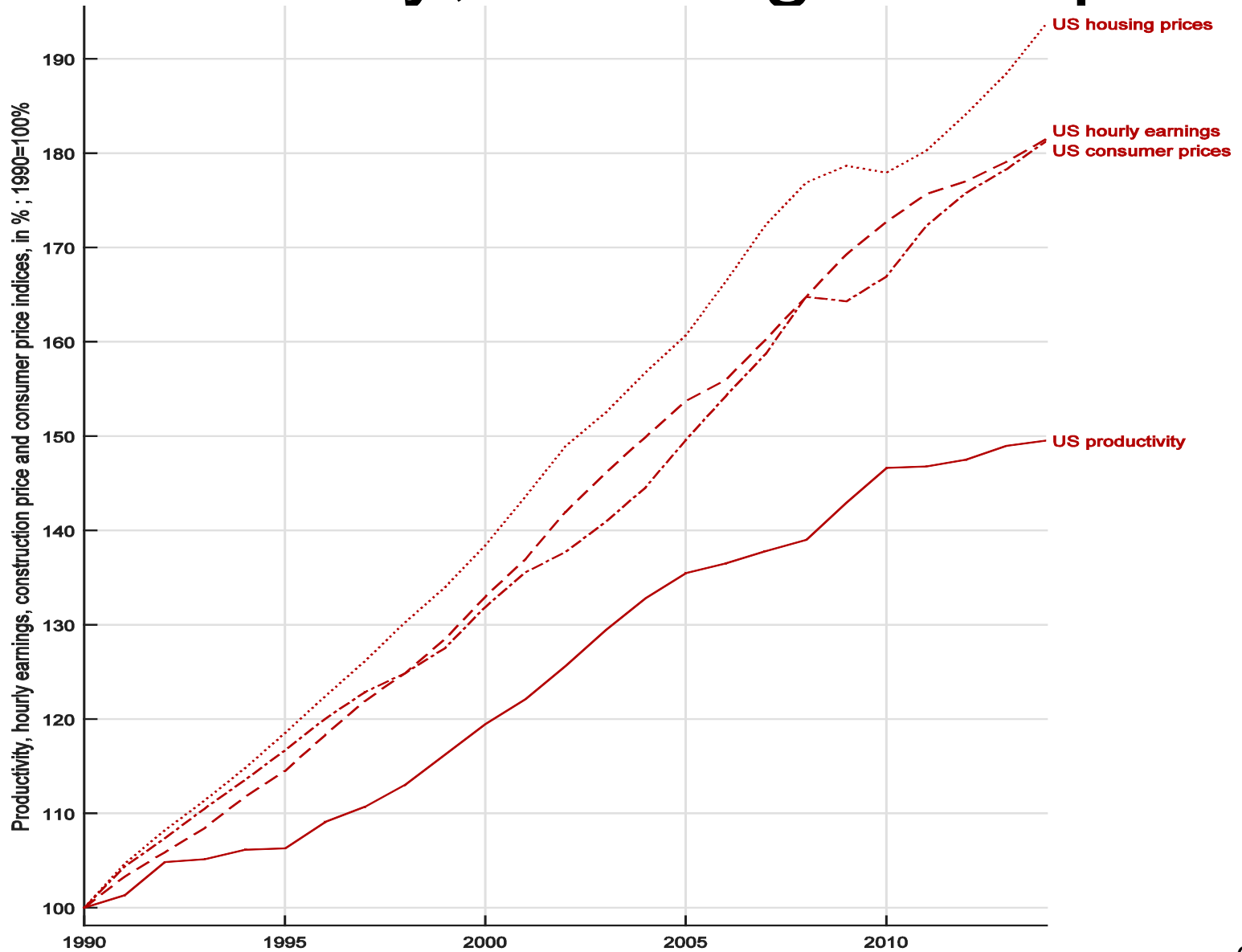
↓

↓

↓

Agence immobilière

Coût : de 15 % à 20 % du loyer, voire 30 % dans certains cas
Avantages : prise en charge de A à Z
Inconvénients : formule la plus chère

SOURCE : MONDE ARGENT & PATRIMOINE

5

US productivity, earnings and prices

Source: OECD.Stats (2015)

6

Labor-labor exchange rate (LLER)

In 1990 one worker makes 4 coffeepots/hour and his colleague, with the same amount of labor, 4 teapots of the same price. Due to capital share, social security contributions etc., the 1st worker's hourly earnings suffice for 2 teapots and that of the 2nd worker – for 2 coffeepots, i.e., the labor embodied in 4 units is exchanged for the labor needed for 2 units. Thus, the labor–labor exchange rate (LLER) is 2:1 (the *status quo)*.

Working hour =   ~

Working hour =   ~

By 2014 the productivity doubles, i.e., each worker makes 8 units/hour. If LLER remains 2:1, then the hourly earnings' purchasing power doubles as well, i.e., each worker's hourly earnings suffice for 4 units. Maintaining the *status quo* is considered fair.

If in 2014 the hourly earnings suffice for 3 units, LLER is 8:3 = 2.67:1 deteriorating the *status quo* and considered as unfair.

Working hour =   ~

LLER operationalization

The US productivity growth by factor 1.5 suggests a commensurable increase in the hourly earnings' purchasing power. The fact that the purchasing power with reference to consumer products does not change over 25 years, means that the LLER with reference to consumer products decreased by factor 1.5. Generalizing this train of thought, we obtain the following LLER index as a function of time t :

$$\text{LLER w.r.t.consumer prices}_{1990=1}(t) = \frac{\text{Hourly earnings in consumer units }_{1990=1}(t)}{\text{Productivity}_{1990=100}(t)}$$

$$= \frac{\dfrac{\text{Hourly earnings }_{1990=1}(t)}{\text{Consumer prices}_{1990=1}(t)}}{\text{Productivity}_{1990=1}(t)} \, .$$

The subscripts 1990 = 1 mean that the indices are referred to the *status quo* year 1990, where the index values are 1

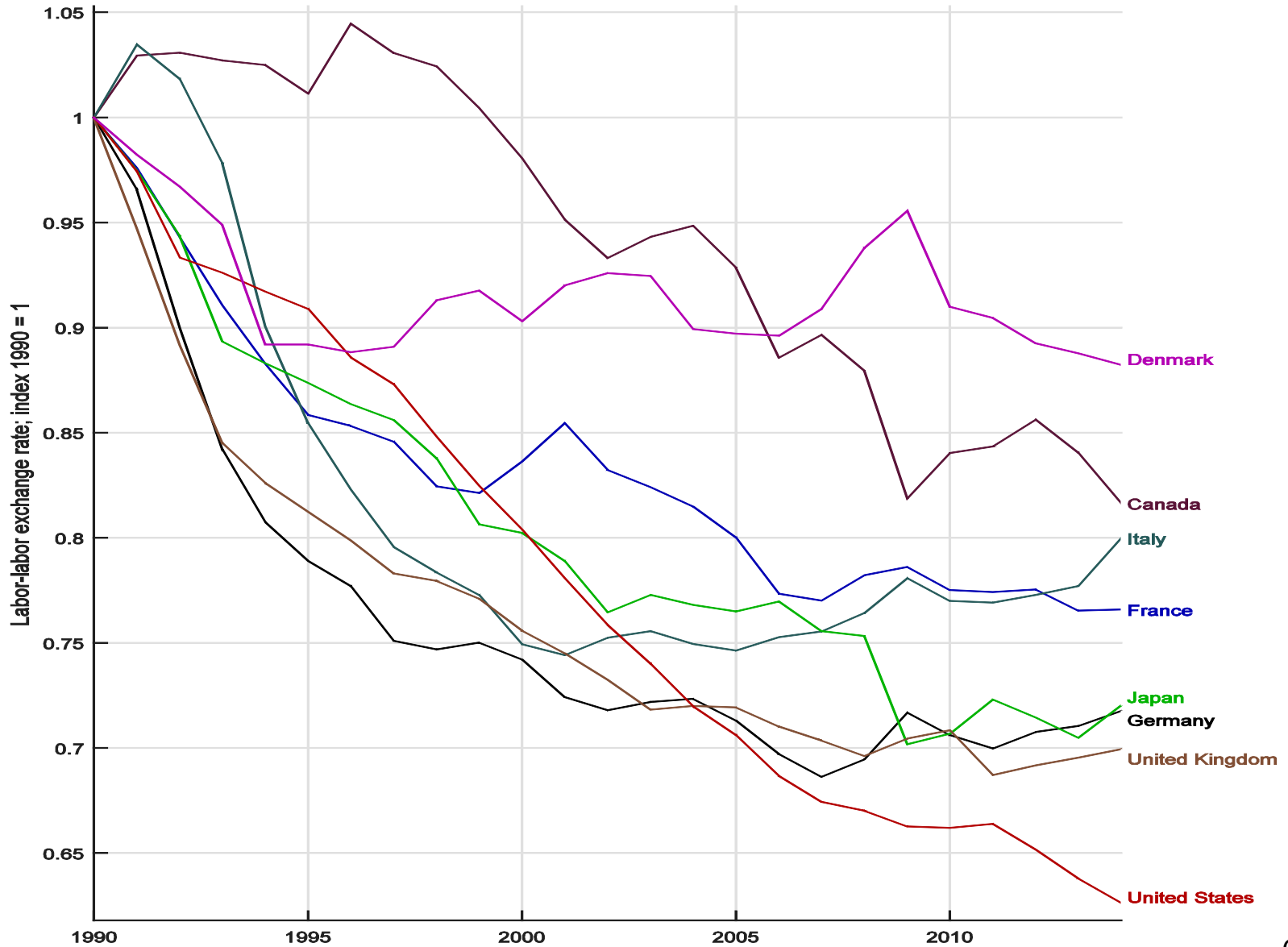Similar formula with reference to housing prices.

8

LLER w.r.t. consumer prices

Source: Author's derivation from OECD.Stats (2015)

9
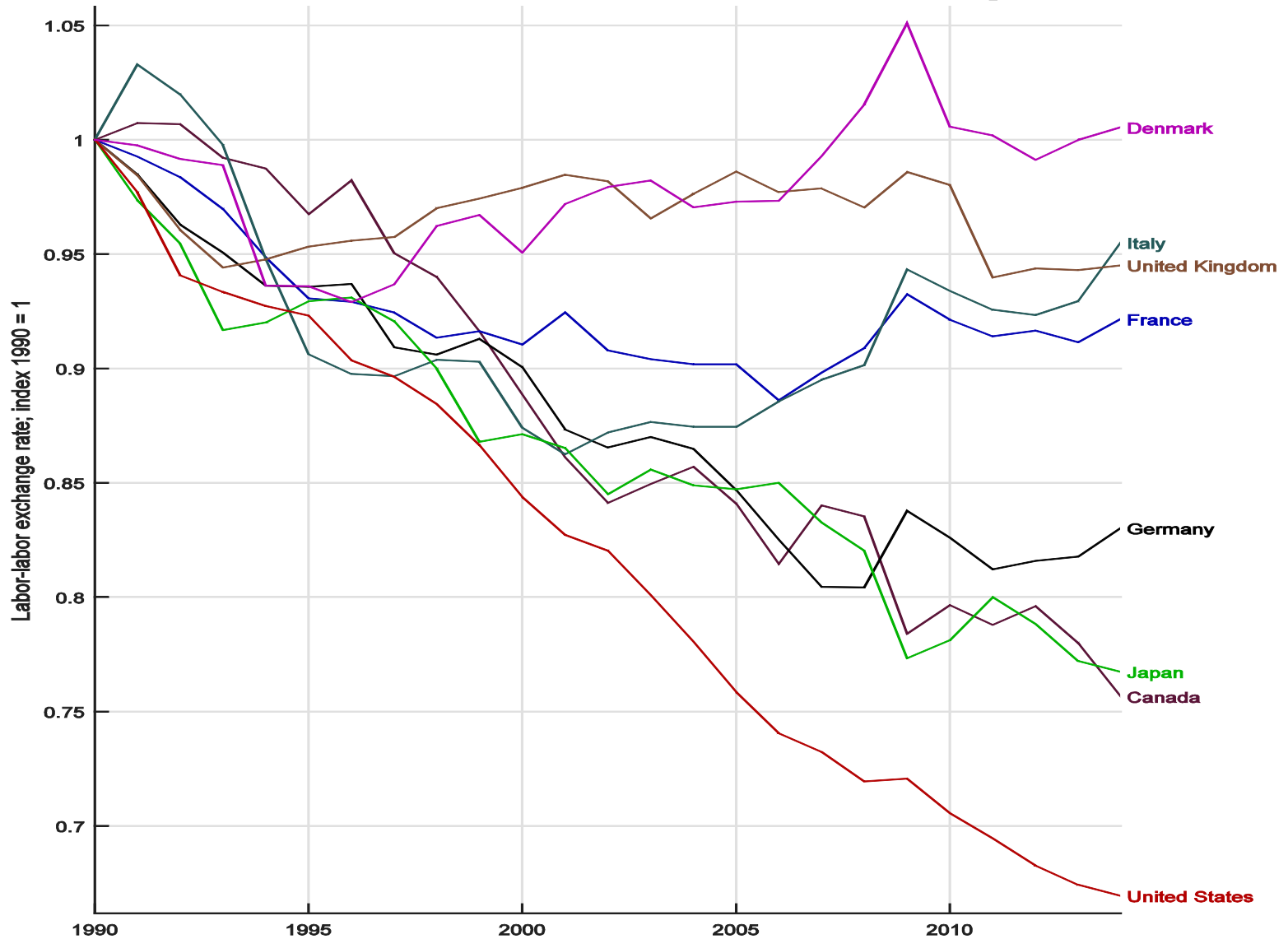
LLER w.r.t. housing prices

Source: Author's derivation from OECD.Stats (2015)

10

Non-paid % of working time, assuming fair pay in 1990

Country	Labor–labor exchange reference	1990	1995	2000	2005	2010	2014
Canada	with reference to consumer prices	0	3	11	16	20	24
	with reference to housing prices	0	-1	2	7	16	18
France	with reference to consumer prices	0	7	9	10	8	8
	with reference to housing prices	0	14	16	20	22	23
Germany	with reference to consumer prices	0	6	10	15	17	17
	with reference to housing prices	0	21	26	29	29	28
Italy	with reference to consumer prices	0	9	13	13	7	4
	with reference to housing prices	0	15	25	25	23	20
Japan	with reference to consumer prices	0	7	13	15	22	23
	with reference to housing prices	0	13	20	24	29	28
UK	with reference to consumer prices	0	5	2	1	2	5
	with reference to housing prices	0	19	24	28	29	30
US	with reference to consumer prices	0	8	16	24	29	**33**
	with reference to housing prices	0	9	20	29	34	**37**
Denmark	with reference to consumer prices	0	6	5	3	-1	**-1**
	with reference to housing prices	0	11	10	10	9	**12**

Source: Author's computations based on the variables previously defined

Hourly earnings in manufacturing in €

Country	Pay pattern	1990	1995	2000	2005	2010	2014
Canada	**Actual pay**	**12.35**	**14.47**	**15.92**	**17.88**	**19.07**	**20.4**
	Fair pay with reference to consumer prices	12.35	14.96	17.92	21.27	23.93	26.96
	Fair pay with reference to housing prices	12.35	14.31	16.24	19.26	22.69	24.99
France	**Actual pay**	**9.29**	**10.67**	**12.34**	**14.43**	**16.36**	**17.80**
	Fair pay with reference to consumer prices	9.29	11.47	13.55	16.00	17.76	19.32
	Fair pay with reference to housing prices	9.29	12.43	14.75	18.04	21.11	23.25
Germany	**Actual pay**	**12.31**	**15.55**	**17.53**	**19.12**	**20.87**	**23.18**
	Fair pay with reference to consumer prices	12.31	16.62	19.46	22.57	25.26	27.93
	Fair pay with reference to housing prices	12.31	19.70	23.62	26.81	29.55	32.30
Italy	**Actual pay**	**7.89**	**10.17**	**11.65**	**13.22**	**15.41**	**16.90**
	Fair pay with reference to consumer prices	7.89	11.22	13.32	15.12	16.50	17.70
	Fair pay with reference to housing prices	7.89	11.90	15.54	17.71	20.01	21.13
Japan	**Actual pay**	**13.07**	**14.43**	**15.19**	**15.76**	**15.30**	**15.77**
	Fair pay with reference to consumer prices	13.07	15.52	17.44	18.60	19.58	20.56
	Fair pay with reference to housing prices	13.07	16.51	18.94	20.60	21.65	21.90
UK	**Actual pay**	**7.21**	**9.52**	**11.78**	**14.26**	**16.74**	**18.04**
	Fair pay with reference to consumer prices	7.21	9.99	12.04	14.46	17.08	19.09
	Fair pay with reference to housing prices	7.21	11.72	15.59	19.83	23.63	25.80
US	**Actual pay**	**10.42**	**11.93**	**13.86**	**16.02**	**18.00**	**18.91**
	Fair pay with reference to consumer prices	10.42	12.93	16.42	21.12	25.50	28.25
	Fair pay with reference to housing prices	10.42	13.13	17.24	22.68	27.18	30.20
Denmark	**Actual pay**	**14.45**	**17.08**	**20.75**	**25.06**	**29.55**	**31.68**
	Fair pay with reference to consumer prices	14.45	18.25	21.82	25.76	29.38	31.51
	Fair pay with reference to housing prices	14.45	19.15	22.97	27.93	32.48	35.91

Gini before taxes (dashed) and after

Source: OECD.Stats (2015)

13
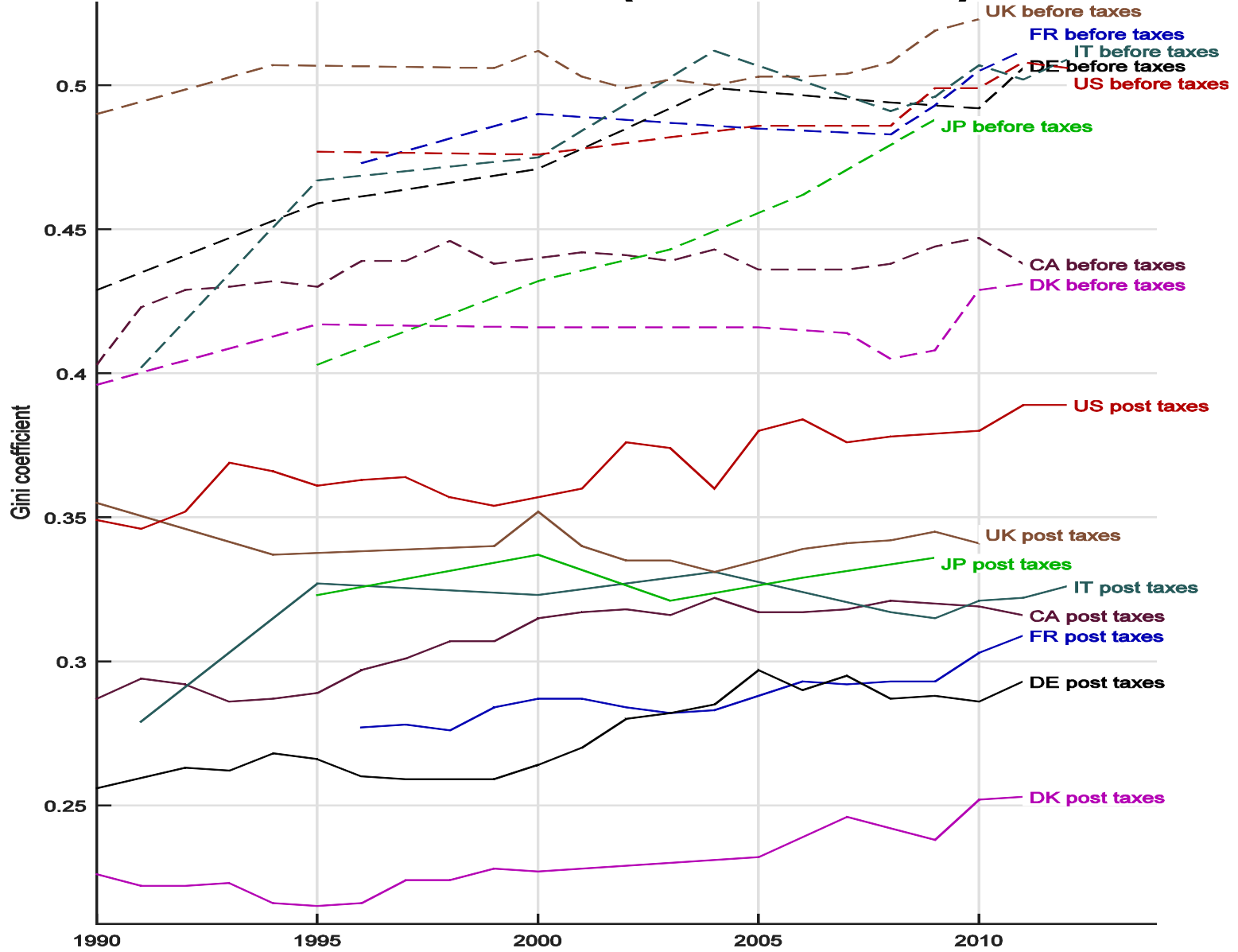
Correlation between the variables

	Actual Gini market income before taxes	Actual Gini post taxes and transfers	Growth of general productivity in 1990–2014	Non-paid % of working time in 2014 w.r.t. consumer prices assuming full pay in 1990	Non-paid % of working time in 2014 w.r.t. housing prices assuming full pay in 1990
Actual Gini market income before taxes	1	0.555	0.183	0.021	0.718**
Actual Gini post taxes and transfers	0.555	1	0.347	0.660*	**0.831***
Growth of general productivity in 1990–2014	0.183	0.347	1	0.497	0.659*
Non-paid % of working time in 2014 w.r.t. consumer prices assuming full pay in 1990	0.021	0.660*	0.497	1	0.626*
Non-paid % of working time in 2014 w.r.t. housing prices assuming full pay in 1990	0.718**	**0.831***	0.659*	0.626*	1

***   PVAL ≤ 0.01
**   0.01 < PVAL ≤ 0.05
*   0.05 < PVAL ≤ 0.10

14

Conclusions 1/2

Dependence between inequality degree and LLER decline

The dependence between the *degree* of inequality and the *degree* of labor devaluation is statistically highly significant

Controlling LLER with taxes

Under high taxes, the purchasing power of earnings is reduced, constraining solvent demand. When it is multiplied by unfair pay, demand is reduced further with negative consequences for marketing. Roughly speaking, high taxes reduce stimuli to significantly increase the capital's share in gains, even in case of investments. On the other hand, high taxes enable generous social security transfers to weak population groups, increasing solvent demand and stimulating economic development.Thereby, high taxes contribute to maintaining a fair LLER and reduce the inequality growth.

Conclusions 2/2

Other policy incentives and inequality tax

To keep LLER at some reasonable level, enterprises can receive tax exemptions or some other privileges for maintaining the inter-enterprise Gini index below the national level

Considering high inequality as social pollution, surpassing the national level can be penalized by an `inequality tax' — by analogy with environmental protection