

University of Urbino

From the Selected Works of Andrea Ricci

September 13, 2017

Unequal Exchange in Global Trade: Theoretical and Empirical Issues

Andrea Ricci



Available at: https://works.bepress.com/andrea_ricci/20/

Unequal exchange in global trade: theoretical and empirical issues.

Andrea Ricci

(University of Urbino, Italy)

Eighth Annual Conference in Political Economy

Berlin School of Economics and Law

September 13 - 15, 2017, Berlin



Emmanuel's Unequal Exchange

- The term 'unequal exchange' was originally coined by **Arghiri Emmanuel** (1962, 1972, 1973, 1975) to indicate international transfers of value hidden behind apparent equality in trade.
- Causes: differences in monetary wages between poor and rich economies, caused by institutional factors, such as trade union power.
- Assumptions:
 - ✓ perfect capital mobility,
 - ✓ relative immobility of labour,
 - ✓ competitive markets.

Structuralist Unequal Exchange

- The core of **Arthur Lewis**'s (1954, 1969, 1978, 1979) model is the labour market dualism in peripheral economies, with unlimited supply of labour in the traditional sector, that blocks wages below the productivity level. This situation determines a deterioration in terms of trade for countries specializing in low-wage sectors.
- **Raul Prebisch** (1950,1959) and **Hans Singer** (1950) thesis asserts that there is a long-run trend toward worsening in net barter terms of trade between primary products, exported by peripheral countries, and industrial goods, exported by developed countries. Causes:
 - ✓ monopolistic conditions in industrial product markets;
 - ✓ lower income and price elasticity of demand for primary products.

Marxist Unequal Exchange

- **Monopoly capitalism**: the predatory practices of Transnational Corporations determine a transfer of surplus from peripheral to central countries in the form of supra-profits (Baran, 1957; Baran & Sweezy, 1966; Amin, 1976) .
- **Classic Marxist theory** of value: in a capitalist economy, the equalization of profit rates between branches, and the formation of prices of production different from values, implies value transfers from lower to higher capital intensive economies, and it determines unequal exchange in '**broad sense**' (Bauer, 1907; Grossman, 1929; Bettelheim, 1962; Carchedi, 1988, 1989).

Table 1: Forms of Unequal Exchange

Differences in:		Main authors:
<i>Industrial specialization</i>	Intersectoral wages	Lewis
	Intersectoral profit rates	Prebisch and Singer
	Capital composition	Classic Marxist theory (Bauer, Grossmann)
<i>Remuneration of factors of production</i>	International wages	Emmanuel
	International profit rates	Monopoly capitalism theory (Baran, Sweezy, Amin)

Empirical estimations of Unequal Exchange

- Several attempts have been made to measure the size of unequal value transfers (Amin, 1976; Gibson, 1980; Marelli, 1983; Webber & Foot, 1984; Williams, 1985; Joseph & Tomlinson, 1991; Nakajima & Izumi, 1995).
- Main limitations: 1) the measure of the gap between values, prices of production and market prices; 2) the shortage of statistical data.
- New methodology based on the gap between current and purchasing power parity exchange rates, the **Exchange Rate Deviation Index** (ERDI). Unequal exchange results from the real undervaluation of the currencies of less-developed countries (Reich, 2007, 2014; Kolher & Tausch, 2002; Somel, 2003; Tausch, 2005; Elmas, 2009; Kohler, 2015)
- Problem: ERDI can measure unequal exchange only if labour is homogeneous, taking into account for productivity differences between countries (Raffer, 2006).

Marx's Unequal exchange 1

- Value transfers are a consequence of the mismatch between value in production, or labour value, and value in circulation, or exchange value (Rubin, 1973).
- Labour value represents the general human labour power necessary to produce a particular commodity, while exchange value the general human labour power necessary to satisfy a particular social need.
- Real measures of value are the ratio between their two specific measures: homogeneous labour-time, defined as **labour with average industry productivity**, and the **general purchasing power** necessary to buy a particular commodity.
- Labour value and exchange value are equivalent when the real measure of one is equal to the inverse of the other (Ricci, 2017). The equivalence holds in a simple commodity production in which exchange value takes the form of **market-value**.
- In a capitalist economy, however, normally this is not verified because of the formation of **prices of production** different from market-values. Only in the aggregate, as a social average, the equivalence holds.

Marx's Unequal exchange 2

- Market-value and price of production are long-run concepts, assuming market clearing conditions. In the real world, disequilibrium conditions normally prevail and other types of value transfers occur, because of the formation of **market-prices of production** (Marx, 1894).
- Under **structural conditions** of excess or deficient demand for particular commodities, the market-price of production is higher or lower than the price of production (Kristjanson-Gural, 2003, 2005; Marina-Flores, 1998)
- **Differential rent**: higher net revenue per unit of homogeneous labour, obtained via *interindustry* value transfers from sectors in the opposite situation.
- **Absolute rent**: market price higher than the market-price of production. *Intraindustry* transfers from competitive to monopolistic firms.

The model

- The model used to estimate international value transfers consider a world economy with n countries and m non-specific commodities, freely traded in integrated international markets.
- Each national industry uses direct labour, working with given intensity, skills and means of production.
- Each country has its currency (nc) and aggregate world economic variables are expressed in US dollars (\$).
- Subscript letters j , w and i indicate industry, world and country, respectively.

$$(1) L_w^h \equiv \sum_j L_{wj}^h \equiv \sum_j L_{wj} \equiv L_w$$

$$(2) L_{ij}^h = \left(\frac{e_{ij}^p Y_{ij}^{nc}}{Y_{wj}^\$} \right) L_{wj}$$

$$(3) MEV = \frac{Y_w^\$}{L_w}$$

$$(4) MV_{ij} = \left(MEV + \frac{e_{ij}^\$ C_{ij}^{nc}}{L_{ij}^h} \right) \left(\frac{L_{ij}^h}{Q_{ij}} \right)$$

$$(5) MP_{ij} = \left(\frac{e_i^\$ Y_{ij}^{nc} + e_{ij}^\$ C_{ij}^{nc}}{L_{ij}^h} \right) \left(\frac{L_{ij}^h}{Q_{ij}} \right)$$

Subscript j , w and i = industry, world and country.

L^h = homogeneous labour

L = direct labour

$e_i^{\$}$ = current dollar per local currency unit;

Y = net product;

e_i^p = PPP international dollar per local currency unit;

$e_{ij}^p = e_i^p \frac{\sum_i (e_i^{\$} Y_{ij})}{\sum_i (e_i^p Y_{ij})}$ = industry PPP exchange rate;

MEV = monetary expression of value;

Q = quantity of commodity;

c = constant capital;

MV = market-value;

MP = market-price;

$$(6) \quad MP_{ij} - MV_{ij} = \left[\frac{(e_i^{\$} Y_{ij}^{nc} - MEV)}{L_{ij}^h} \right] \left(\frac{L_{ij}^h}{X_{ij}} \right) = t_{ij}$$

$$(7) \quad t_{ij} = (t_{ij}^b + t_{ij}^w) \left(\frac{L_{ij}^h}{X_{ij}} \right),$$

with:

$$t_{ij}^w = (ERDI_{ij} - 1) \left(\frac{Y_{wj}}{L_{wj}} \right); \quad t_{ij}^b = \left(\frac{Y_{wj}}{L_{wj}} \right) - MEV$$

$$(8) \quad t_{ij}^W = (e_i^{\$} w_{ij}^h - w_{wj}) + (r_{ij} - r_{wj}) OCC_{wj}$$

$$(9) \quad t_{ij}^B = (w_{wj} - w_w) + (r_{wj} - r_w) OCC_{wj} + r_w (OCC_{wj} - OCC_w)$$

$$(10) \quad T_{ij} = (t_{ij}^b + t_{ij}^w) \left(\frac{L_{ij}^h}{X_{ij}} \right) - \sum_{n \neq i} (t_{nj}^b + t_{nj}^w) \left(\frac{L_{nj}^h}{M_{inj}} \right)$$

X = exports;

M = imports;

t = total transfer per unit of good;

t^w = intraindustry transfer;

t^b = interindustry transfer;

OCC = organic

composition of capital;

r = rate of profit;

w = wage;

T = total industry transfer.

Table 2: Unequal Exchange in Marx's LTV

Causes		Differences in:	
<i>Industrial specialization</i>	Differential rent	Intersectoral wages	Market-price of production — price of production
		Intersectoral profit rates	
	Profit-rate equalization	Capital composition	Price of production — market-value
<i>Remuneration of factors of production</i>	Absolute rent	International wages	Market price — market-price of production
		International profit rates	

Statistical data

Source of data:

- *World Input-Output Tables (release 2013)* for bilateral international trade in 34 industries at basic prices and current exchange rates;
- *Socio-economics Accounts of WIOD (release 2013)* for hours worked, wages, profits, gross output and value added at basic prices;
- *World Bank* for PPP exchange rates of 39 countries;
- *IMF* for PPP exchange rates of Taiwan.

Statistical data

- All **industries** of WIOD are considered, except for household services:

1) Agriculture, Hunting, Forestry and Fishing; 2) Mining and Quarrying; 3) Food, Beverages and Tobacco; 4) Textiles and Textile Products; 5) Leather, Leather and Footwear; 6) Wood and Products of Wood and Cork; 7) Pulp Paper, Paper, Printing and Publishing; 8) Coke, Refined Petroleum and Nuclear Fuel; 9) Chemicals and Chemical Products; Rubber and Plastics; 10) Other Non-Metallic Mineral; 11) Basic Metals and Fabricated Metal; 12) Machinery, Nec; Electrical and Optical Equipment; 13) Transport Equipment; 14) Manufacturing, Nec, Recycling; 15) Electricity, Gas and Water Supply; 16) Construction; 17) Sale, Maintenance and Repair of Motor Vehicles and Motorcycles; 18) Retail Sale of Fuel; 19) Wholesale Trade and Commission Trade, Except of Motor Vehicles and Motorcycles; 20) Retail Trade, Except of Motor Vehicles and Motorcycles; 21) Repair of Household Goods; 22) Hotels and Restaurants; 23) Inland Transport; Water Transport; 24) Air Transport; 25) Other Supporting and Auxiliary Transport Activities, Activities of Travel Agencies; 26) Post and Telecommunications; 27) Financial intermediation; 28) Real Estate Activities; 29) Renting of M&Eq and Other Business Activities; 30) Public Admin and Defence; 31) Compulsory Social Security; 32) Education; 33) Health and Social Work; 34) Other Community, Social and Personal Services

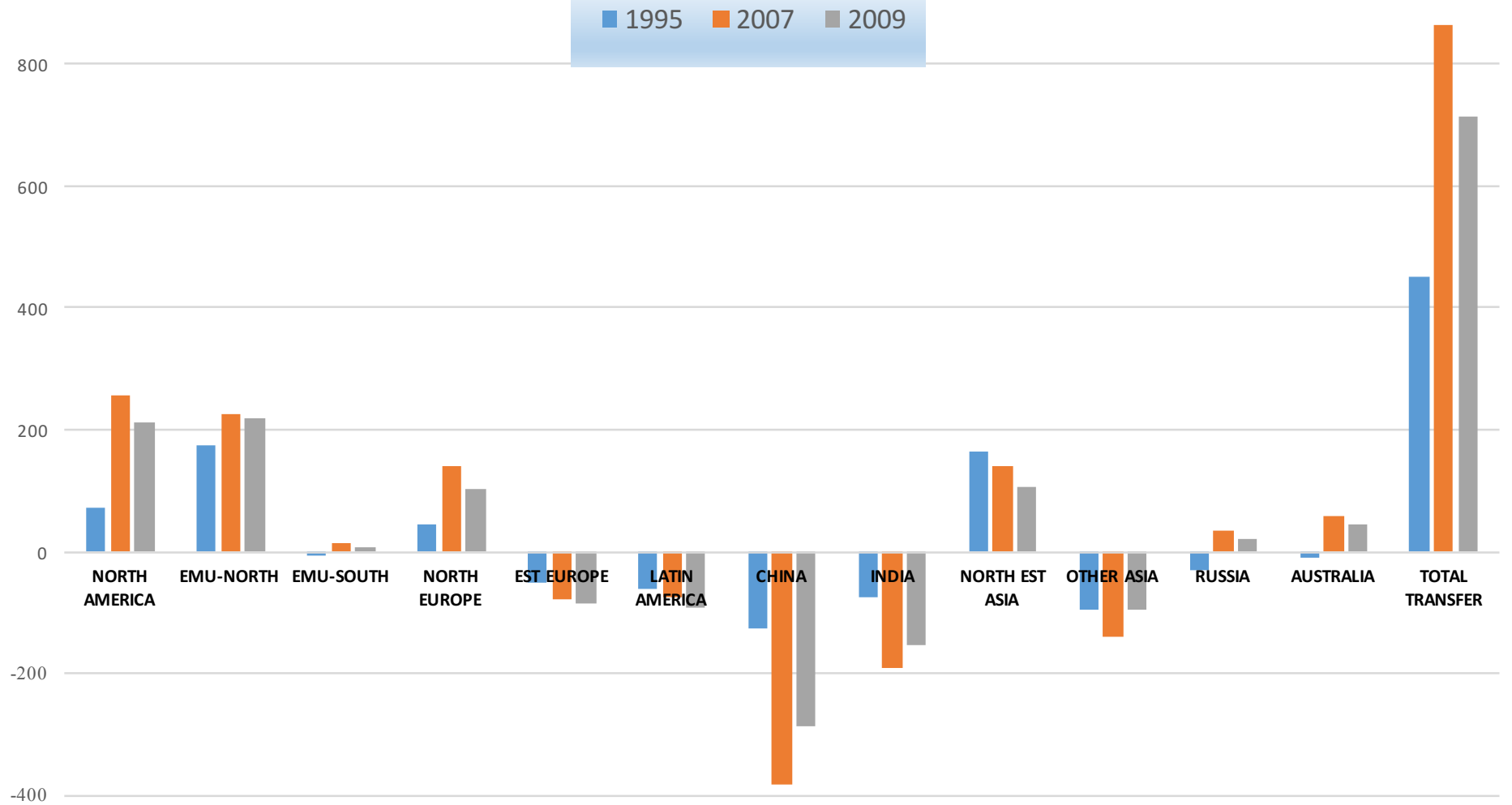
Countries and Regions:

- **North America** (Canada and USA),
- **North European Monetary Union** (Austria, Belgium, Germany, Finland, France, Luxemburg, Netherland),
- **South European Monetary Union** (Cyprus, Spain, Greece, Ireland, Italy, Malta, Portugal),
- **North Europe** (Denmark, United Kingdom, Sweden),
- **East Europe** (Bulgaria, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovakia, Slovenia),
- **Latin America** (Brazil, Mexico),
- **China**,
- **India**,
- **North East Asia** (Japan, South Korea),
- **Other Asian Countries** (Indonesia, Turkey, Taiwan),
- **Russia**,
- **Australia**.

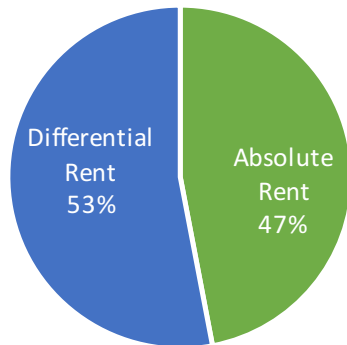
Table 3: Value transfers in millions of current dollars and in % of value added

REGION	1995		2007		2009	
	millions \$	% VA	millions \$	% VA	millions \$	% VA
NORTH AMERICA	70.727	0,89	255.515	1,66	212.551	1,38
EMU-NORTH	173.642	3,81	224.996	3,21	218.813	3,07
EMU-SOUTH	-7.451	-0,40	12.363	0,32	7.445	0,19
NORTH EUROPE	45.194	2,93	139.378	4,32	103.039	3,92
EAST EUROPE	-51.866	-16,80	-76.906	-7,52	-84.958	-8,10
LATIN AMERICA	-60.500	-6,16	-75.007	-6,38	-93.545	-4,18
CHINA	-125.674	-17,26	-382.496	-10,94	-285.946	-5,74
INDIA	-73.171	-20,92	-189.343	-17,00	-152.299	-12,11
NORTH EST ASIA	162.962	2,85	140.833	2,68	105.463	1,86
OTHER ASIA	-95.020	-13,26	-141.146	-10,25	-96.022	-6,64
RUSSIA	-30.026	-9,53	34.704	3,11	20.634	1,91
AUSTRALIA	-8.815	-2,50	57.110	6,53	44.824	4,71
TOTAL TRANSFER	452.525		864.899		712.769	

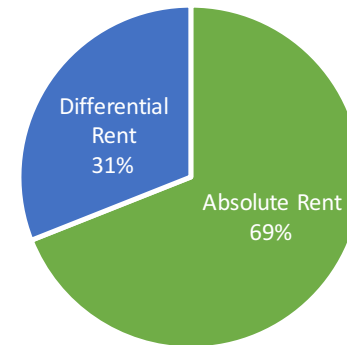
Value transfers in billions of dollars



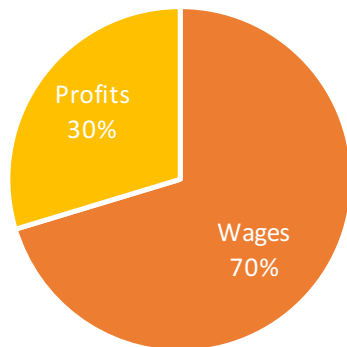
Interindustry and Intraindustry transfer - 1995



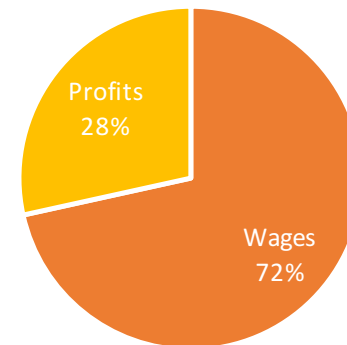
Interindustry and Intraindustry transfer - 2007



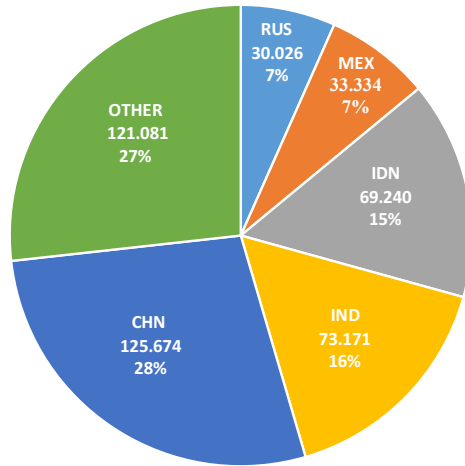
Value transfer 1995: wages and profits



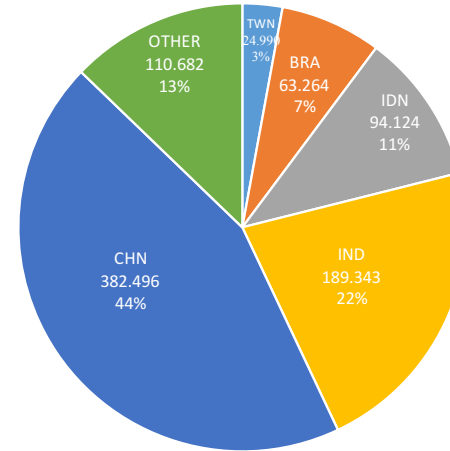
Value transfer 2007: wages and profits



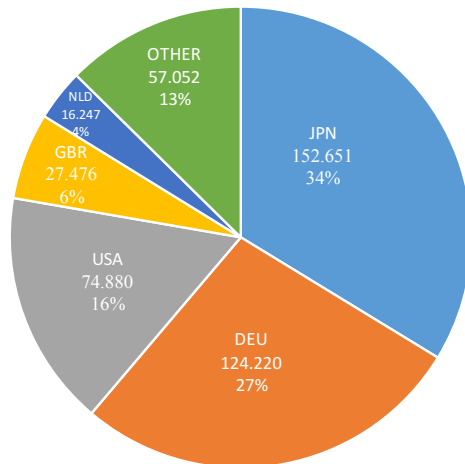
**Outflows
1995**



**Outflows
2007**



**Inflows
1995**



**Inflows
2007**

