INCOME DISTRIBUTION IN INTERNATIONAL TRADE OF PRIMARY COMMODITIES:
Some Conceptual and Methodological Issues

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Abstract

International trader in Primary Commodités takes place between unequal partners. The investigation of such market structures within a commodity (or value) chain perspective is an area of renewed interest and empirical research. A conceptual framework to analyse relations of distribution between agents involved in the production and marketing of primary commodities is proposed. Empirical findings from past and current research related with distributional issues of international trade are critically overviewed. Analytical linkages with terms of trade (or relative price movements) studies are established.

Exploitation through international trade is based on the unequal power structure shaping international markets. This is more striking in trade in Primary Commodities. Millions of producers in underdeveloped exporting countries confront a handful of TNCs (or retail conglomérats of the métropoles). As a result, the share of exporting countries or of direct producers at the periphery within the gross output or value added realised or imputed at the final point of destination remains compressed. Declining peripheral terms of trade aggravate the situation.

The investigation of market structures in international trade within a commodity (or value) chain perspective is recently emerging as an area of renewed interest and empirical research. Starting from the production stage and ending with the final user-consumer, agents are being delineated and differential, non-symmetrical market structures and power relations are being analysed. Such

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an approach can lead to the decomposition of the final price of each commodity into its components.

However, the decomposition of the final price into its components is not identical with the distribution of value-added between classes and socio-economic groups involved in the production and marketing of primary commodities. To move from the former into the latter requires conceptual and methodological clarification as well as the elimination of empirical difficulties. Such effort is required to prevent erroneous distributional interpretations.

The disaggregated table of the final price into its components can lead into a table of income shares of the relevant socio-economic groups if further data based on intermediate costs and value-added at different stages of the marketing chain are available. The further processing and transformation takes place (e.g. from bauxite to alumina, or from cotton to finished clothing) the more detached the producers of the primary commodity become in their actual contribution to total value-added within the chain. And after a particular threshold, the international commodity chain analysis becomes irrelevant.

Two exercises undertaken by the author three decades ago,[1] using "ancient" UNCTAD data on marketing and production of bananas and tobacco exported from Nairobi (The UNCTAD studies (revered to at Tables 1a and 1b) which provided the data base to that paper were part of the research undertaken by the UNCTAD Secretariat for the 1976).

The periphery presented as Tables 1a and 1b of the Appendix can be used as a framework delineating the quantitative steps involved. Both tables present (a) the decomposition of the final price (or total retail value) and (**b**) the value added imputed to the production of the primary commodity and the distributional components thereof. (All items under **b** are presented in **bold** characters.) Table 1a is based on the final price (i.e. "unit value per tonne") of banana and Table 2 on total retail value and both tables estimate the margins and components which lead up from the gross revenue (i.e. or of prices) received by producers up to the final price/retail value. Data requirements and steps taken to fill in the missing gaps and to move into value-added components are discussed in what follows.

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[1] Korkut Boratav, "Categories of Income Distribution in Primary Commodities Exported by Developing Countries : Some Conceptual and Methodological Problems", *The Turkish Yearbook of International Relations,* 1977, Institute of International Relations, Faculty of Political Science, University of Ankara, pp. 28-47.

Table 2 in the **Appendix** presents some findings on export/final price ratios for a number of primary commodities for the 1960s and 1970s based on early UNCTAD work. Recent revivals of interest on commodity chains have generated empirical research which is related to the foregoing conceptual framework. Some of the results are presented in Tables 3 to 5 in the **Appendix.** Findings presented in Tables 3b, 4, 5a are essentially breakdowns of *the final price or retail (final) sales* in the importing country into major components and the essential objective is to estimate the shares of exporting/importing countries there from. It should be noted that the apparently simple concept of exporters'/importers' share differs when the computation is undertaken **(i)** in terms of value added shares of agents located in the relevant geographies or **(ii)** in terms of export price (revenue) as a ratio of retail price (revenue). To emphasise the difference we can use Tables 1a and 1b where both ratios are available. For banana and tobacco, exporters' share in terms of value added is 25.7% and 11.1% respectively (see final row of the two tables). The ratio in terms export and retail prices are for the two commodities are 26.0% and 9.7% respectively.[2]

Even minimal processing may generate complications. Cases have been observed when the transfer of a simple processing stage to the exporting country generates an additional surplus at the final stage which is completely incommensurate with the material and labour costs involved at the processing activity. Despite the additional value-generating activity at the periphery, the share of farmers/exporters from *final price* and from *value added* may, in fact, decline. An example for carrots is given in Table 3 at Appendix. In that case, if the "bagging" process is shifted to Africa, it is likely that the costs involved would be a fraction of the 121% price increase between the "basic carrot" and "bagged carrot" stages in UK. Under such conditions, although additional revenues are generated within the exporting country, its distributional share (in terms of value-added) may be declining. This is a case of rising commercial profits due to a shift of labour costs from the centre to the periphery with no gains to the consumer. The quantification of the distributional outcome under such conditions requires further and detailed data.

If we want to follow the orientation of Tables 1a and 1b so as to arrive at the *value-added generated by producers of the primary commodity alone* and the distributive shares thereof, the quantitative decomposition of the final price into

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[2] Line 5 / line 12 for Table 1a and line 4 / line 11 in Table 1b.

its value added and intermediate cost components at all stages as well as input-output coefficients are required. The sum total of costs incurred and value-added specific to the stages of transportation, storage, further processing etc. (including the non-labour input costs pertaining to the initial production process) deducted from the final price gives a residual which represents the value-added generated by the production of the primary commodity. This residual (the imputed value-added) can, further on, disaggregated into the shares of the agents involved directly in the production and marketing of the relevant commodity. The relevant agents are as follows: *(p1): direct producers, (p2): merchant capital* and *(p3): the state* of the *peripheral economy*; and *(m1)*: *transnational, commercial capital* and *(m2): the state* of the *metro poles.* The ratio of value-added accrued by *(m1+m2)* over *(p1+p2+p3)* represents the rate of exploitation of the peripheral economy by the metro poles through trade. The rate of exploitation of the direct producer is defined by adding the shares of merchant capital and state of the peripheral economy to the surplus appropriated by the agents of the metro pole.[3]

Even if the initial framework or table representing distributional shares (in terms of value-added) of the relevant socio-economic groups is missing, a quantitative analysis from a base period of aggregative or partial terms of trade (i.e. dual price movements or "price scissors") involving agents directly confronting each other within the marketing chain will represent the direction and magnitude of *distributional changes* during the period covered. Although this is an important and significant research agenda *per se*, the ultimate objective should be to build up the full distributional picture at a particular period and follow up changes there from. However, since data requirements of producing the "full picture" are quite demanding, it is useful to discuss the implications related to the "second best", aggregative or partial (commodity-specific), i.e. terms of trade studies.

A commodity-specific analysis of relative price movements has some practical advantages compared with the conventional and more aggregated terms of trade analysis. Dual price movements at different stages of the commodity chain (i.e. partial terms of trade movements) involve agents with different

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[3] If the terms are defined in terms of value-added accruing to the corresponding agents, the rate of exploitation of direct producers is: *(m1+m2 +p2+p3)* / *p1*. Tables 1a and 1b presents the "rate of exploitation" of the exporting country indirectly, i.e. in terms of its value-added share from the total (i. e. final row of the tables). The share of direct producers out of total value added (i.e. the transformed "rate of exploitation") is 17.5% for banana and 5.9% for tobacco producers of the periphery.

degrees of market power and can be interpreted as representing distributional changes between them. Each stage within the chain usually consists of a discrete market -i.e. the market for basic inputs used by direct producers, the domestic agricultural market and the international market of the primary commodity, the market at the final destination... Distributional trade-offs are reflected by relevant "price scissors" , i.e. the prices paid and received by the actors confronting each other.

More specifically, a change in the producer price/input price ratio reflects how far the degree of the "squeeze" of the farmer/peasant through backward market linkages has changed. The relevant distributional trade-off here is between the farmers/peasants vs. the suppliers of basic inputs. *Producer price/unit export value* ratio represents a parallel "squeeze" experienced through forward market linkages –a relationship in which farmers/peasants confront merchant capital operating at the domestic level. The *unit export value/world market price* ratio reflects the international marketing power of the exporting country. Changes in the *unit export value/final market (user) price* ratio may reflect, how the "final value" is being shared between the exporting and importing country and involves trade-offs between exporters vs. TNCs specialised in international trade in primary commodities and final users/consumers vs. TNCs...

Once again, such interpretations should be qualified because prices measured at each level do not properly reflect value-added components involved. When relevant prices correspond to productive sectors or industries, a partial correction can be done by measuring sectoral productivity movements as well. Under such conditions, relative price movements at each marketing stage, i.e. the partial terms of trade movements, *as far as they are not reflections of changing productivities,* represent the direction and magnitude of *distributional changes* between the relevant agents.[4]

Changes in some of the foregoing indicators in the recent past show whether such "squeezes" have risen after the so-called "market-friendly reforms" in agriculture undertaken in peripheral economies. The elimination of various forms of intervention involving support prices, import restrictions, input and credit subsidies in developing countries were instrumental. The dismantling of

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[4] See Korkut Boratav, "Movements of relative agricultural prices in sub-Saharan Africa", C*ambridge Journal of Economics*, May 2001, Vol. 25, No. 3, pp. 395-416 for an empirical analysis on the foregoing lines.

an institutional component of the commodity-chain owned and/or controlled by governments -e.g. *Marketing Boards (MBs)* - has been a common feature in some peripheral countries[5]. Regardless of their earlier performance, the gap which emerged after the disappearance of MBs has been filled by different mixes of domestic/external private agents and Northern TNCs (or retail conglomerates for some commodities) appear to have had the upper hand.

Although the World Bank (WB) which had initiated such "reforms" belatedly appears to be having second thoughts about their impacts,[6] such reflections have not affected in its policy recipes prepared for individual countries as witnessed by the recent Turkish experience.[7] Tables 5a, 5b and 5d in the **Appendix** provide findings on deteriorating shares of coffee exporters/producers during the neo-liberal era and empirical evidence from other observers on their adverse consequences are available as well.[8]

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[5] Such institutions have traditionally been called Marketing Boards (MBs) in Africa. In Turkey "Agricultural Marketing and Credit Cooperatives" under different names for different commodities (formally autonomous, but practically supported and controlled by the government) and a fully state-owned "office" (TMO) for grains have been the relevant agencies. Every country used to have its own institutional specifities and terminology. In what follows "MBs" will be used as the umbrella term to cover all.

[6] See e.g. *World Development Report 2001*, pp.68-69.

[7] On critical overviews of the recent "market-friendly" policy changes in Turkey in which WB and IMF have played crucial roles, see: *İktisat Dergisi Özel Sayı: Tarımda Sancılı Dönüşüm,* Eylül 2006; TMMOB Ziraat Mühendisleri Odası, *VI. Teknik Kongresi,* 3-7 Ocak 2005, Cilt ve 2; Necdet Oral, *Türkiye Tarımında Kapitalizm ve Sınıflar: IMF ve Dünya Bankası Programlarının Türkiye Tarımına Etkileri,* TMMOB Ziraat Mühendisleri Odası, Ankara 2006, Bölüm IV ve V. Daha kısa bir değerlendirme için: Bağımsız Sosyal Bilimciler 2006 Raporu, *IMF Gözetiminde On Uzun Yıl, 1998-2008: Farklı Hükümetler, Tek Siyaset,* TMMOB, Haziran 2006, Bölüm VIII.

[8] See for example, R. Fitter & R. Kaplinsky, « Who Gains from Product Rents as the Coffee Market Becomes more Differentiated ? » *IDS Bulletin,* May 2001, 32/3 ; UN (General Assembly), *World commodity trends and prospects.* Report by the Secretary General, p.8 where adverse implications of the absence of MBs are emphasized and Korkut Boratav, "Movements of relative agricultural prices in sub-Saharan Africa", C*ambridge Journal of Economics*, May 2001, Vol. 25, No.3. On agricultural terms of trade after the recent "market-friendly reforms" in Turkey, see, Korkut Boratav, "Tarımsal Fiyatlar, İstihdam ve Köylülüğün Kaderi", www.bagim sizsosyalbilimciler.org

APPENDIX: FINDINGS ON PRICE MARGINS AND DISTRIBUTIONAL SHARES IN COMMODITY CHAINS

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1. Two Early Exercises on Bananas and Tobacco with a Full Breakdown Required for Distributional Analysis

Table 1a : Revenue and Cost Elements in the Production and Marketing of Bananas, 1971

Cost, Price and Revenue Items	Unit Values per Tonne, $
1. Gross revenue of banana producers, of which	38
(a) Material costs of production	(8)
(b) Net revenue of producers	**(30)**
2. Transportation, packing & storage in exporting country	33
3. Taxes and similar charges in exporting country, of which	8
(a) Export duties	**(2)**
(b) Other taxes	**(6)**
4. Gross margin of exporters	**6**
5. Fob price (1+2+3+4)	85
6. Freight and insurance	38
7. Cif price (5+6)	123
8. Unloading, storage & transport in importing country	78
9. Import duties	**23**
10. Excise taxes	**33**
11. Commercial profit of importers and of others	**71**
12. Retail price	327
13. Total value-added imputed to banana production (1b+3a+3b+4+9+10+11)	**171**
Share of exporting country agents (1b+3a+3b+4)/13	**0.257**

Source : Boratav (1977) based on UNCTAD, «Rapport existant entre les prix à l'exportation et les prix à la consommation de certains produits de bas exportés par les pays en developpement », TD/184/Supp.3, Table 10a.
Bold characters represent components of and total value-added imputed to banana production.

Table 1b : Revenue and Cost Elements in the Production and Marketing of Tobacco and Cigarettes, US Data, 1972

Cost, Price and Revenue Items	$, Millions
1. Gross revenue of tobacco producers, of which	674
(a) Material costs of production	(135)
(b) Net revenue of producers	**(539)**
2. Taxes from export	**235**
3. Traders' and exporters' margin	**236**
4. Fob export value (1+2+3)	1145
5. Material costs of cigarette manufacture excluding tobacco inputs, of which	778
(a) Containers, cellophane etc.	(398)
(b) Fuel & electricity	(11)
(c) Depreciation	(369)
6. Wages & salaries in cigarette manufacture	345
7. «Other» (rent, interest, undefined) elements in value added	**1474**
8. Payment for services (e.g. advertisement) out of surplus	**470**
9. Trade margins, of which	2707
(a) Imputable to tobacco production	**(2367)**
(b) Imputable to cigarette production	(340)
10. Excise taxes, of which	4846
(a) Imputable to tobacco production	**(3821)**
(b) Imputable to cigarette production	(1025)
11. Total retail value (4+5+6+7+8+9)	**11765**
12. Total value-added imputed to tobacco production (1b+2+3+7+8+9a+10a)	**9142**
Share of exporting country agents (1b+2+3)/12	**0.111**

Source : Boratav (1977) based on UNCTAD, « Marketing and Distribution of Tobacco », TD/B/C.1/205, Table 22.

Bold characters represent components of and total value-added imputed to tobacco production.

2. Early UNCTAD studies on different commodities

Table 2 : Export price of primary commodities as % of retail/final price

	1967-72	Late 1970s
Tin	74-91	
Sisal		63-83
Copper	55-65	54-58
Coffee	18-50	54-61
Groundnut oil	48-51	
Phosphate		45-47
Tea	19-53	15-47
Sugar	21-53	
Jute	16-34	19-42
Cocoa	12-34	
Bananas	20-24	14
Oranges	29-32	
Iron ore	8-12	
Alumina	10-14	13-16
Cotton		4-8
Tobacco		6
Bauxite	3-5	2-3

Source: UNCTAD studies in mid-1970s and early 1980s from J. M. Talbot, "Where Does Your Coffee Dollar Go? The Division of Income and Surplus along the Coffee Commodity Chain", *Studies in Comparative International Development,* Spring 1997, 32/1.

3. Fresh fruits and vegetables

Table 3a Carrot price escalation in UK supermarkets

Carrot type	*Price index*
Basic carrots	100
Bagged carrots	221
Bagged, peeled and sliced carrots	718
Washed, bagged, peeled, sliced carrots	749
Mini carrots in tray	1117
Mini cocktail carrots	1523

Source: C. Dolan & J. Humphrey, "Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry", *Journal of Development Studies,* 2000, 37/2.

Table 3b: Breakdown of final price of mangetout & fresh vegetables exported from Africa

Stage in commodity chain	Mangetout, Zimbabwe	Fresh vegetables, Kenya
Within Africa		
Producer	11.9	14.1
Packaging	5.2	13.1a
Exporter	5.5	
Total African share	22.6	27.2
Outside of Africa		
Freight and handling	19.6	21.2
Importers & commission	11.8	6.1
Supermarket	45.9	45.5b
** (Costs)	(18.9)	
** (Profits)	(27.0)	
Total non-African share	77.3	72.8

Source: J. Humphrey and A. Oetero, "Strategies for diversiification and adding value to food exports: A value chain perspective", UNCTAD/DITC/COM/TM/1, 2000.
(a) Exporter share probably included. (b) Including costs and profits

4. Canned fruits

Table 4: Breakdown of final EU price of canned peach exported from South Africa

Stage in commodity chain	Share within final price(%)
Within South Africa	
Peaches	12.4
Cans	11.6
Sugar	4.2
Canning	14.7
(Labour)	(7.4)
(Non-labour)	(7.3)
Total South African share	42.9
Outside South Africa	
Shipping, duties, insurance, landing	24.2
Importer's margin	6.3
Supermarket's margin	26.7
Total share outside South Africa	57.1

Source: D. Kaplan & R. Kaplinsky, « Trade and Industrial Policy on an Uneven Playing Field : The Case of Deciduous Fruit Canning Industry in South Africa », *World Development*, 1999, 27/1

Note: Large rents on brand names exist and accrue increasingly to the retail end of the commodity chain.

5. Coffee

Table 5a : Export revenues and retail sales of coffee

	Early 1990s	Early 2000s
Exports, Bn. $	11	5.5
Retail sales, Bn. $	30	70
Export/Retail, %	36.7	7.9

Source: N. Osorio, « Technological development in coffee : Contraints encountered by producing countries » International Coffee Organization Paper presented to World Food and Farming Congress, London, 26 November 2002.

Table 5b: Breakdown of final consumer price for coffee into its components (%)

	1971	1977	1984	1994
Exporting country	*30.6*	*49.7*	*38.4*	*19.3*
** Farmers	18.2	27.1	20.0	16.8
** Intermediaries and state	12.4	23.6	18.4	2.5
Importing/consuming country	*58.0*	*37.3*	*47.6*	*76.3*
Transportation etc.	*11.3*	*12.0*	*14.0*	*4.3*

Source: J. M. Talbot, "Where Does Your Coffee Dollar Go? The Division of Income and Surplus along the Coffee Commodity Chain", *Studies in Comparative International Development,* Spring 1997, 32/1.

Note: TNCs have been capable to keep commercial margins high and rising by raising retail prices in tight maket years, but keeping them unchanged when producer prices declined.

Table 5c: Breakdown of coffee export price into is components, unweighted averages (%)

	SSA	L.America	Indonesia
Export price	100	100	100
Production costs	63.0	41.0	91.4
Value-added	37.0	59.0	8.6
Out of value-added	100	100	100
Farmers	31.6	24.5	38.2
State	67.0	71.2	58.8
Other agents	1.4	4.3	2.9

Source: J. M. Talbot, "Where Does Your Coffee Dollar Go? The Division of Income and Surplus along the Coffee Commodity Chain", *Studies in Comparative International Development,* Spring 1997, 32/1.
Latin America: Brazil, Colombia. El Salvador, Mexico, Costa Rica, 1977-1982 data; SSA: Kenya, Rwanda, Cameroon, Cote d'Ivoire' 1982 data; Indonesia 1982 data.

Table 5d : Profits and green coffee costs as % of Nestle's retail coffee sales

	1985	1989
Profits	18.6	32.0
Advertising/promotion costs	3.4	4.3
Green coffee costs	40.4	22.9

Source: UK Monopolies and Mergers Commission as given in J. M. Talbot, "Where Does Your Coffee Dollar Go? The Division of Income and Surplus along the Coffee Commodity Chain", *Studies in Comparative International Development,* Spring 1997, 32/1.