

Competition and Unequal Exchange: Theory and Empirical Evidence

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Emmanuel and Unequal Exchange

Standard neoclassical international trade teaches that trade benefits all participants.

Emmanuel (1972 [1969]) explained exploitative relations may result just from **commodity trade** and not necessarily from **extra economic forces**.

Emmanuel in his analysis hypothesized **mobility of capital** a uniform **international rate of profit** and the formation of **international prices of production**.

Emmanuel, however, does not escape from the standard neoclassical theory since he assumed the **same technology** between the trading partners.

Firms producing at (direct) prices **lower** (**higher**) than the international prices of production make **excess profits** (**losses**).

The lower wages in **LDC** result in the production of more surplus value.

Emmanuel and Unequal Exchange (continued)

Two are the causes of **transfers** of (surplus) value

- unequal exchange **in «the broad sense»:**
 - The **domestic value compositions of capital** are different from the **international average**.
 - This is quite ordinary in the domestic trade but of negligible importance in the international trade (**assumption of uniform technology**)
- unequal exchange **in «the narrow sense»:**
 - The lower (real) wages in **LDC** leads to **higher rates of surplus value**
 - gives rise to particularly **large transfers of value**.

Emmanuel's great contribution is the theorization of **Unequal Exchange** and the associated with it **transfers of values** (exploitation) not by resorting to easy arguments invoking **dependence, monopoly power** and **imperialism** in general but in the by far more difficult case of **ordinary** and beyond any suspicion international trade where exchange appears as if the trading partners were **absolutely equal**.

Transfers of value

- All variables are expressed in terms of **labour values** $d=c+v+s$
- **Prices of production** $p=(1+r)(c+v)$
- The **transfers of value** $\delta_i=p_i-d_i$ where $i=A, B$ or $\delta_i=r(c_i+v_i)-s_i$
- Divide numerator and denominator of r by v and express r in terms of $RSV = e$, and $VCC=k$

$$r=e/(1+k)$$

- We replace r in the formula of unequal exchange and we get

$$\delta_i=v_i[e(1+k_i)(1+k)^{-1} - e_i]$$

- From the above formula (assuming int'l equalization of r we end up with the necessary condition to rule out the case of unequal exchange is the equality of the RSV and VCC to the int'l average respective rates.
- Furthermore, even if the RSV are equal to the int'l average we may have unequal exchange in the broad sense.
- We do not exclude other intermediate cases.

Variables

- We use **i-o** data of the USA and China both expressed in \$
- We deflate the **i-o** data with **domestic deflators**

- We define the **labour values**
$$\mathbf{d} = \mathbf{l}[\mathbf{I} - \mathbf{A}]^{-1}$$

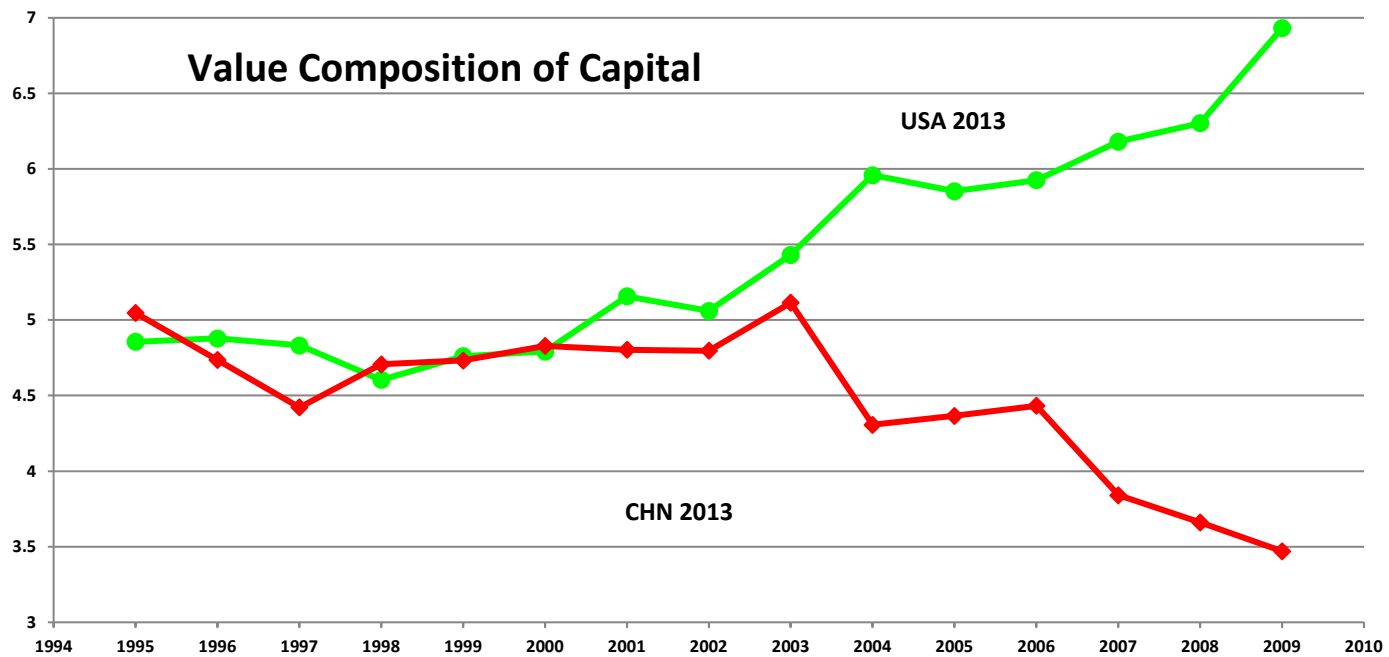
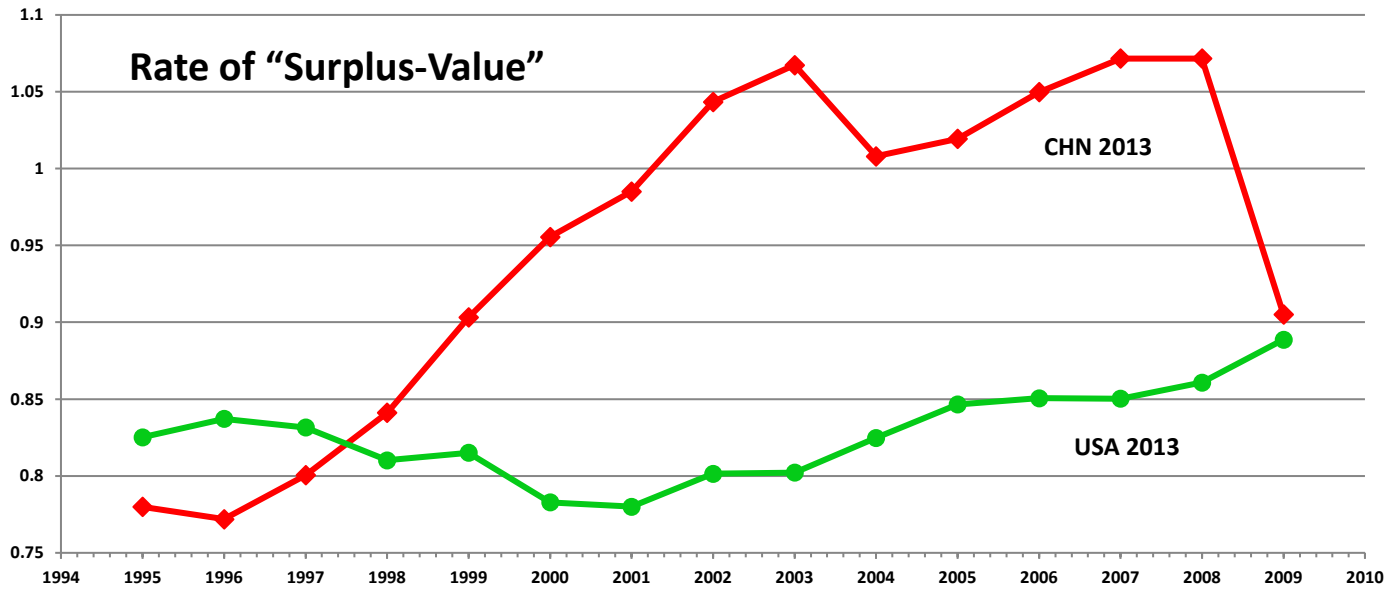
- The **RSV**
$$e = \frac{1 - \mathbf{b}}{\mathbf{b}} = \frac{\mathbf{d}[\mathbf{I} - \mathbf{A} - \mathbf{b}\mathbf{a}_0]\mathbf{x}}{\mathbf{d}\mathbf{b}\mathbf{a}_0\mathbf{x}}$$

- The **rate of profit**
$$\rho = \frac{\mathbf{d}[\mathbf{I} - \mathbf{A} - \mathbf{b}\mathbf{a}_0]\mathbf{x}}{\mathbf{d}\mathbf{K}\mathbf{x}}$$

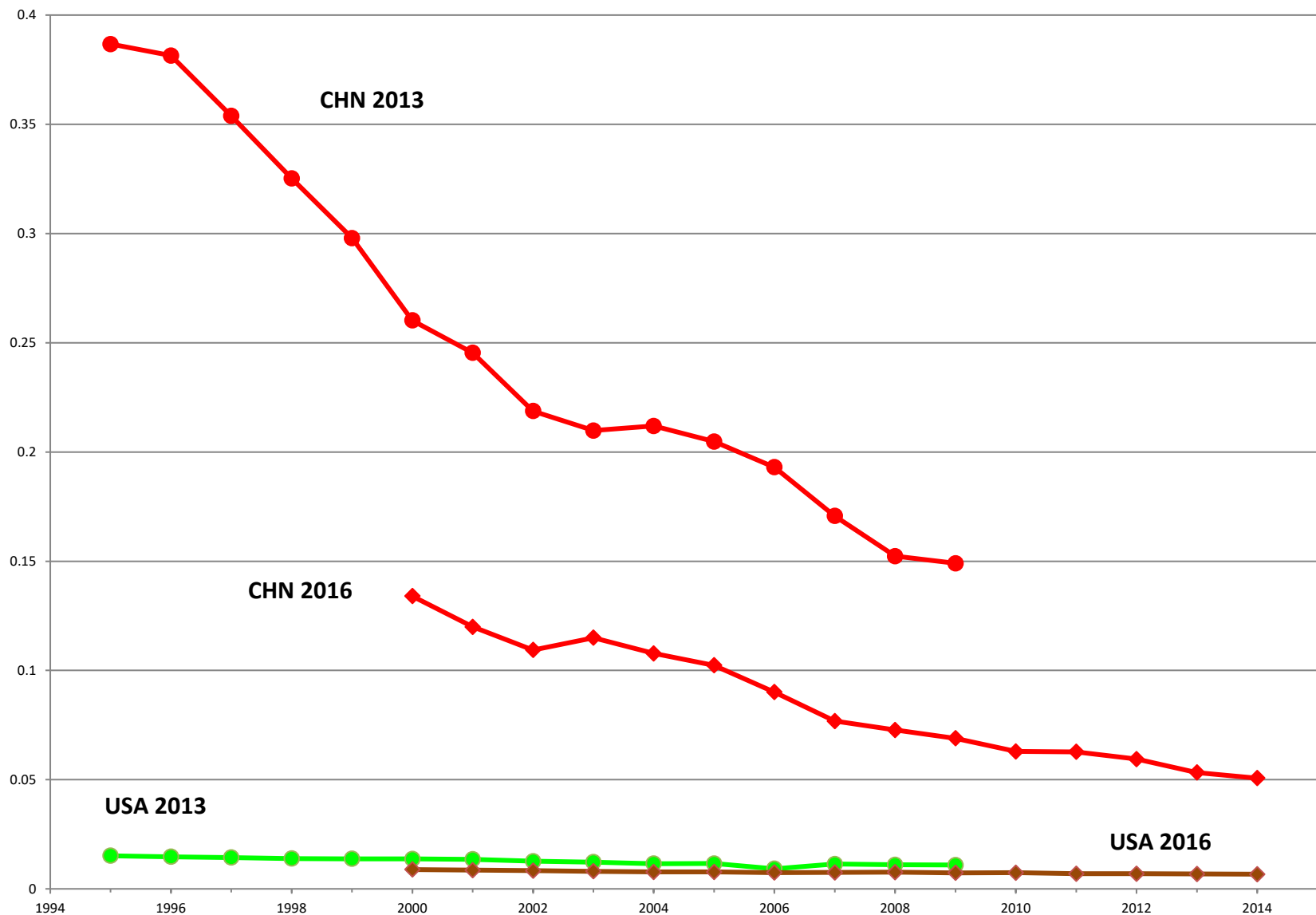
- The **vertically integrated composition of capital**
$$VIVCC_F = \frac{\mathbf{d}\mathbf{K}[\mathbf{I} - \mathbf{A}]^{-1}\mathbf{x}}{\mathbf{d}\mathbf{b}\mathbf{l}[\mathbf{I} - \mathbf{A}]^{-1}\mathbf{x}}$$

- Prices of Production
$$\mathbf{p} = \mathbf{d}[\mathbf{b}\mathbf{l} + \mathbf{A}] + \rho\mathbf{d}\mathbf{K}$$

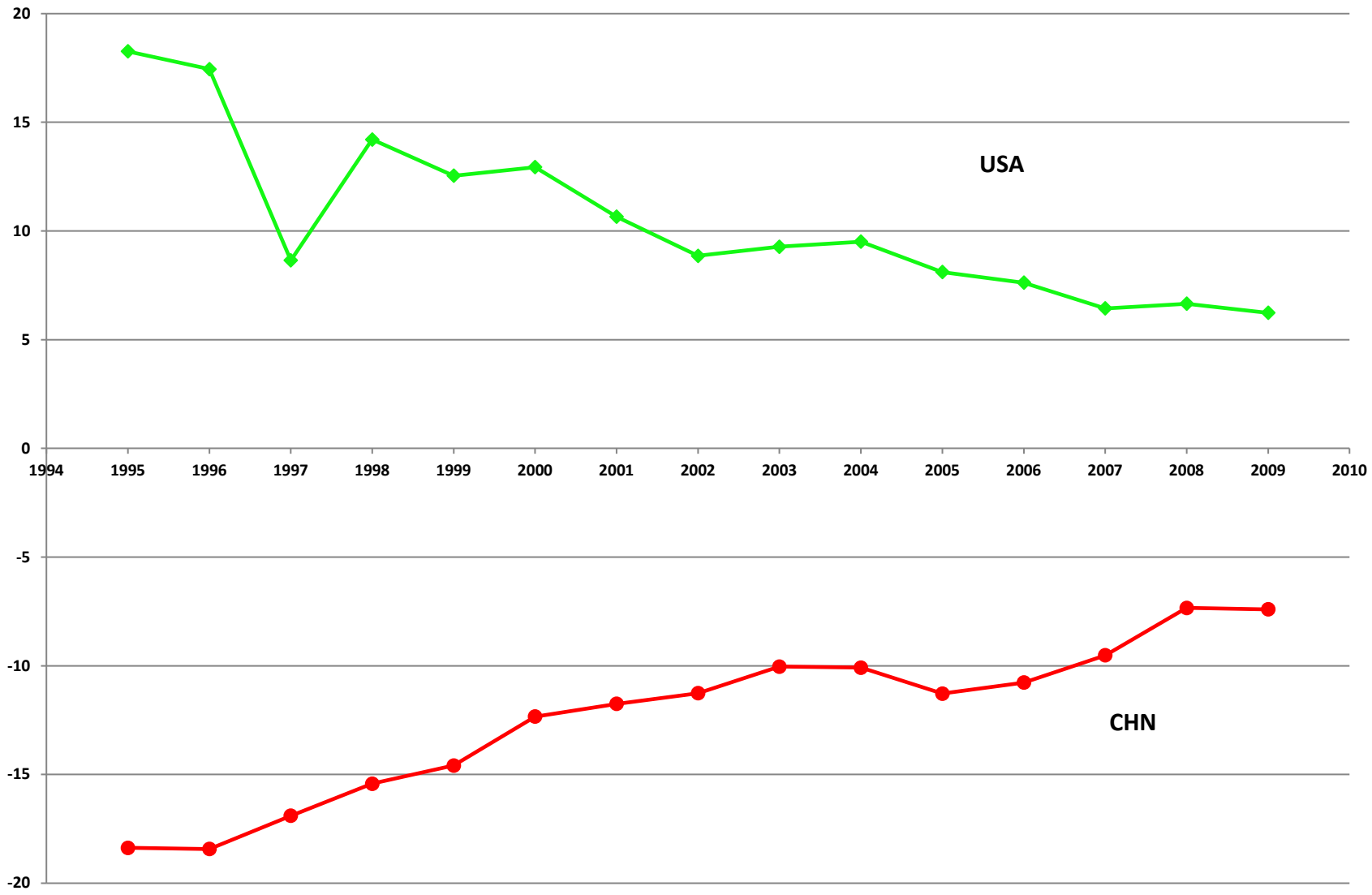
- The **Int'I POP** is the average of the two national **POP**
- The **Unequal Exchange** = int'I PoP - domestic values.



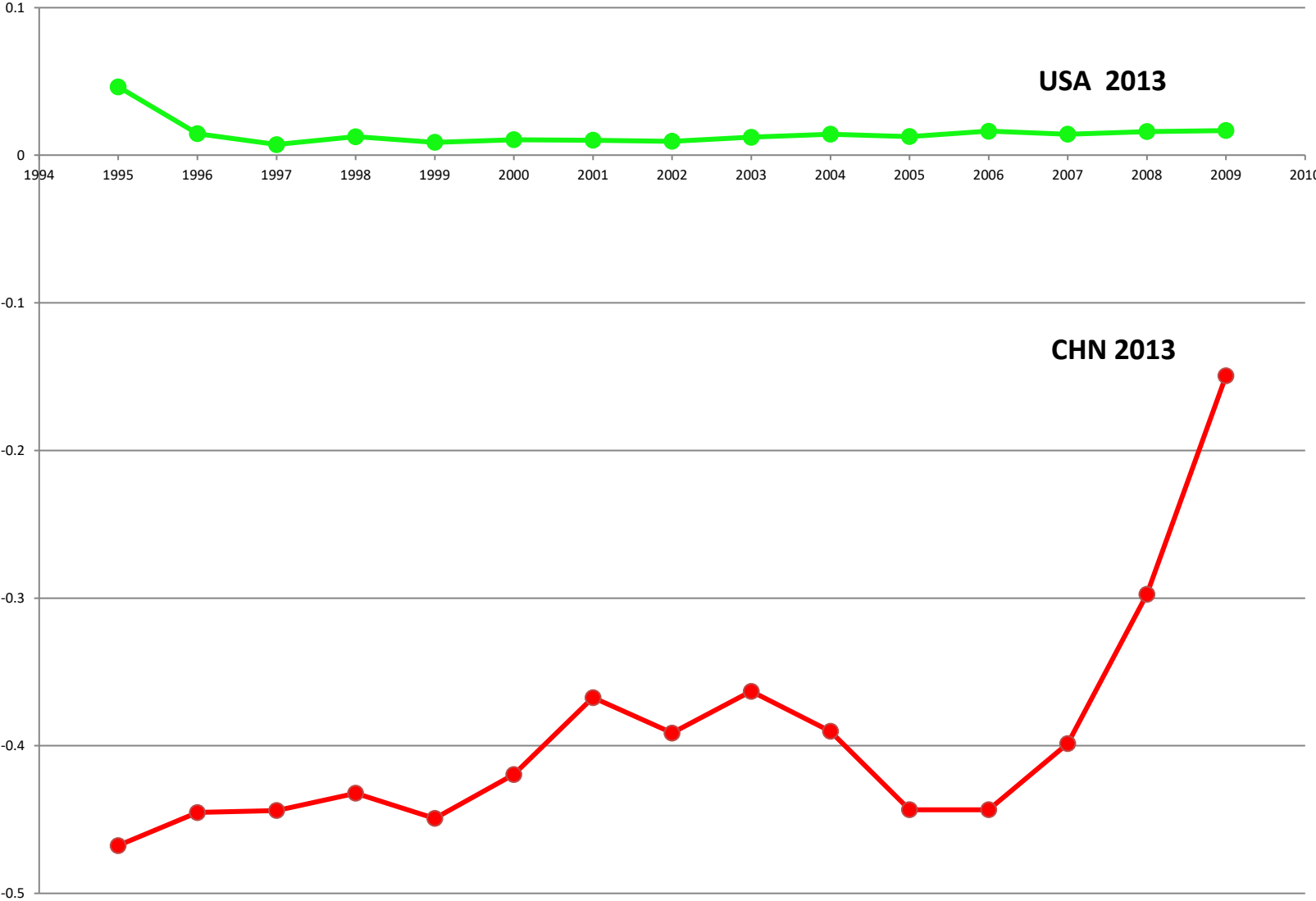
Average unit labour values, USA and China, 1995-2009 and 2010-2014



Aggregate effect of unequal exchange as proportion of total bilateral trade, USA & China 1995-2009



Aggregate effect of unequal exchange as proportion to total output, 1995-2011



Results UX for USA and CHINA, 2009

	USA			China		
2003	Labour values (worker years) (1)	Imports (000 \$) (2)	Vx=d*z Worker hours exported (3) = (1)*(2)	Labour values (worker years)	Exports (000 \$)	Vx=d*z Worker hours exported
Agriculture, Hunting, Forestry and Fishing	0.0102	11091947	113002.1	0.2173	699149	151948.18
Mining and Quarrying	0.0056	950063	5317.393	0.0822	393597	32334.292
Food, Beverages and Tobacco	0.0090	2826804	25494.87	0.2014	4516159	909468.8
Textiles and Textile Products	0.0128	441766.07	5634.179	0.1842	39746583	7321886.6
Leather, Leather and Footwear	0.0178	163392.93	2914.090	0.1726	14700791	2536762.8
Wood and Products of Wood and Cork	0.0140	315466	4427.611	0.1785	2830670	505353.97
Pulp, Paper, Paper , Printing and Publishing	0.0101	1713246	17371.48	0.1500	4129072	619261
Coke, Refined Petroleum and Nuclear Fuel	0.0043	361451	1537.022	0.1059	189849	20099.908
Chemicals and Chemical Products	0.0085	10447597	88681.47	0.1016	9302739	945088.05
Rubber and Plastics	0.0110	978901	10815.33	0.1433	11582346	1660200.4
Other Non-Metallic Mineral	0.0102	421964	4325.016	0.1294	4142457	536154.19
Basic Metals and Fabricated Metal	0.0112	3196905	35961.26	0.1201	15071711	1809448.3
Machinery, Nec	0.0095	6587284	62694.91	0.1441	27257489	3928382.6
Electrical and Optical Equipment	0.0186	15086663	280874.4	0.1578	121604134	19189655
Transport Equipment	0.0116	7427509	86108.46	0.1548	6196508	959011.98
Manufacturing, Nec; Recycling	0.0098	389724	3826.986	0.1416	43170620	6111138.4
Total		62400683	748986.6		305533874	47236195
Labour commanded in 1000\$			83.31			6.47

Unequal Exchange: an Example

Looking at trade from the point of view of **USA**

- **Column 1: Unit labour values of the 16 industries producing tradables**
- **Column 2 : Imports of China (or Exports of USA to China) evaluated in 000 USD.**
- **Column 3 (the product of columns 1 and 2) Imports evaluated in labour values**

The column **Sum of imports in 000 \$ over** the **sum imports in labour values =**
the cost of a labour year in **USA** which amounts to **83.31** thousand USD

Similarly is derived the labour year in **China** costs only **6.47** thousand USD

Alternatively

For every **1000\$** that are spend on imports in **USA**, **China** imports $1/83.31=0,012$ labour years.

For every **1000\$** spent on imports in **China**, **USA** imports $1/6.47=0,155$ Chinese labour years .

If instead of years we select days of labour and we further suppose that the number of working days are the same in the two countries . Then we have

China for every **1000\$** spent on imported goods from Germany whose production requires

$$0,012 \times 5 \text{ days} \times 52 \text{ weeks} = 3.12 \text{ labour days in USA}$$

USA the same **1000\$** spent on Chinese exported to USA products whose production requires

$$0.155 \times 5 \text{ days} \times 52 \text{ weeks} = 40.3 \text{ labour days in China}$$

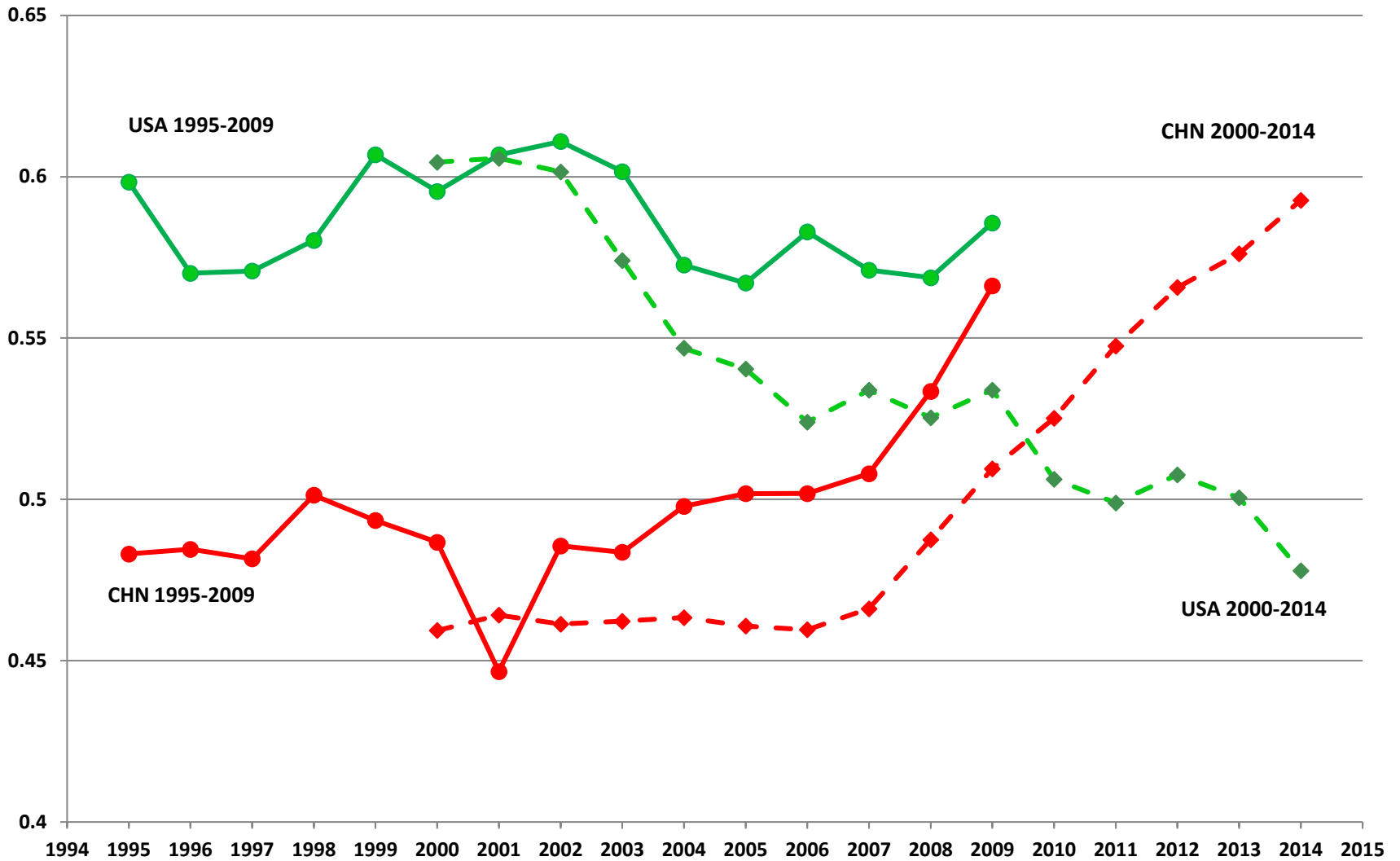
It follows that in 2009 one US labour year is 12.88 times higher than that of China

Equivalence of one dollar to worker year between USA and China, 1995-2009

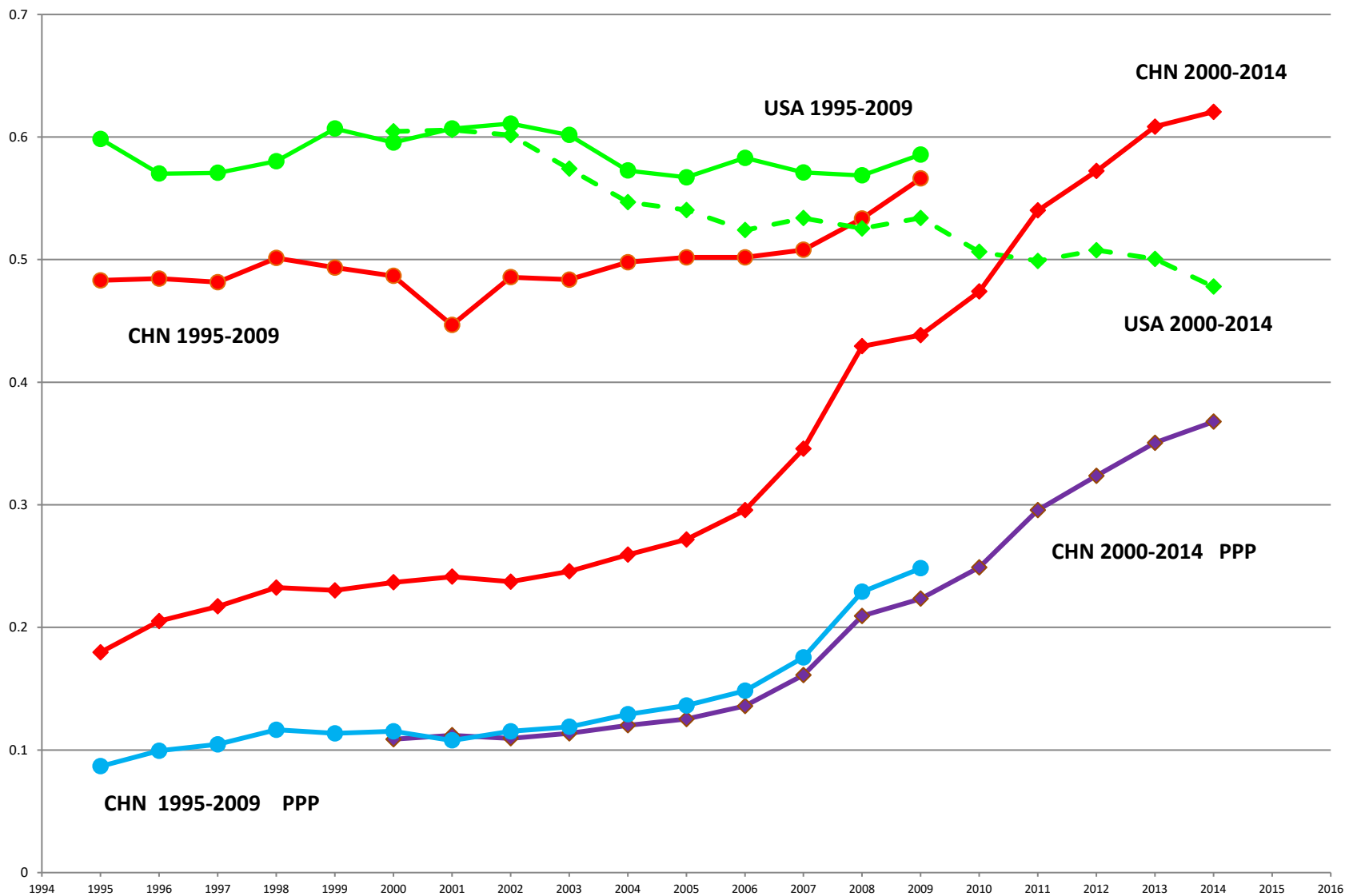
Year	USA (dollar-worker year equivalence)	China (dollar-worker year) equivalence)	China/ USA
1995	0.015	0.411	27.07
1996	0.015	0.370	24.94
1997	0.015	0.341	22.93
1998	0.015	0.312	21.43
1999	0.015	0.286	19.27
2000	0.015	0.253	16.49
2001	0.016	0.240	15.06
2002	0.014	0.215	14.98
2003	0.014	0.206	14.79
2004	0.013	0.211	15.81
2005	0.014	0.207	15.19
2006	0.011	0.194	17.36
2007	0.013	0.172	12.84
2008	0.013	0.157	12.38
2009	0.012	0.155	12.88

The USA with the same amount of money, *i.e.*, one dollar, extracts through trade 12.88 times more labour time (years) than China in the year 2009 and the gains were much higher in the first years of our study during which the unit values in the USA were much lower than those in China.

Average absolute cost of 16 tradables USA & China, in deflated USD



Average absolute cost of tradables USA vs. China, Deflated USD and in terms of PPP



Conclusions 1

1. Equalization of profit rates and unequal rates of surplus value in the two countries did not give rise to **UXΔ** in the “**strict sense**” of the term.
2. The **same technology** assumption across trading partners (of both **NC** and **UXΔ** approaches) does not seem to fit the facts. In particular, US’s higher **capitalization** of production explains its lower than the Chinese labour values.
3. The **lower wages in China** do not necessarily lead to higher rates of surplus value, as a consequence to higher **US** productivity resulting from the higher **VCC**.
4. Our study shows that the USA transfer of values from the trade exceed those of China. In this sense the trade may be characterized as **asymmetric** since one of the trading partners gains more than the other!

Conclusions 2

5. The **transfers of value** do not necessarily indicate exploitative relations between countries and by extension social classes, but the **difference in the level of economic development**.

5. The concept of **exploitation** refers to **class relations** developed domestically and not between countries.

6. It seems that Marx had predicted surprisingly well the consequences in terms of gains and losses resulting from international trade:

“**Loss and gain within a *single* country cancel each other out.** But not so with trade between different countries **three days of labour of one country can be exchanged against one of another country [...].** Here the law of value undergoes essential modification [...]. The relationship between labour days of different countries may be similar to that existing between skilled, complex labour and unskilled simple labour within a country. **In this case, the richer country exploits the poorer one, even where the latter gains by the exchange”** (Marx, 1861-1863, pp. 105-6).

Conclusions 3

8. On the surface the dominance of the **LOP**, the **equalization** of **ROP** and probably of the **RSV** give the impression that the exchanges are conducted on the basis of equivalent relations between the partners.
9. By contrast, the present research argued **that the inequalities are couched on the sphere of production**, that is, **on the labor values** of tradable goods and are consistent with the differences in real wages and the **unequal development**.

**Thank you for
your attention!**