

The world behind the world coffee market

Wim Pelupessy



Édition électronique

URL : <http://journals.openedition.org/etudesrurales/8564>

DOI : [10.4000/etudesrurales.8564](https://doi.org/10.4000/etudesrurales.8564)

ISSN : 1777-537X

Éditeur

Éditions de l'EHESS

Édition imprimée

Date de publication : 30 novembre 2007

Pagination : 187-212

Référence électronique

Wim Pelupessy, « The world behind the world coffee market », *Études rurales* [En ligne], 180 | 2007, mis en ligne le 01 janvier 2007, consulté le 07 février 2020. URL : <http://journals.openedition.org/etudesrurales/8564> ; DOI : [10.4000/etudesrurales.8564](https://doi.org/10.4000/etudesrurales.8564)

© Tous droits réservés

Cet article est disponible en ligne à l'adresse :

http://www.cairn.info/article.php?ID_REVUE=ETRU&ID_NUMPUBLIE=ETRU_180&ID_ARTICLE=ETRU_180_0187

The world behind the world coffee market

par Wim PELUPESSY

| Editions de l'EHESS | Études rurales

2007/02 - 180

ISSN 0014-2182 | pages 187 à 212

Pour citer cet article :

– Pelupessy W., The world behind the world coffee market, Études rurales 2007/02, 180, p. 187-212.

Distribution électronique Cairn pour les Editions de l'EHESS.

© Editions de l'EHESS. Tous droits réservés pour tous pays.

La reproduction ou représentation de cet article, notamment par photocopie, n'est autorisée que dans les limites des conditions générales d'utilisation du site ou, le cas échéant, des conditions générales de la licence souscrite par votre établissement. Toute autre reproduction ou représentation, en tout ou partie, sous quelque forme et de quelque manière que ce soit, est interdite sauf accord préalable et écrit de l'éditeur, en dehors des cas prévus par la législation en vigueur en France. Il est précisé que son stockage dans une base de données est également interdit.

THE WORLD BEHIND THE WORLD COFFEE MARKET

Wim Pelupessy

COFFEE is the most important tradable crop for 25 million smallholders in 60 tropical countries. Coffee growing is part of specific global commodity chains, which are border-crossing value-added creating networks of producers, traders and service providers, whose end result is the use of a finished commodity [Gereffi, Korzeniewicz and Korzeniewicz 1994]. They process the coffee berries picked manually into exportable green coffee beans, which are transformed into a roasted, ground and packed final good powder, to be consumed as a brew by cup.

The crop suffers from market imbalances and has a long history of private and public actions to reach equilibrium without lasting success. After profound and persisting price crises in the 1990s, there are now far-reaching proposals to reform the world coffee market with the implementation of a long-term strategy to reduce coffee areas. This may cause welfare disasters among coffee cultivators and mismatches with long-run consumers preferences.

Introduction

The global commodity chain is a globalization metaphor to explain the income generation and distribution by international production activities and to design policies to improve the results. A key issue in our methodology is the identification and explanation of the governance structure that controls the chain and determines in great part how resources and gains are allocated, who may participate and under what conditions. Because of the increasing demand-driven nature of the coffee chains, we use a chain reversal approach that starts from the consumer and goes through the different nodes to raw material exploitation at the growers' end.

Control is executed through market power and coordination between firms in different segments or between external (as NGOs, governments) and internal parties in the chain [Muradian and Pelupessy 2005: 2031]. Coordination is the exchange of extra-market information, capabilities and activities between parties (within or outside the chain) not linked through ownership. This is meant to ensure particular product specifications, performances, processes and logistics. When buyers in developed economies interact with suppliers from developing ones, coordination is needed to get reliable transactions in cases of high risks, heterogeneous production conditions, technological backwardness and unstable financial systems [Hobbs and Young 2001].

Recent publications have given important insights into the structure and functioning of coffee chains [Talbot 2004; Daviron and Ponte 2005], but the nature and impact of the

sequence of the imperfect or non-competitive markets in the chains should be more explicitly considered.

The purpose of this article is to examine the nature and outcome of coffee market structures in order to explain the analytics of chain governance and its consequences for value creation and distribution. This will be useful for policy design to reach a more balanced development of the industry. Section 1 will pay attention to the structure and performance of consumers' markets in developed economies. Section 2 treats the international markets of green coffee, and the national ones where coffee berries are traded in tropical countries, will be discussed in section 3. The impact of the governance structure, public and private coordinations in the coffee chain will be treated in section 4, while a concluding section 5 will finalize the work.

Differentiated consumers' markets

Today more than 7 million tons of green coffee equivalents are consumed yearly: 26% in the producing countries and 74% in the importing non-producing ones. In the 2000s average consumption per head has reached 4.6 kilograms in the Western markets and a mere 0.7 kilograms in coffee producing countries.¹ The European Union (15) with 42% of world consumption is the biggest block, then follow the United States and Japan with respectively 24 and 9%.

In most saturated and mature markets (> 5 kg per capita) trends are negative or stable (France, Germany, Netherlands, Sweden), while in Southern Europe (Italy) these are increasing. The emerging markets of Brazil and

Costa Rica are the only developing countries with similar coffee consumption per head, slightly higher than the United States or Japan.² In saturated markets as Sweden the average is 3.5 cups daily in 2005 or 6 cups a coffee drinker a day (75% of the population over 15 as in Norway).³

The only possibility for growth is to expand the number of coffee drinkers. Coffee consumption is habit creating as tested for the United States with a rational addiction model [Olekalns and Bardsley 1996]. It turned out that current use increases future desirability, which may explain the low negative price elasticities of demand between 0.2 and 0.4. The long run elasticities are, in absolute terms higher than the short run ones [Singh *et al.* 1977; Akyama and Duncan 1982; Vogelgang 1988; Bettendorf and Verboven 2000; Feuerstein 2001].

QUALITY ATTRIBUTES

In the main consumers' countries income elasticities are smaller than 1, because of market saturation and other negatively impacting factors as tea or soft drinks habits, increasing income inequality and health concerns. Nevertheless, final consumers' markets have a

1. Foreign Agricultural Service, December 2006: "Tropical products: world markets and trade," Washington DC.

2. Foreign Agricultural Service/United States Department of Agriculture, circular series 2004 and 2006: "Tropical products: world markets and trade," Washington DC.

3. See European Coffee Federation 2006: "European Coffee Report."

dynamic nature because of the widespread first wave of differentiations and the willingness of consumers to pay premiums for higher qualities. These were traditionally based on intrinsic or sensorial quality attributes, such as body, acidity and aroma [Boot 2002]. The characteristics are specified by geographical location, altitude and performance of the coffee cultivation, harvesting, processing and blending practices.

Each country has its own taste preferences and roasters adapt to these by offering coffee blends or *mélanges*. There are great differences in the composition of coffee varieties imported by consuming countries. The United States imports are for about 40% Other Milds mainly from Central America and Mexico, because of political reasons and relatively low transport costs. The blends in Sweden and Japan are higher quality Colombian Milds intensive complemented with Other Milds (both > 40%), because of the sophisticated tastes of very wealthy consumers. Eastern European countries, Spain, France and Italy use more than 75% Robustas and Unwashed Arabica.⁴ Lower per capita incomes, but also espresso popularity in Italy, France and Spain play a part in it and this may create market opportunities for low quality coffee producers. The blending and roasting intensity provide much of the particular taste to a coffee brew.

A pyramid of blends gives each variety and quality its own place: a tastemaker, which is a small but highly priced top of Colombian and high quality Other Milds (e.g. SHG or high altitude coffee from Costa Rica); a larger complementary part made of lower quality Other Milds (lowland coffee from Nicaragua and Costa Rica) and Unwashed Arabica

(Brazil); and the filler with an even greater share of Unwashed Arabica and Robusta (Uganda, Vietnam). The precise composition of a blend is a well-kept business secret and entry barrier. Substitution with cheaper varieties may take place as long as the taste of the particular blend will not change notably [Godard and Akiyama 1989: 148; Sellen and Godard 1997: 134]. In the last fifteen years there has been a tendency in the main importing countries to substitute Colombian Milds for the lower priced Other Milds. The very popular Red Brand (Roodmerk) coffee of Sara Lee/Douwe Egberts with more than 40% of the total market in the Netherlands, uses in its blends from one third till half part of Robusta, Unwashed Arabica or low quality Other Milds in its blends [Hooghiemstra 1991: 16; Pelupessy and Van Tilburg 1994: 245]. Differentiation gives the Silver (about half Arabica) and Gold Brand (100% Arabica) with higher prices and much smaller market shares.

Other entry barriers are the transformation efficiency and roasting technology, high advertising and other sunk costs (5-10% of gross income), brand loyalty of customers, etc.⁵ To control the chain lead firms need to invest high amounts of so-called sunk costs in infrastructure, equipment, brand introduction

4. International Coffee Organization, 21-8-2004: "Price-elasticity of demand and coffee consumption in importing countries," p. 8.

5. 10 till 20% of the weight are lost in the transformation of green to roasted coffee beans. Efficient large-scale roasters operate near the minimum percentage, while small ones approximate the maximum limit.

and other fixed marketing costs. A recent favourable technological innovation for large roasters' blends is the possibility to eliminate some "bitterness" from the taste of Robusta and other low quality coffees. This may reduce the costs of a mélange. Another is the development of consumers' preparation machines, which allow a better appreciation of the taste, aroma and freshness, like espresso machines, senseo, coffee pads, etc. [Muradian and Pelupessy 2005].

Mélanges are used by big and small roasters and traders to provide both high and low qualities coffees. Nevertheless, the high concentration ratios of roasters and retailers are also important to explain the blending practices, which are instrumental to diversify suppliers and reduce costs and risks. In most importing countries, a few roasters control a very large part of the market with a fringe of smaller firms for the rest. For example, in the Netherlands Sara Lee/Douwe Egberts has a market share of about 70%, Albert Heijn (Marvelo) has another 12% and the rest of the market is divided among some 20 smaller roasters. The largest four have a combined share of more than 90% in this country. Four large multinational companies provide more than 60% of all coffee in the 25 main consuming countries: Nestlé, Jacobs/Kraft General Foods, Sara Lee/Douwe Egberts and Procter & Gamble [Talbot 2004: 103-104]. These firms together with Starbucks, control 75-80% of the US market.⁶

Let's give a more detailed picture of the market power of the earlier mentioned multinational companies in the roasted and ground coffee markets of 12 countries, representing

65% of world consumption in 2004-2005. The small roasters participations are at a great distance from the leaders. The multinationals are also market leaders in several countries. So Nestlé leads in United Kingdom, Japan, Australia, Portugal and China. Kraft Foods is number one in the United States, France, Sweden and Canada. Sara Lee leads in the Netherlands, Belgium and Brazil. Tchibo has a first place in Germany, Austria and the Eastern European countries Poland, Czech Republic and Hungary [Daviron and Ponte 2005].⁷ On the demand side, there are the individual consumers, who are numerous with insignificant market shares and low (negative) price elasticities of demand because coffee is subject to habit formation.

The second differentiation wave has to do with the sustainability of the production process of coffee, which is an extrinsic or credence attribute of the product. In 2003 this included an estimated 1% of the worldwide exports. Ranked by quantities, the most important sustainable coffees had Organic, Fair Trade, Utz Kapeh, Rainforest Alliance and shade-grown certifications [Daviron and Ponte 2005: 167], sold under a diversity of brands. An organic production technology pretends to maintain a sustainable agro-eco-system. Shade-grown coffee is supposed to preserve

6. UNCTAD, *The coffee guide 2007*: "The mainstream markets for coffee", p. 6.

7. See also UNCTAD, *The coffee guide 2007*: "Niche markets, environment and social aspects," "World coffee trade," "Futures markets," "Quality control issues," "The mainstream markets for coffee."

biodiversity and birds' habitat, while fair trade guarantees a fixed buying price for the coffee. Utz Kapeh and Rainforest Alliance are mixtures of the earlier mentioned certifications with weaker conditions, aiming at acceptance by the mainstream blends.

In the following years all certificated sustainable coffees increased strongly. For 2005 the International Coffee Organization (ICO) estimated that organic coffee exports grew to about 0.9%⁸ of total exports, which was almost the share of all sustainable categories together two years ago. Since almost 70% of all organic coffee exports were exported to the United States, Germany and Japan, market shares will be considerably higher for these countries. In the same year Fair Trade coffee reached 0.7% of total exports, which were for 60% concentrated to the United States, France and the United Kingdom.⁹ Utz Kapeh showed a percentage of 0.9%, which makes 2.6% of world exports for the three certifications together.

The volumes of certificated sustainability coffees are still minor parts of the global consumption, despite their high growth rates as is shown for 2005. In absolute quantities most organic and Fair Trade coffees are consumed in the United States, but the percentages are small because of the extension of this market. These two certifications together vary from 1.7% for the Japanese (only Organic) to 4.2% for the United Kingdom market.¹⁰ The figures are still incomplete and Utz Kapeh certifications are significant and also increasing. No reliable information was available on Rain Forest Alliance and shade-grown coffees, which consumption could be similar to the Utz Kapeh figures. The sustainability differentiation is

considered as part of the specialty coffee segments, which cover 10% of the market. Originally this term was used in the United States for products sold in special coffee shops. Today it is a catchword for single origin, sustainable and unconventional (flavoured) coffees, high quality blends.¹¹ Commercially the specialty segment includes single origin high intrinsic value coffees for niche markets as Jamaican Blue Mountain, Indonesian Luwak, premium brands of superior quality organic coffee and natural Robustas, and mainstream average quality. Small specialized roasters and traders introduced the sustainability categories and are active in niche markets [Daviron and Ponte 2005]. The big companies dominate the premium brands and mainstream qualities of specialty coffees.

PRICES

In the differentiated coffee markets consumers pay price premiums for both intrinsic (sensorial) and extrinsic (non-sensorial) product attributes.

Retail prices of mainly standard blends are very different among importing non-producing

8. UNCTAD estimations gave organic consumption as 1% of the world total.

9. UNCTAD, *The coffee guide 2007*: "Niche markets, environment and social aspects," pp. 12, 24.

10. International Coffee Organization, 19-4-2006: "Effects of tariffs on the coffee trade," and 25-9-2006: "Overview of the coffee market."

11. UNCTAD, *The coffee guide 2007*: "Niche markets, environment and social aspects," "World coffee trade," "Futures markets," "Quality control issues," "The mainstream markets for coffee."

countries. In a period of fifteen years (1990-2005) Japan had always the highest prices, Italy was second and Germany third. In 1990 the United States had the lowest average prices, which could be a consequence of the standard (low) quality blends consumption, without many differentiations at that time. In the 2000s this changed, as the cheapest roasted coffee blends were then sold in France and in Sweden at prices also below those of the US. It is difficult to find an explanation for the differences and one may consider in the first place the prices and qualities of the imported green coffee varieties. In the beginning of the 1990s Germany's import package was for 70% composed by the expensive Colombian Milds and Other Milds.¹² However, the participation of these two varieties was considerably less in the imports of Japan and Italy, which showed the highest retail prices of that time. The United States had the highest share of Other Milds and together with Colombian Milds this reached a significant 60% of their imports. In the 2000s strong reductions of the import of Colombian Milds took place in Germany with one of the higher roasted coffee price levels, as well as in the Netherlands and Sweden with moderate consumers' prices. The latter strongly increased the imports of expensive Other Milds. Nevertheless, consumers' prices of Sweden showed a declining trend to become one of the lowest in 2005, despite their relatively expensive coffee beans imports.

All the importing countries showed a similar trend in their retail prices: a strong increase in the beginning 1990s and afterwards a decrease with for some countries a partial recovery in 2005. For others there was a continuous decline

since 1995, while Italy was the only country that ended in 2005 with higher prices than in 1995. The breakthrough of speciality coffees may have increased the US price. Blending practices make it difficult to relate consumers' prices directly to those of the world market. Premiums for extrinsic characteristics of the second wave of differentiation may give additional price variations. However, their impact could not be traced because of the reduced shares of certified coffees. Only Japan and Germany showed in 2005 high average retail prices, while the US, France and the UK belong to the group with the lower prices.

The market structures in Europe were characterized by oligopolistic interdependency [Betendorf and Verboven 2000; Feuerstein 2001]. Prices for roasted coffee rose less than proportional with green coffee bean prices, because only part of the marginal costs was accounted for by green coffee, and a (small) reduction in mark-up took place. The concentration of market power by one or some roasters, does not exclude competitive behavior by others.

A notable feature is the combination of product differentiation and brand loyalty for the position of retailers in consumer markets. Product differentiation based on blends is gaining importance with the strong increase of so-called gourmet and special coffees, which in value have already captured 30% of the US market. In importing countries the demand is strongly increasing for these higher quality and

12. International Coffee Organization, 21-8-2004: "Price-elasticity of demand and coffee consumption in importing countries," p. 8.

other differentiated coffees [Fitter and Kaplinsky 2001]. Competition among roasters often takes place with non-price instruments as blends, advertising and bonus systems to maintain brand loyalty, rather than with prices. As we have stated before, the geographic origin plays a role in the differentiation of variety and quality.

Supermarkets and other retailers distribute 70% of the coffee to final consumers.¹³ The other 30% is consumed in restaurants, hotels, bars, institutions (work) and specialty shops as Starbucks and the Coffee Factory. The trend towards high concentration in the roasting stage can also be observed in retailing, where in most European countries the largest five supermarket chains have a joint market share of over 50%. Their weight vis-à-vis the roasters is considerable and increasing. Some retailers also engage in backward integration with roasting and own brands as the case of the supermarket chain Albert Heijn and roaster Marvelo in the Netherlands. Nevertheless, the roasters are still powerful because of the definition of the brands by the specific blends.

One of the few studies on the coffee pricing strategies of retailers is done for the US by P. Nelson and his colleagues [1992] assuming there is monopolistic competition in the roasting industry with differentiation of products supported by brand advertising. The study found that prices are influenced by the relative market share of the brand (+), times when and places where competition is unusually strong (-), advertising per unit of sales of competitors (-) and the prices of green coffee beans (+). Price is reduced and ads increased when competition becomes stronger.

An explanation for the positive observed relationship between market share and price could not be explained by consumers' taste preferences for the brand and ad-hoc evidence suggests that retailers cut their margins when wholesale prices are increasing. The special preferences are therefore more likely to have originated from the retailers than from the final consumers. It is possible that the retailers use the roaster's brand as a special offer, because it induces extra-sales of other products. This retail strategy may be worthwhile when there is a large market share. Most other research considers the retail trade only as intermediary that buys roasted coffee to sell it with a margin to consumers, without particular own preferences.

Concluding, we may say that in the main importing countries it will be practically impossible to increase the per capita consumption of coffee significantly due to market saturation and other factors. In these markets there may still be opportunities to augment the number of coffee drinkers. Emerging and underdeveloped markets with less than 2 cups per head a day, may offer more opportunities. However, in most developing countries coffee consumption is stagnating, with the exception of the largest domestic consumption market of Brazil and the much smaller one of Costa Rica.

The preservation and expansion of market shares are therefore of utmost importance for roasters and retailers. Despite their high and stable concentration, both price competition

13. See European Coffee Federation 2005: "European Coffee Report."

and markups are moderate. Large roasters and supermarket chains are also entangled in a strong competition struggle, as in most of the food industry. Non-price competition is more important, because quality enhancement, product differentiation and innovation are the main trends. These trends are only partially visible in the big differences among countries in the varieties of imported green coffee. Most of the upgrading for the consumer is done by blending, roasting intensity, packaging and branding in the consuming countries, which have affected retail coffee prices.

Traditionally, all this had been related to the intrinsic product attributes. Since the 1980s the attention for extrinsic qualities as environmental and social friendliness, has accelerated the differentiation of consumers' markets. Advertising and large retailers strategies play crucial roles in this process. Large roasters could maintain positions by their blendings and corresponding brands, while smaller ones could do so by specialization for niche markets. The assumptions of coffee as a homogenous commodity and the independence of the outcomes of vertically related markets in the chains must be reconsidered.

International markets

SPOT MARKETS

Because production takes place for almost 100% in 57 tropical developing countries and consumption for some 75% in 43 developed ones, international trade is an essential linkage of the coffee chain. Here green coffee is mostly traded and therefore the minor international flows of decaffeinated, roasted and ground, or

instant coffees will only indirectly be treated in this article, as trade statistics are registered in green coffee equivalents.

The major country importers of coffee are the United States, Germany, Japan and France with shares of 25, 19, 8 and 6% respectively.¹⁴ Major exporters are Brazil (29%), Vietnam (15%), Colombia (11%) and Indonesia (7%). This implies the presence of concentration ratios (biggest four) of 0.58 for both importing and producing countries. But if we put the two trading blocs EU (25) and US together, they will count for almost three quarters of all coffee imports. Mention should also be made of re-exports by importing countries, which have been increasing continuously from about 19% of the total exports in 1999 to 30% in 2005. Countries like Germany and the US rank fourth and seventh as exporters. A considerable part of their exports are processed coffees. For 2004 and 2005 almost all (93%) of the re-exports from the EU (25) to non-EU destinations were decaffeinated, roasted and soluble coffees.¹⁵ This has increased the value added share of re-exports compared to exports. The average prices of the coffee re-exports from the EU (25) to non-EU destinations were 3.39 and 4.32 euro/kg for respectively 2004 and 2005.

14. Imports and exports (bags) as an average percentage of world imports and exports in 2004 and 2005 of respectively ICO importing and exporting members, see www.ico.org.

15. See European Coffee Federation 2006: "European Coffee Report," p. 7. Most re-exports are intra-european trade.

The prices were for the incoming coffees respectively 1.11 and 1.55 euro/kg for the same years.¹⁶

Market studies gave low-income elasticities of demand for high per capita consuming regions and relatively high values (> 1) for low consumption economies, while price elasticities of demand have low (negative) values for all. International prices are also sensitive to changes of Brazil's coffee production, which were often related to weather conditions. However, the declining share of Brazil's coffee and the changes of the location of its cultivation have reduced these sources of volatility. L.S. Karp and J.M. Perloff [1993] demonstrated that even Brazil and Colombia together could only exert a limited degree of international market power. Large inventories in consumers and producers countries may also reduce the impact of big production fluctuations. The differences between the available exportable coffee and consumption as indicators of the oversupply gap in the world markets have declined in recent years. To estimate available supply, 50% of the coffee stocks in producing countries were discounted as not immediately tradable and 4 million bags from the inventories of importing countries as iron ratios [Gilbert and Zant 2001]. With the reduction of global oversupply the ICO price indicator has been increasing in the 2000s.

In real life the international coffee trade is conducted by a variety of private agents: dealers, brokers, specialized traders/exporters, and importers, large importing roasters and retailers of consuming countries. A striking feature of the international spot trade of coffee

is the concentration in the market. Only 7 trading companies handled 56% of the global imports in 1993 [Wheeler 1995]. More recent data show 41.5% as the total share of the big five: Rothfos, E.D. & F. Man, Volcafé, Cargill and Aron, while the top ten reaches 62.2% [Fitter and Kaplinsky 2001]. Volcafé bought E.D. & F. Man and Cargill merged with Esteve in the 2000s. Earlier Rothfos was taken over by Neumann which made the two largest traders Neumann and Volcafé sharing 20% of the market and the top six with 50%, while later on the biggest three controlled 45% of the market [Daviron and Ponte 2005: 91, 93]. As mentioned before, with the second differentiation wave, small traders and roasters emerged in the specialty segment trade.

J. Morisset [1998] is one of the few studies that deal explicitly with the role of the large trading houses on spot markets. He found that the sources of the observed widening of the spread between international market and consumer prices over a twenty-five years period were likely to be commodity-specific. For many commodities as coffee, 6 or fewer companies control about 70% of the international trade. These firms could hardly be only price takers in the market. However, the multinational concentration in the downstream buyers market of big roasters and retailers became even stronger. This made the international trading houses losing ground after the 1980s; while the smaller and less specialized ones were shaken out.

16. See European Coffee Federation 2006: "European Coffee Report," pp. 7,9.

FUTURES MARKETS

The futures market is in the first place a financial market, in the sense that contracts are nearly always canceled by an opposite transaction at the end of its duration. They are used for risk reduction and speculation and may also attract parties not involved in the coffee business. In the London International Financial Futures and Options Exchange (LIFFE) the volume traded was approximately five times global Robusta coffee production in 1997, while in the New York Board of Trade (NYBOT) this volume was over nine times the world exports of all types of coffee. There was an explosive increase of hedging and speculation over time in both New York and London. From the beginning 1990s to 2006 the futures and options volume turnovers increased from 11 to 19 times that of gross world imports of coffee.¹⁷

This indicates that a considerable amount of speculation is present in these markets. Futures markets integrate into their prices all available information on (expected) supply and demand and through arbitrage they may influence the prevailing spot prices. The influence of futures on spot markets makes it difficult to explain international coffee price fluctuations. Theoretically futures prices should approximate spot prices in the long run as contracts reach maturity and may provide some useful signals to facilitate decision-making with respect to production, sale, purchase and storage. If futures prices are unbiased estimators of spot prices in the future, futures markets may be used by developing countries for dealing with price risks.

C.L. Gilbert and C. Brunetti [1997] show among others that the international price movements in 1993 were mainly due to the mere announcement of the coffee retention scheme of the Association of Coffee Producing Countries. The retention itself had fewer effects on futures prices, which could indicate the importance of expectations. In 1994 investors and speculators from outside the coffee business, who diverted investment away from bonds and equity into commodities, caused price upheaval. The portfolio diversification away from equity and bonds into coffee was a very small amount in relation to the overall bond and equity operations, but nevertheless it was a very significant sum of money for the coffee market. Because their profits were high due to the unexpected frost in Brazil, coffee became a popular investment for a while, which was visible in the interest that speculators took again in coffee in 1995. The only difference was that the speculators now came less from outside, but more from commodity investment funds.

Although single actors cannot influence market outcomes, it is possible that a group of speculators with coordination can bid up prices, or when closing their positions all at the same time, make the prices drop. This seems negative, but on the other hand, their actions can also work in favour of coffee growers. In fact, it is necessary on futures markets that there are parties who take opposite positions, because otherwise no contracts can be

17. UNCTAD, *The coffee guide 2007*: "Quality control issues," "The mainstream markets for coffee," on www.intracen.org.

concluded. Their functioning thus fits in the wider discussion on the positive or negative role that speculation plays in markets. Surely futures markets may be strongly and erratically affected by expectations and it is not clear if parties concerned could affect them continuously in a systematic way.

An interesting case was when at the end of the 1970s, Brazil, Colombia, Mexico and some Central American countries, could successfully raise their quotations on the futures market through a joint private company Pancafé [Pelupessy 1993: 45]. It functioned as an ordinary dealer, only bigger and over a longer period. Losses occurred because the accumulation of stocks was not followed by shortages and the Commodity Futures Trading Commission in the US changed their rules of the game. Brazil closed the initiative in exchange for the willingness of large importing countries to negotiate the fourth International Coffee Agreement. Another study showed how Côte d'Ivoire could stabilize export incomes by futures market operations [*ibid.*].

Finalizing this section on the international markets, it is clear that they are also very concentrated. However, the big international trading houses have lost ground to roasters and retailers, who dominate the governance structure of the coffee chains. Their relationship with international traders tends to be that of unstable bilateral oligopolies. The impact of futures markets on spot prices makes things more complicated, as (financial) speculators from other sectors have strongly increased participation. This makes market fundamentals less relevant for determination of spot prices. Country behaviour based calculi were and are

not adequate to reach international market balances, since only private companies can be chain actors and market parties.

Producers' markets

The coffee demanded by final consumers in developed countries and traded and processed in the different stages of the chain, will be supplied by millions of smallholders operating on local markets in tropical countries. Buyers on these markets are a much smaller number of middlemen or intermediaries and processors.

COFFEE GROWERS

Usually coffee growers possess small plots, varying from on average 0.5 hectare coffee in Ethiopia and Tanzania to 1.16 hectare in India and more than 5 hectares in Nicaragua. Large estates are scarce since internal economies of scale are limited and land tenancy is traditionally fragmented for this crop. Normally, only a minor part of the production is harvested on properties of more than 10 hectares.

The grower's income and production capacity are the two key issues, which are normally raised in the assessment of this end of the chain. They may provide arguments for public, NGO and other interventions in domestic markets. Coffee shrubs become productive only after three to five years; response to price movements is therefore slow and price supply elasticities are low. Most supply reactions are considerably less than proportional and in the first year not higher than 0.2, because in the short run only the intensification of plot maintenance and harvesting could raise production [Akiyama and Duncan 1981; Pollard and

Graham 1992; Pelupessy 1993; Branchi *et al.* 1999]. For periods up to eight years the maximum estimated elasticity is 0.6.¹⁸ In the long run the value of the elasticities may increase, such as in Vietnam, Brazil and Colombia, where apparently there were possibilities to enlarge the agrarian frontier or to substitute other crops. The lack of smallholders' access to inputs and external services may also cause low elasticities. Credits are restricted for small export commodity growers in liberalized countries.

Middlemen frequently operate between farmers and processing plants or exporters, as in India and the "sabsabies" in Ethiopia. Their role is often subject to much debate: do they abuse market power as is assumed by followers of the different Fair Trade campaigns, or is their behaviour competitive, especially if the risk and transactions costs are calculated of the services they provide to smallholders? These include the first collection of the harvested berries, credit, transport and storage. Intervention by government agencies or parastatal monopolies as in Ethiopia, Ghana, Uganda (until 1990) and Vietnam had not always been favourable to growers.

Because of scale advantages, first processing and hulling mills are far more concentrated, which strengthens their market position. Therefore, minimum producer prices established by marketing boards or other institutions could be advantageous to small and less efficient growers. The growers often bear the risk of fluctuating world market prices. In a very productive country such as Costa Rica the impact of price fluctuations may have enhanced efficiency, probably due to small-

holders' good access to inputs, credit and services [Cardenas 1994]. Other important reasons are the cultivation on high altitudes and adequate first processing facilities, which results in very good quality Other Milds coffee for this country.

In general, the market structures for berries seems to be oligopsonistic. For each intermediary there could be from 20 (Haiti) to 250 or more growers (Côte d'Ivoire), while the more concentrated mills may serve from 100 in Brazil to 18.000 growers each, as in Côte d'Ivoire. This means that growers are generally price takers with a productive behaviour of either adaptive expectations¹⁹ or rational expectations.²⁰ However, only about a third of the variability in agricultural investment behaviour could be related to market price movements [Branchi *et al.* 1999].

Foreign buyers with access to international finance become very powerful when local credit institutions are lacking or inefficient. An example is given by the emergence of vertically integrated exporters in Tanzania as subsidiaries of multinational companies, which became the owners of all private processing mills in the country [Temu *et al.* 2001]. But also in this case a sufficient number of competitors and institutional improvements may restrict oligopsonistic behaviour. The creation of

18. After full adaptation in the long run, elasticities might be much higher (2-3) when new land is available.

19. See case studies of Costa Rica, Mexico and El Salvador in F. Jaramillo and T. Akiyama [1990].

20. See Jamaican case in S.K. Pollard and D.H. Graham [1992].

producers' cooperatives, increasing competition by domestic buyers, falling supply and large-scale smuggling, as in Ethiopia, Uganda, and Bolivia, may also strengthen the market position of growers. Governments can also affect the outcomes by providing processing facilities, setting minimum producer prices, or applying other rules.

The liberalization of the market for coffee berries and elimination of the government marketing boards may have resulted in higher prices for growers and capacity enhancing behaviour. However, lack of access to inputs and price uncertainty require institutional improvements to foster investment and a competitive market structure [Akiyama 2001; Temu *et al.* 2001]. These improvements accounted for two thirds of the explanation of growers' behaviour. Since institutional change needs time, the higher long run price elasticities become relevant and in this way persisting price decreases may have enduring negative effects on production capacity.

Considering the growers' income by pound of coffee for five important growers' countries (Brazil, Colombia, Guatemala, Indonesia, Vietnam) representing 60% of world production, it is interesting to note that these incomes are more coffee variety rather than country-specific.²¹ Internationally Robusta cultivators get significantly less income per pound than Arabica. The figures for Brazil and Indonesia are eloquent and clearly differ according to variety. World market prices play an important role and possibly cultivators income is what is left after deductions of fixed processing, transport and trade margins. In the 2000s Robusta growers' income per pound increased

continuously, while Arabica dropped in the first one or two years, to assume increases later. These differences also appear for the two varieties within the same country, while generally the Robusta-Arabica growers' income gap tends to reduce in time.

PROCESSING

A second segment of the domestic coffee chain in producing countries is that of processed or green coffee production, which may be sold by the mills to either exporters or domestic roasters. The coffee can be processed in both dry and wet ways. In the dry system the first drying is done by the grower, to be delivered or stored as parchment coffee until the time is suitable to sell. This occurs frequently for the Robusta variety in for example Uganda, Vietnam and India. A great deal of Arabica in Ethiopia and Nicaragua is still processed by the dry method, which is simple and cheap when sun drying is used. In Brazil most of the (natural) Arabica is also sun-dried. Under the wet method as applied in for instance Central America, farmers deliver the fresh berries to a processing plant within twenty-four hours of picking, which reduces their market power. The berries are then transformed; first into parchment and later into exportable green coffee. In Colombia decentralized wet processing is in most cases integrated on the farm. Wet processing is more capital-intensive than the dry one, but if centralized it is also much more controllable and

21. See International Coffee Organization, 16-5-2005: "Overview of the coffee market;" 12-9-2005: "Obstacles to consumption" and February 2007: "Letter from the executive director."

often applied to obtain homogenous high quality Arabica. Washed Arabica could receive considerable premiums, as in Ethiopia, where it varies between 20 and 100%. However, there is a trade-off between this kind of quality increasing modernization and the environmentally friendlier dry method production, which can also be rewarding if sold as certified Organic coffee.

Little is known about the marketing structures between mills and exporters or roasters in coffee growing countries. Processors and exporters could also be vertically integrated as in Haiti, the vertically integrated (multinational) exporters in Tanzania and the cooperative mills in Costa Rica. Other exporters may be domestic private companies or subsidiaries of foreign traders or governments agencies. In India and Tanzania auctions are playing an important efficiency-enhancing role as market mechanisms for exports [Akiyama 2001; Temu *et al.* 2001]. These countries and others like Uganda and Togo have shown a decreasing spread between growers and export prices, as a consequence of liberalization and improved access of new actors to the local green coffee market. Export taxing had mostly been discontinued because of outward oriented strategies and the international coffee crisis of the 1990s.

DOMESTIC CONSUMPTION

Domestic consumer markets of coffee growing countries include about a quarter of world consumption, but represent the better opportunities for growth in the near future. Processors usually sell lower quality green coffee to local roasters who generally manufacture single

variety ground coffee using outdated technology of a dull and uneven roasting. Green coffee traded for domestic consumption may vary from between 25 and 50% of the harvest in Ethiopia and other local market oriented producers as Sri Lanka, India and Bolivia. It is 10% or less for the other typical export-oriented countries, with the exception of Brazil where about 30% of the production has a domestic destination. Consumption per capita is still low in most producing countries, varying between 2.6 kilograms in Nicaragua and 1.5 kilogram annually in Ethiopia to 0.07 kilogram in Tanzania. This is considerably below the levels in developed countries, which may reach 8 kilograms per capita or more.²²

Today, in most cases the domestic trade for consumption has been liberalized, but this has not dynamized local demand, despite the growth potential of underdeveloped markets. Low income per capita in the first place, tea-drinking habits and capacity shortage of roasting factories have negative effects. An interesting development has taken place in Costa Rica where falling world market prices at the end of the 1980s and the booming tourist sector have created higher domestic demand (4.34 kg/cap) and higher local prices for quality coffee. It is to be expected that high quality and product differentiation preferences from developed consumer markets will blow over to upper class markets in producing countries. Brazil with 5.01 kilograms/capita domestic

22. Foreign Agricultural Service/United States Department of Agriculture, circular series 2004 and 2006: "Tropical products: world markets and trade," Washington DC.

consumption is increasing above the stagnated EU (25) average.

Policies such as forced delivery to the local market, retail price control and consumption taxes sometimes have negative effects on internal prices for roasted coffee. For smallholders, domestic consumption with lower quantity and quality requirements may offer interesting alternatives to exports. Price elasticities of demand (negative) are estimated as 0.30 for Brazil and 0.379 for Haiti, while the latter showed an income elasticity (positive) of 0.804.²³ Concentration of private exporters, state agencies, processing mills and domestic roasters may create bilateral oligopolies and collusive actions in this market segment of producing countries, but the potential entry of newcomers stimulated by liberalization, may restrict the full and continuous exercise of market power.

Concluding this section it is clear that at the supply side of the markets for coffee berries there are numerous smallholders with little or no market power. Supply elasticities are small in the short run because of the specific nature and technology of the product, difficult access to inputs and credit and scarcity of available land. Middlemen, traders and processing mills are more concentrated, making it a buyers market, sometimes an unstable oligopsony. The elimination of state intervention in berries and green coffee markets may have delivered better prices to growers in some cases, but has never automatically improved the institutions needed for sustainability. An international comparison of growers' income in the 2000s indicates that differences are variety and less country-specific. Robusta income per pound

has been growing continuously, while Arabica is still on top, but differences are decreasing. The domestic chain segments after processing are either vertically integrated or of a bilateral oligopoly nature. Consumer markets in producing countries are still underdeveloped in terms of quantity and quality, and are only for Brazil and Costa Rica in the emerging growth stage. Nevertheless, more attention should be paid to developing markets as they have the real potential to grow in the medium term and to become a feasible destination for smallholder production.

Governance and coordinations

From the assessment of the markets sequence one may infer that the coffee chain could not be seen as a randomly evolved network of businesses working with coffee. There are key actors or leading forces who control and organize the strategic parts of the chain. This is done for rent creation and appropriation, with price and non-pricing behaviour based on market power and coordination. Therefore we could not endorse the opinion of R. Fitter and R. Kaplinsky [2001: 78] that governance is "largely absent" in coffee chains. Coordination may be executed in a direct or indirect way. This would not be possible if all coffee transactions take place in perfectly competitive markets, but this is definitely not the case. Coffee markets are highly organized from within and outside the chain by private and public parties.

23. We may observe that Brazil and France have the same consumption per head of 5.01 kilograms yearly and the same negative demand elasticity of 0.30 as well.

PRIVATE

Leading actors have established rules to standardize and normalize market transactions and also applied coordination in different chain segments. These are accepted by and legitimate for all chain actors and other parties involved. Grading and classification is based on botanical variety, altitude or region, processing (wet or dry), bean size and shape and colour, number of defects, roast appearance, cup quality and density of the beans.²⁴ This has led to the general acceptance of four commercial varieties (Colombian Milds, Other Milds, Natural Brazilian, Robusta) and numerous subvarieties. International markets use the ICO indicator price based on weights for Colombian Milds 13%, Other Milds 27%, Brazilian 25%, Robustas 35%.²⁵

The number of bean defects which could be caused by cultivation, harvest or first processing practices, determines the green coffee grading [Boot 2002: 98-104]. Cup-value is based on fragrance and aroma, acidity, flavour, body, after-taste and the adjustment to increase or decrease the aggregated five factors. The specialty or gourmet coffee that appeared in the 1980s in the United States uses thresholds for the same criteria: coffee beans should not contain any flavour defect, minimal visible defects and cup-value of at least 80% of the maximum [*ibid.*: 22].

Health concerns of consumers have increased the scope of control in developed countries, including the detection of the coffee mould ochratoxin A, pesticide residues and hydrocarbon contamination by jute bags. The rules, practices, conditions and terminology of the international coffee trade have been standardized by the European Coffee Federation (ECF) and the Green

Coffee Association of New York (GCA). The 60 kg bag is used as unit of measurement, US \$ price quotations by pound, minimal traded quantity of 1 container (18 MT), green bean equivalents, etc. Most of these rules were introduced and applied long before the establishment of the liberalization strategies of the 1980s.

The governance structure by a small number of big corporations preceded these and was not a consequence of the liberalization strategies as suggested by J.M. Talbot [2004] and by B. Daviron and S. Ponte [2005]. Governments and ICO interventions could have affected the income distribution in the coffee chain, but had never controlled its (private) governance. The asymmetric income distribution in the chain to be discussed later in this section did also precede liberalization. What did come with liberalization was the second differentiation wave with the proliferation of sustainable coffee certifications and corresponding private coordinations [Muradian and Pelupessy 2005]. It should also be remembered that only value generators could become lead firms in the chain.

PUBLIC

The public coordinations or interventions that come from outside the coffee chain are important. They can take place on all levels and may have considerable effects on both performance and outcome of the markets. A first intervention category to consider is taxes and tariffs in

24. UNCTAD, *The coffee guide 2007*: "World coffee trade," p. 3.

25. UNCTAD, *The coffee guide 2007*: "World coffee trade," p. 12.

consuming countries, which are often neglected in policy discussions. This may be unjustified, given the extensive and variable appropriation of rents from the coffee chain by the importing countries' governments. Coffee exporting countries of the Association of Coffee Producing Group (former French and British colonies in Africa and the Caribbean) and the Andean Community exporting to the EU are favoured by bilateral elimination of import duties. Andean countries have also privileged trade relations with the US (except Bolivia and Venezuela). For processed coffees, Brazil is charged by the EU 7.5% for roasted and 9% for decaffeinated and instant coffees. Others as Vietnam, Indonesia and India have to pay from 2.6 to 3.1%. Mexico enjoys special advantages from the US and Canada within the NAFTA framework.

VAT rates of green coffee in some European countries are much higher than the (former) export tax rates in most producing ones. Examples are Denmark (25%), Norway (23%), Poland (22%), Austria (20%), Italy (20%), Slovakia (19%), and Sweden (25% for out of home consumption). As a comparison, export taxes of producing countries were never more than 5% of the consumers price. There may also be additional rates on roasted coffee. Germany raises actually a VAT rate of 7% with an excise tax of 2.19 euro/kg on roasted coffee and 4.70 euro/kg on extracts. Some green coffee imports to the EU are still charged with the common external tariff of 4%. Exchange rate markets and policies may have indirect influence on the coffee sector, because international trade in coffee is usually paid in US \$.

VAT and tax rates in general have no strong effects on coffee consumption, given the low price elasticities. In exporting countries there

are tariff and non-tariff measures to protect the local coffee industry. Examples are Brazil and Colombia with import duties on processed coffees and Vietnam with 20% on green and 50% on roasted coffee.²⁶ This may hamper further growth or the development of blends to raise quality in the domestic markets.

Collusion in international spot markets may represent a second category of intervention by states, producers associations and others. The two most important interventions of the past in this sense were those of the International Coffee Agreement (which included both consuming and producing countries) and the Association of Coffee Producing Countries. The first broke down in 1989 because of the persistent tendency of overproduction, the problems of new quota definitions and free rider behaviour of members. The second was unsuccessful to reach clear agreements and monitoring mechanisms. Collusion among a (limited) number of countries might give other opportunities to increase the income of producing countries through market outcome.

E. Giraud-Heraud and his colleagues [1995] have investigated (game-theoretically) what the consequences are of product differentiation in high and low quality coffees for the possibilities of collusive behaviour in the world market. It is assumed that countries collude by setting quantities (Cournot game). A first result was that high levels of product differentiation induce high incentives to cheat on the collusion scheme for all, regardless of whether they produce the high or

26. International Coffee Organization, 12-9-2005: "Obstacles to consumption;" and 25-9-2006: "Overview of the coffee market."

low quality coffee. A second result was that larger product differentiation between two groups of colluding producing countries enhances the sustainability of each cartel, when both can set their own retention share. In contrast, when all countries with different qualities collude in one cartel with a uniform retention share, higher product differentiation increases the incentive for the high-quality (Arabica) producers to cheat while reducing this for the low quality (Robusta) producers. In this case it seems wise to let the higher quality producers set the retention share. The implication for the market dynamics is that the high quality producers (should) have more power in collusion negotiations. Marketing and advertising practices increase the degree of product differentiation of coffee, which therefore should be taken more into account in international coordination schemes.

The conclusions are that rent appropriation by public intervention is mainly taking place downstream of the coffee chain by importing countries. Final consumption is charged by a number of taxes and fees. It also seems to be difficult for producing countries to obtain higher prices for their coffee by stable collusion in the international spot market. Free riders behaviour has played an important role in the international coordination efforts in the past and will complicate collusion in the future, given the increasing differentiation of coffee.

Even large exporting countries as Brazil and Colombia have only restricted market power to collude [Karp and Perloff 1993]. It appeared that the steady-state export prices of these two big producing countries were between 6 and 13% above price taking levels of the market. Maybe the producing countries are

simply too many, their interests too diverse, while the entry of new producing countries is not too difficult and even stimulated by outward oriented development strategies, World Bank and other international financial institutions loans (Vietnam).

However, international coffee trade is mostly done by private companies and governments can at best try to influence their behaviour or the market outcome. In an era of decreasing state intervention, market analysis should be more concentrated on these companies instead of states or associations of states. There may be considerable market power in the hands of international trading companies, large roasters and other buyers in consuming countries, which apply intra-chain coordinations.

INCOME DISTRIBUTION

The interaction of lead firms behaviour with private and public coordination efforts from within and outside the chain results in a certain income distribution.

The retail prices paid by final consumers give the total value created in the chain for roasted, ground and packed coffee in US \$/pound. If we choose Sweden, US, Italy and Spain as important coffee buyers since 2000 from respectively Colombia, Guatemala, Brazil and Vietnam, we can notice that consumers' prices are quite diverse, but in all cases producing countries receive a minor part of these, which was also the case in earlier times.²⁷ As a result of increasing export prices, exporters and cultivators participations have

27. As shown in J.M. Talbot [2004: 166-169] who had worked on the period 1971-2000.

increased in the 2000s. For incomes of both categories one may clearly distinguish the Arabica Milds participations, from the lower classified Brazilian and Robusta. In the beginning, Brazil's export and growers shares were higher than of Vietnam, but later the differences disappeared and the post-harvest shares reduced for the two cases. In the two Arabica Milds cases of Colombia and Guatemala post-harvest participations increased, as did the growers shares. In absolute amounts the Colombian and Guatemalan post-harvest incomes more than doubled from around 10 to 25 US \$/pound. Vietnam went from 4 to less than 2 US \$/pound, while for Brazil the reduction was from 10 to 7 US \$/pound. Government support to growers could have played a role in the latter two countries. For all considered cases one could question our earlier assumption of fixed rates for post-harvest activities.

Previous studies have estimated the value distribution within the chain rather straightforwardly. It is interesting to note that the income distribution results of these microstudies are more or less in line with the previous data. The growers participation varied between 10-20% of the consumers' price for roasted and ground coffees as a world average [Fitter and Kaplinsky 2001: 73], between 7 and 9% for Robusta exported from Uganda and Tanzania to Italy [Daviron and Ponte 2005: 207-211] and about 14% for Côte d'Ivoire to France [Pelupessy 1999: 127]. For Arabica it was almost 15% when exported from Costa Rica to Germany [*ibid.*] and 4% from Tanzania to Italy. Export value participations fluctuated from 9% for Arabica sold from Tanzania to Italy to 39% for the world average. All other export participations were lying between these two percentages.

From the data and discussion in section 1 it is clear that the leading sectors could be composed by roasting and retailing companies. Their value shares varied on average for the roasters between 29 and 72% of the consumers' price of the 1990s. The share could increase when we consider coffee bars and other (out of home) customers whose participations are strongly increasing in the main consuming countries.

Preliminary estimates of gross profit rates along the chain before the crisis of the 1990s and the analysis of section 1, indicate that roasting and retailing are the most profitable segments of respectively 33 and 30% of the total profits in the Costa Rica to Netherlands chain. They have the highest entry barriers of high concentration ratios, capital intensity, sunk costs, advertising and protection rates for processed coffees in importing countries. In the 1990s smallholders could often not recover their costs, while downstream big companies' profits were still rising considerably. Big roasting and retailing companies control the final consumer markets and the supply of the most value generating differentiated products and brands. Coffee re-exports from consumers' countries and brand alliances with coffee equipment manufacturers have enhanced this control.²⁸ The stagnation in average consumption in developed countries could partly be attributed to "made to measure" coffee equipment.²⁹

28. E.g. Illy-expresso machines in Italy; DE-Philips Senseo coffeemakers in the Netherlands.

29. Centre for the Promotion of Imports from Developing Countries, "Coffee, a survey of the Netherlands and other major markets in the European Union." Report, Den Haag, 1997, p. 52.

Concluding remarks

The sustainability of the linkages between coffee growing in developing countries and final consumption in developed ones has been continuously under pressure. Market demand of the main consuming countries will not increase substantially and mismatches with changing consumer preferences may cause additional problems. In these countries only the number of coffee drinkers could be increased, while some opportunities are available in the emerging markets of Eastern Europe and the Third World. Easy access to coffee cultivation and trade has contributed to structural global oversupply. Coffee chain governance and coordinations gave no durable solutions and could not prevent asymmetric income distributions.

Consumer markets are highly concentrated, but price competition seems to be moderate. Non-price competition is much more important because consumers do prefer quality, differentiated and new products. Traditionally this had been achieved with blending practices of multinational roasters, which today cover 90% of the market. Quality differentiation was based on sensorial attributes in the first place, but since the 1980s extrinsic or non-sensorial ones as sustainability were added. Both kinds of differentiations are mainly realized by downstream adding value activities near the final consumer, which increases the market power of big roasting and retailing companies. Big supermarket chains compete with the roasters, but the latter could maintain their position by the blends and corresponding brands. This strengthens their position in the international markets, despite the apparent bilateral oligopoly relationship of

producers' and consumers' countries. International trading houses also became competitors, but have lost ground to roasters and retailers.

In this way a few big (multinational) coffee companies had become the governance force in most of the global coffee chains and execute their control by operating in imperfect markets and coordinating production and trade conditions. International price volatility is not only caused by spot market imbalances, but also by the behaviour of speculators and hedgers in the futures market. Concentration is also present in the post-harvest stages in producing countries. However, the oligopsonistic structures are in this case unstable in the long run because of potential entry of newcomers, often subsidiaries of foreign companies with finance. This is quite different from the more stable oligopolistic structures in consuming countries.

At the supply end of the chain are numerous smallholders with little or no market power and difficult access to inputs, with low supply elasticities as a consequence. In a period of increasing export prices as in the 2000s, depending on the coffee variety, growers receive between 10 and 25% of the consumer price in the chain. When prices fall, the share of cultivators will be much lower. In spite of liberalization, growers suffer the consequences of fluctuating world market prices and the asymmetries in power and income distribution of the local buyers' markets.

Interventions are widely present in the coffee chain. Lead companies in the first place and other chain actors, apply coordinations to get reliable transactions. From outside the chain there are appropriations of high rents by importing country governments and entry barriers to protect their coffee companies.

Attempts to increase export prices durably by collusions of exporting and importing countries or of producer countries only did not succeed. Because of the increasing product differentiation there is a tendency to cheating and overproduction, while even the market power of big coffee countries is very limited.

Rent seeking behaviour of lead firms in non-competitive markets has structured the coffee chain market sequence. Principally big multinational roasters control the transmission of material, value and information streams along the chain at strategic parts. This control is obtained by market and extra-market coordination tools. High and very divergent final consumers' prices are one of the outcomes of the dynamics of this structure. Growers' incomes at the other extreme of the chains are much lower and less differentiated when one considers the geographical and socioeconomic distances of producing countries. This asymmetry makes the cultivators segment the weakest link in the chain. If this segment collapses, the supply of the required category of coffee

could be put at risk, which may affect the sustainability of the whole chain.

A sustainable solution for the imbalances between raw material exploitation and final consumption could not be reached by interventions in individual segments of the coffee chain. Policies should aim at the enhancement of systemic efficiency of the chain, instead of point efficiency in international markets. A vertically coordinated effort to share long-term information should be made with the direct involvement of leading coffee companies, other chain actors and stakeholders. In these efforts coffee institutions in producing countries should have an important new role in providing the public goods needed to support growers and to adjust and differentiate their products in accordance with the trends of distant consumers preferences.

But first and foremost, an earmarked international taxation should be applied to the high surpluses gained by downstream coffee companies and retailers to support the necessary adjustments to cultivate and market the coffee wanted by final consumers in each chain.

Bibliography

Akiyama, T. — 2001, "Coffee market liberalization since 1990. Commodity market reforms", World Bank.

Akiyama, T. and R.C. Duncan — 1982, "Analysis of the world coffee market", World Bank Staff Commodity Working Paper 7.

Bettendorf, L. and F. Verboven — 2000, "Incomplete transmission of coffee bean prices: evidence from The

Netherlands", *European Review of Agricultural Economics* 27 (1): 1-16.

Boot, W. — 2002, "National policies to manage quality and quantity of coffee in Central America". Washington, Inter-American Development Bank.

Branchi, M., A. Gabriele and V. Spiezia — "Traditional agricultural exports. External dependency and

- domestic price policies". UNCTAD/OSG/DP/140, February 1999.
- Cárdenas, M.** — 1994, "Stabilisation and redistribution of coffee revenues: a political economy model of commodity marketing boards", *Journal of Development Economics* 44: 351-380.
- Daviron, B. and S. Ponte** — 2005, *The coffee paradox. Global markets, commodity trade and the elusive promise of development*. London and New York, Zed Books.
- Feuerstein, S.** — 2001, "Do coffee roasters benefit from high prices of green coffee?", *International Journal of Industrial Organization* 20: 89-118.
- Fitter, R. and R. Kaplinsky** — 2001, "Who gains from product rents as the coffee market becomes more differentiated?", *IDS Bulletin* 32 (3): 69-82.
- Gereffi, G., M. Korzeniewicz and R.P. Korzeniewicz** — 1994, "Introduction: global commodity chains", in G. Gereffi and M. Korzeniewicz eds., *Commodity chains and global capitalism*. London, Praeger: 1-14.
- Gilbert, C.L. and C. Brunetti** — 1997, "Speculation, hedging and volatility in the coffee market, 1993-1996". Queen Mary and Westfield College, University of London.
- Gilbert, G.L. and W. Zant** — 2001, "Restoring balance by diversion in the world coffee market". Report. Amsterdam.
- Giraud-Heraud, E., C. le Mouël and V. Requillart** — 1995, "Competition and collusion on the world coffee market", *European Review of Agricultural Economics* 22: 336-353.
- Goddard, E.W. and T. Akiyama** — 1989, "United States demand of coffee imports", *Agricultural Economics* 3: 147-159.
- Hobbes, J.E. and L.M. Young** — 2001, "Vertical linkages in agrifood supply chains in Canada and the United States". Canada, Strategic Policy Branch for Agriculture and Agrifood.
- Hooghiemstra, E.** — 1991, "Market research for the Federation of Coffee Corporations on gourmet coffees and standard coffees in the Netherlands". MA thesis, Deventer.
- Jaramillo, F. and T. Akiyama** — 1990, "Policy responses to the collapse of world coffee prices. The cases of Costa Rica, Mexico and El Salvador." Confidential Report. World Bank, Washington DC.
- Karp, L.S. and J.M. Perloff** — 1993, "A dynamic model of oligopoly in the coffee export market", *American Journal of Agricultural Economics* 75: 448-457.
- Morisset, J.** — 1998, "Unfair trade? The increasing gap between world and domestic prices in commodity markets during the past twenty-five years", *World Bank Economic Review* 12 (31): 503-526.
- Muradian, R. and W. Pelupessy** — 2005, "Governing the coffee chain: the role of voluntary regulatory systems", *World Development* 33 (12): 2029-2044.
- Nelson, P., J. Siegfried and J. Howell** — 1992, "A simultaneous equations model of coffee brand pricing and advertising", *The Review of Economics and Statistics* 74 (1): 54-63.
- Olekalns, N. and P. Bardsley** — 1996, "Rational addiction to caffeine: an analysis of coffee consumption", *Journal of Political Economy* 104 (5): 1100-1104.
- Pelupessy, W.** — 1993, *El mercado mundial del café*. San José, DEI. — 1999, "Coffee in Côte d'Ivoire and Costa Rica: national and global aspects of competitiveness", in H. Van der Laan, T. Dijkstra and A. Van Tilburg eds., *Agricultural marketing in tropical Africa*. Ashgate, Aldershot: 109-130.
- Pelupessy, W. and E. Van Tilburg** — 1994, "El mercado solidario del café y el pequeño productor en Centroamérica", in M. Samper ed., *Crisis y perspectivas del café latinoamericano*. San José, ICAFE-UNA: 239-259.
- Pollard, S.K. and D.H. Graham** — 1992, "Rational expectations and output supply evidence from the sugar cane and coffee industries in Jamaica", *Social and Economic Studies* 41(1): 89-101.
- Sellen, D. and E. Goddard** — 1997, "Weak separability in coffee demand systems", *European Review of Agricultural Economics*: 133-144.
- Singh, S., J. de Vries, J.C.I. Hulley and P. Yeung** — 1977, "Coffee, tea, and cocoa: market prospects and development lending". World Bank Staff Occasional Paper 22.
- Talbot, J.M.** — 2004, *Grounds for agreement. The political economy of the coffee commodity chain*. Oxford, Rowman and Littlefield Publishers Inc.
- Temu, A.A., A. Winter-Nelson and P. García** — 2001, "Market liberalization, vertical integration and price behaviour in Tanzania's coffee auction", *Development Policy Review* 19 (2): 205-222.

Vogelvang, B. — 1988, *A quarterly econometric model of the world coffee economy*. Amsterdam, Free University Press.

Wheeler, M. — 1995, “Coffee to 2000: a market untamed”. The Economist Intelligence Unit Research Report M 223.

Résumé

Wim Pelupessy, *Le monde derrière le marché mondial du café*

Les liens entre la production du café dans les pays en voie de développement et sa consommation dans les pays développés ont été l'objet de tensions fréquentes. Nous recourons ici à une approche qui rend compte, de manière globale, de la chaîne production-consommation pour analyser ces problèmes et proposer des solutions. Les déséquilibres sur les marchés internationaux de crédits spot résultent de l'accès facile à la production et au commerce du café, des inconvénients climatiques dont souffrent les grands pays producteurs, ainsi que des décalages qui existent entre l'offre et le goût des consommateurs. Le recours aux fonds spéculatifs et aux contrats à terme sur devises accroît plus encore la volatilité des prix. Les grands torréfacteurs et détaillants internationaux contrôlent le transfert des denrées, les flux de valeur et d'information dans les secteurs stratégiques de la chaîne grâce au pouvoir qu'ils exercent sur le marché et aux outils de coordination dont ils disposent. Il en résulte des prix élevés pour les consommateurs et très bas pour les producteurs. La structure de gouvernance qui régit actuellement le système caféier n'offre ainsi aucune solution durable aux déséquilibres du marché et des revenus. Il faut donc donner plus de poids à la coordination verticale en partageant l'information, en réformant les institutions qui régissent l'industrie dans les pays producteurs et en introduisant des mécanismes de redistribution des surplus, susceptibles de renforcer les maillons les plus faibles.

Mots clés

marché mondial du café, chaîne production-consommation, gouvernance

Abstract

Wim Pelupessy, *The world behind the world coffee market*

Linkages between coffee growing in developing countries and final consumption in developed ones have been frequently under pressure. We apply a global commodity chain framework to understand these problems and to propose possible solutions. Imbalances on international spot markets are related to the easy access to coffee production and trade, climatic drawbacks in large producing countries and supply mismatches with changing consumers' preferences. Hedgers and speculators in futures markets cause additional price volatilities. Big multinational roasters and retailers control the transmission of material, value and information streams in the strategic parts of the chain by their market power and extra-market coordination tools. The outcomes are high consumers' prices and very low growers' prices. A sustainable solution for both the market imbalances and the asymmetric income distribution could not be reached by the present governance structure of the coffee chains. There is a need for the strengthening of vertical coordination by sharing information, reorientation of coffee institutions in producing countries and introduction of intra-chain surplus redistribution to support the weakest links.

Keywords

coffee, global commodity chain, chain governance