



MBA
Managerial Economics

WTO, Free Trade, and Oligopolies

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1. ABSTRACT

The WTO ruled in 1999 that the EU tariff system for bananas violated international trade agreements as set out in GATT. This decision is analyzed by comparing the objectives of free trade (increased wealth through maximization of resource allocation) with the results obtained by the WTO, and by analyzing whether the ruling encourages perfect competition as a means for achieving this end. The conclusion reached is that the WTO ruling does not achieve the objective of free trade because it does not account for the negative externalities of the international banana trade. Furthermore, it is found that the WTO ruling in this dispute does not create the means for free trade in bananas because, by neglecting negative externalities, the international banana market is deprived of the mechanism that will force it to maximize resource allocation.

2. INTRODUCTION

A dispute between several Latin American banana-producing countries and the European Union (EU) over European banana tariffs erupted in 1993 when Costa Rica, Colombia, Nicaragua, Guatemala, and Venezuela claimed that EU tariffs violated international trading rules as set out in GATT. The dispute continued in the forum of the World Trade Organization (WTO) and is seen by many as a benchmark case that will set precedence and demonstrate the potential of the WTO to resolve international trade disputes^{1,2}. In the present paper, this dispute is used as a vehicle to analyze the effectiveness of the WTO in promoting free trade.

The WTO espouses free trade. The desirability of free trade is based on the theory of comparative advantage, whose central tenet is that all countries benefit from free trade by specializing in the industry(ies) in which they are least disadvantaged.³ This specialization, the theory argues, results in the most efficient allocation of resources, and thus the maximum economic benefit for society as a whole.^a Thus free trade encourages perfect competition and is fundamentally incompatible with monopolies because monopolies set prices above marginal costs, resulting in a misallocation of resources on a societal level.

It will therefore be important to our discussion to objectively identify monopolies. In the UK, the 1973 Fair Trading Act defined a legislative monopoly as a firm that supplied over 25% (increased to 40% in 1998) of a given product or service. In the USA, precedence exists for monopoly status being accorded to a firm controlling a market share of nearly 65%. Note that to warrant legal action being taken against it, a firm in the UK must not only control the requisite market share, but it must also *abuse* of its monopoly power. Evidently, the legislators in the UK estimate that simple possession of monopoly power does not imply abuse of that power, since, for example, the market may be contestable. In the USA however, since the 1954 Alcoa case simple *possession* of a monopoly position is sufficient to bring down the wrath of the Federal Trade Commission (FTC). In this paper we will adopt the American view since it provides a simple and objective definition of monopoly that has proven an effective weapon against monopolistic tendencies.^b To define a monopoly we will thus use the one-firm concentration ratio with a threshold of 65%.

^a A study by the OECD, for example, concludes that the advances in free trade since 1950 account for 20% of the gain in the GDP of the USA since that time, and further liberalization of trade with all of America's trading partners (notably in services) would be expected to add another \$0.45 to \$1.3 trillion to the GDP (see *The Economist*, Dec. 4th, 2004, pg. 80)

^b Since 1954, Standard Oil, Eastman Kodak, General Motors, Xerox, and AT&T have been forced by the FTC to accept new competition in their markets.

An industry in which the largest player does not meet this definition for monopoly may still suffer the ill effects of monopolistic business practices if the industry is highly concentrated. This is because there is a clear risk that the beneficial forces of competition are weakened in a concentrated industry.⁴ This conclusion has led to the development of anti-monopolistic regulations in many countries, including the US and the UK. Concentrated industries can be defined using three- or four-firm concentration ratios with thresholds⁵ of 60 to 80%, or by using the Herfindahl index with a threshold of 0.16^c. Industries that meet these criteria shall be referred to as oligopolies.

At the opposite end of the economic spectrum from the monopoly is perfect competition, which is defined by the following assumptions:⁶

1. There are many suppliers each with an insignificant share of the market. No single supplier has the power to affect overall market price. Each individual firm is assumed to be a price taker.
2. Consumers perceive the products of each firm to be identical.
3. Consumers have perfect information about prices in the market, so that if one firm raises its prices there will be an immediate substitution effect away from this firm.
4. All firms in the industry have equal access to resources and technology.
5. There are no barriers to entry and exit into the market.
6. There are no externalities in production and consumption and thus no divergence between private and social costs and benefits.

Perfect competition results in a level of production that gives the greatest net benefit to the economy, which is the goal of free trade. We can therefore assume that perfect competition is the goal of the WTO. However, in international trade perfect competition is essentially impossible to attain, so one must decide what realistic alternatives should be targeted.

In judging the merit of alternatives to perfect competition, we can take two points of view:

1. Do the ends correspond to those promised by perfect competition?
2. Do the means correspond to perfect competition?

Using the first criteria implies we are not interested in free trade *per se*, but in maximizing the world's economic benefit. If this means free trade, fine. If regulated trade is deemed necessary to achieve this goal, so be it. Using the second criteria, we will favor free trade in every case even if it means supporting a monopoly. These criteria will be used to analyze the ruling of the WTO in the banana dispute.

3. THE BANANA WARS

The European Community (EC) established preferential trading arrangements for bananas in the late 1950's with former colonies in Africa, the Caribbean and the Pacific (ACP). With the advent of the single European market in 1992, the EU harmonized these agreements in a plan that called for a tariff quota system. This system applied different tariffs on bananas depending on their origin, and favored ACP countries over Latin American countries. Since producers in the ACP countries lacked the large-scale facilities necessary to compete on price with the large Latin American banana producers, this support was crucial for the survival of the ACP banana producers. Indeed, the well being of the entire economy of many of the ACP countries depended on the EC's preferential tariff system, since, as the Jamaican Prime Minister Percival Patterson put it: "Bananas are to us what cars are to Detroit".⁷

^c The threshold of 0.16 is arrived at by considering three equal-sized corporations with a combined market share of 70%. The Herfindahl index in this case will be greater than 0.16.

The Latin American producers, who account for roughly 80% of the world's export bananas,⁸ felt that this tariff quota system violated the rules of international trade as spelled out in GATT, notably the ban on quantitative import restrictions at the national level. In 1993 they brought their complaint before GATT. Although the panel appointed by GATT to settle the dispute ruled in favor of the Latin American countries, the ruling could not be enforced since any member country (including the accused) could block the implementation of the ruling.

In 1995 the US joined Panama, Ecuador and Guatemala in bringing the dispute before the WTO. The dispute settlement procedure of the WTO had "automaticity" built in, meaning rulings would take effect automatically unless rejected by a consensus of WTO members. Hence the EU could not block the implementation of the rulings as it had done for the previous rulings of the GATT panel, and the ruling was adopted on September 25, 1997.

During the following year, the EU and the American producers failed to reach an agreement on a timetable for implementation of the ruling. Frustrated by the EU's lack of expediency, the US decided to act unilaterally and impose the retaliatory sanctions authorized by the WTO (amounting to \$191.4 million) against the EU. These sanctions went into force on April 19, 1999.

Two years and two days later, with the US retaliatory sanctions still active, the US and the EU reached a negotiated agreement over the issue, followed two weeks later by an agreement between the EU and Ecuador. The agreement stipulates that the EU will adopt a tariff-only system for banana imports starting on January 1, 2006, and that the US would suspend its retaliatory sanctions as of July 1, 2001. The delay of 4.5 years granted to the EU to revise its tariff was granted so that the EU could gradually modify the tariff-quota system so as to minimize the adverse impact on the economies of the ACP countries.

4. ANALYSIS

4.1 DOES THE END RESULT CORRESPOND TO THAT PROMISED BY FREE TRADE?

The end promised by free trade is an overall increase in wealth due to an increased efficiency in resource allocation through more perfect competition. To forecast the worldwide differential wealth that may be created by the WTO banana ruling is much too difficult a task for your humble author. We will instead endeavor to analyze the industry in light of this ruling to see if the ruling is likely to result in a more efficient use of resources.

One of the few points on which the literature in this area is unanimous is that, using traditional economic measures, the Latin American producers are more efficient than the ACP producers. Of all the ACP countries, only Cameroon and the Ivory Coast are given a fighting chance of competing with the Latin American banana producers in a free market due to the economies of scale that the latter can exploit. This means that, in purely monetary terms, the world as a whole will see an immediate monetary benefit due to this shift in production to the more efficient producers.

The yearly amount of the benefit can be crudely estimated with the aid of the following figures:^d

1. The average retail price since 1990 of bananas in the EU is \$2/kg, compared to \$1/kg in the US.
2. World banana imports reached 12 million metric tons for the years 1997 to 2000.
3. The EU accounts for ¼ of the worldwide import market.
4. 16% of EU banana imports are supplied by ACP nations.

^d FAO statistics

Using these figures, we can estimate the potential worldwide increase in wealth as follows:

$$\begin{aligned}\Delta Wealth &= 12 \times 10^6 \left[\frac{MT}{Year} \right] \times 0.25 \times 0.16 \times 10^3 \left[\frac{kg}{MT} \right] \times (2-1) \left[\frac{\$}{kg} \right] \\ &\approx 500,000,000 \left[\frac{\$}{Year} \right].\end{aligned}$$

However, this global gain in wealth does not take into account numerous negative externalities that are byproducts of industrial banana production, including pollution, health and safety, and ecological issues.

Pollution due to the massive banana plantations found in Latin America is severe; in Columbia, for example over 320 tons of waste is produced for each 100 tons of bananas exported.⁹ 53 tons out of the 320 requires treatment, and includes pesticides, fungicides and other agrochemicals, plastic bags, twine, and packing materials that are laced with chemicals, as well as rejected fruit. The remaining waste (277 tons) is composed of stems and leaves. Through the extensive draining and irrigation ditches used in the banana plantations, the agrochemicals find their way into the local water system and eventually to the sea, extending the reach of the area affected and the consequent negative externalities. For example, studies have linked the high levels of Chlorotalanil in the Valle de la Estrella in Costa Rica to the nearby Dole banana plantation. The agrochemicals released by the banana plantations are linked to high death-rates of fish in nearby waterways and are highly toxic not only for non-targeted insect species, but a host of other animals and plants, including reptiles, birds, and livestock.

The employees of the Latin American banana plantations also suffer severe consequences from the use of agrochemicals.¹⁰ Due to lax regulatory environments, the general poverty of the countries involved, and the obstacles (sometimes violent) inhibiting the development of labor organizations, typical workers on plantations are very poorly trained and equipped to work with these chemicals. For example, on a Dole plantation in Ecuador, workers were instructed to remain on the plantation while aerial spraying was carried out, in spite of World Health Organization standards stipulating that people should not be present until 2 hours after such a spraying (in all, 11 out of 12 Dole plantations in Ecuador were found in breach of this recommendation). In addition, housing for employees is in many cases located on the plantation, exposing the families of employees to the spraying as well. In Costa Rica, the rates of pesticide poisoning are three times higher near banana plantations as in the rest of the country. According to a study by the Universtiy of Heredia, workers on banana plantations in Costa Rica suffer much higher rates of occupational accidents than workers in other agricultural domains such as coffee or sugar cane.¹¹

On the ecological front, the intensive monoculture farming that occurs on banana plantations reduces biodiversity (even threatening the Cavendish banana itself^c with extinction) and results in extensive and long-lasting damage to the land. The soil is rapidly depleted of nutrients and minerals such as iron, magnesium, potassium, and zinc. The irrigation techniques promote erosion and loss of rich topsoil, and high volumes of vegetal waste reduces the fertility of surrounding soils. When the lands can no longer support intensive banana farming, new land is claimed, resulting in depletion of tropical rainforest, alteration of the climate, and a further costly reduction of ecological equity.

^c The Cavendish banana accounts for nearly 100% of worldwide banana exports.

This non-exhaustive litany of negative externalities challenges the conclusion put forward above of a net yearly gain of \$500 million in world economic benefit as a result of the WTO ruling on the banana dispute. However, if these externalities do not change as a result of this ruling, then they do not contribute to a net change in world economic benefit. Hence one may argue that because of the WTO ruling, the world will experience economic benefit because more benefits will be reaped from these shameful practices.

However, the negative externalities of the ACP producers that will disappear due to the WTO ruling must be entered into the equation. If the negative externalities of the primarily small banana producers of the ACP countries are less than that of the Latin American producers, then the disappearance of the ACP producers will have an overall negative impact on world wealth. It is of course difficult to measure these externalities, but there are several general observations that are useful to consider. The level of pay and social benefits enjoyed by workers in ACP banana plantations are generally higher than those of the Latin American producers (which is one reason their bananas are more expensive). In addition, the smaller plantations of the ACP countries, though by no means environmental poster-children, cause less environmental stress than the larger ones for a variety of reasons (the principle reason being a superlinear relationship between monoculture hectares planted and loss of biodiversity). We therefore conclude that the negative externalities of the ACP producers are less costly than those of the Latin American producers, so that the marginal worldwide environmental and social costs due to the WTO ruling are negative.

We can attempt to place an objective value on the cost due to the marginal environmental damage by using the example of US Superfund Cleanup sites, which are expected to cost an average of \$1 million each to treat¹² (note that treatment does not usually result in the site regaining its original environmental attributes, but serves rather to prevent further environmental degradation). Chiquita Brands International, Inc. operates 127 banana plantations worldwide. If we assume that Dole and Del Monte operate a similar number, we arrive at a total number of plantations of nearly 400, which gives a total environmental cost for the Latin American producers of \$400 million. Further assuming that the environmental cost of an ACP producer is one half that of a Latin American producer, the total marginal environmental costs due to the WTO ruling is *conservatively* estimated to be \$200 million.

To this one-time cost (we assume you only need to clean up after a banana plantation once) one must add the continuing marginal social costs, as well as unrecoverable marginal environmental costs. Evaluating these costs is beyond the scope of this paper, but it seems more than reasonable to assume that they will come in at more than \$500 million per year. We are therefore led to conclude that, unless the Latin American producers change their production methods, the WTO ruling in the banana dispute will have a negative impact on world economic benefit.

Thus to determine if the WTO ruling will increase worldwide wealth, we must address the question of whether the Latin American banana producers are likely to change their production techniques to reduce the afore-mentioned negative externalities. Currently transnational banana producers face pressure to improve their business practices from both an environmental as well as a social standpoint. However, this pressure is due to *political* rather than market forces.

There are a number of NGO's that have developed environmental and social certification programs, such as the Rainforest Alliance Certification, the Social Accountability Standard SA-8000, or EUROBAN, to name a few. Many of these NGO's formed during the 1990's as a response to a widespread fear that a WTO ruling removing the EU quota system would result in a "race to the bottom" by the transnational banana producers who would further exploit the lax labor and environmental laws of the Latin American countries to reduce short-term production costs.¹³ In essence, these certification programs provide a mechanism that allows the market to recognize the costs of the negative externalities discussed above.

We are thus obliged to conclude that the end obtained by the WTO ruling in the banana dispute does not correspond to the end promised by free trade because worldwide wealth is reduced due to the greater costs of negative externalities of the Latin American banana producers compared to the ACP producers.

4.2 DO THE MEANS CREATED BY THE WTO RULING CORRESPOND TO FREE TRADE?

Is the international banana market moving closer to the model of perfect competition due to the WTO's ruling in the banana dispute? Let us revisit the assumptions of perfect competition to form an opinion.

There are several varieties of bananas on the market, but only one is commonly exported. This is the Cavendish banana, and it accounts for nearly 100% of worldwide exports. Cavendish bananas may be grouped into 3 classes: Extra, Class I, and Class II. Bananas within the same class meet certain physical requirements and are statistically identical. Efforts in the 1990's by Chiquita Brands International to differentiate its bananas using the Chiquita brand proved fruitless.¹⁴ Since 1997 Cavendish bananas differentiated by the organic or fair-trade label have appeared on the market. However, these account for only 0.2% and 0.05% of the total world banana production, respectively, and so would have an insignificant impact on the overall economics of the industry. We can therefore conclude that consumers perceive export bananas to be identical for all practical purposes. Furthermore, in this day of instant communications, we can safely assume that consumers have perfect information about prices in the market. Thus assumptions 2 and 3 for perfect competition are considered to be satisfied.

That was the easy part. Now consider the first assumption of the perfect competition model; that there are many suppliers, each of whom are price takers and none of whom have the power to set prices. The chief plaintiff in the case is Chiquita Brands International, Inc.; an American corporation that produces bananas primarily in Latin America and that has enjoyed a world market share in bananas of $30 \pm 5\%$ since 1965.^f As can be seen from Exhibit 1, adding the market shares of Dole and Del Monte Foods results in a three-firm concentration ratio for the world banana market that hovers between 65 and 70 % for the years 1980 to 2000. The Herfindahl index, taking into account the top 5 corporations in terms of market share, is shown in Exhibit 2. It grows from near 0.13 in 1970 to above 0.16 by 1985, and remains above 0.16 throughout the 1990's. We can therefore refer to the international banana industry as an oligopoly.

It can be argued that by removing the tariff-quota system of the EU, the WTO is enhancing the dominance of this oligopoly in the banana market, since the ACP producers cannot compete on a price basis with Chiquita et al.. Thus, in the absence of the EU tariffs, the power of the oligopoly to set prices will be increased due to a reduction of competition. This conclusion is supported by the research of S. Y. Deodhar et al., who find that as of 1995, firms in the international banana trade set prices above marginal costs.¹⁵ By striking down the EU tariffs, one can argue that the WTO in this case is serving as a barrier to perfect competition.

^f The market share of the transnational corporations (TNC's) is controversial because companies are reluctant to communicate their exact volumes of bananas sold (see, for example, page 70 of reference 8). Some estimates of Chiquita's world market share in bananas run as high as 70% (see The Honduran Republic of Chiquita, A COHA Occasional Paper, Volume 1: Number 3, November 1996.).

However, the power of the banana oligopoly to set prices is not clear. Evidence indicates that the price setters are actually the large supermarket chains that distribute the bananas to the consumers.¹⁶ In other words, the market is setting the price for the product, not the producers. This argument is supported by historical data from the US, where the banana market is free of tariffs.¹⁷ In this market we find that the wholesale price per kilogram has fallen from \$0.84 in 1985 to \$0.53, or an average decrease of roughly 2% per year. During the same period, however, the retail price per kilogram has fallen from \$1.15 to \$0.95, or an average of approximately 1% per year. Thus the data supports the conclusion that the retailers are the price setters, because they have been able to double their profit margin in bananas over the last 18 years. In this light, the ruling of the WTO appears to improve the competitiveness of the market by neutralizing the only player large enough to dictate market prices – the EU.

Another formative assumption of the competitive market model is that all firms in the market have equal access to resources and technology. This is currently not the case for the banana producers. The large American corporations (Chiquita et al.) enjoy a higher level of technology than the ACP producers.¹⁸ Does the WTO ruling affect this inequality? One may argue that by removing the tariffs, the WTO is removing any possibility of the ACP producers to acquire the requisite technology to put them on a par with the more technologically advanced producers. Thus the EU may consider to be applying New Trade Theory¹⁹ by supporting the ACP producers until these countries achieve a comparative advantage in producing bananas.

However, one can raise several objections to this view. The Caribbean producers, for example, cultivate land that is steeper and therefore harder to cultivate than the flat land of the large Latin American producers. In addition, the soil is poorer in the Caribbean and the weather less favorable (the frequent hurricanes often cause significant harm to the banana plantations).²⁰ No amount of technology, short of changing the geology, geography, and weather of the Caribbean, can alleviate this inequality. The Caribbean producers simply suffer from a deficit of production factors compared to other banana-producing regions.

But would continued EU tariff support allow the ACP countries to improve their technology to the point that they could at least survive in an open market? The evidence does not support this argument. In fact, since the EU tariffs were not historically linked to any improvements in production technology, the tariffs may actually have hindered technological development in the ACP countries by shielding them from the market forces that would have served as an incentive to modernize or diversify.²¹ The EU has recently moved to alleviate this deficiency through the creation of the Special Framework for Assistance for Traditional ACP Suppliers of Bananas, or "SFA" program. This program aims to "to improve competitiveness in the banana sector or to support diversification where improvement in the competitiveness of the banana sector is not sustainable."²² The creation of the SFA program by the EU is a tacit admission that the previous tariff regime did not help to improve the competitiveness of the ACP producers.

Hence the evidence indicates that by eliminating the tariffs and exposing the ACP producers to market forces the WTO is obliging them to obtain technological parity with their competitors if they wish to survive. Thus, as regards assumption 4, we conclude that the WTO is creating the means of free trade and therefore bringing the banana market closer to the model of perfect competition.

Let us now consider the condition that no barriers to entry or exit exist in perfect competition. The ruling of the WTO has no significant effect on this condition. In other words, the barriers to entry and exit from the banana trade are identical before and after the WTO ruling on the banana dispute. We note that these barriers are quite significant, since to be competitive in this industry requires significant capital outlay to acquire the assets necessary to compete (hence the market is not contestable, a conclusion reached by S.Y. Deodhar et al. as well). But the WTO has not changed this fact, and so it is irrelevant in determining if the WTO ruling has brought the banana trade closer to the model of perfect competition.

Finally we consider the negative externalities of the international banana trade. As detailed in the previous section, these are extremely significant. The WTO ruling has not created a system linking these costs to the market price, and in fact has reduced the linkage by damaging the competitiveness of the ACP producers. As these externalities are so large, the WTO cannot ignore them and still claim to espouse free trade.

If it were not for the pressure of the NGO's the banana industry, as a result of the WTO ruling, would allocate resources leading to a decrease in worldwide economic benefit. Thus we conclude that as regards the banana ruling, the WTO does not create the means necessary for free trade.

5. CONCLUSION

The ruling of the WTO on the banana dispute is found neither to achieve the end promised by free trade, nor to improve the means of the market to obtain those ends. The principle failing of the WTO in the banana case is its neglect of the negative externalities generated by the banana producers.

The inclusion of the negative externalities discussed in this paper (i.e. social and environmental costs) into trade agreements is a current topic of debate within the WTO. The current situation is that including these costs is considered inconsistent with the WTO rules, because they discriminate on the basis of production process and methods. However, some NGO's and governments of developed countries are lobbying for the acceptance of measures designed to include the costs of more externalities into the market mechanism. One strategy would be to allow countries access to export markets only after meeting previously agreed social and environmental standards set out in multilateral treaties.

Ignoring negative externalities is fundamentally contrary to free trade, because it leads to a situation in which resource allocation is not maximized. The WTO cannot continue to espouse free trade without reconciling this issue.

6. EXHIBITS

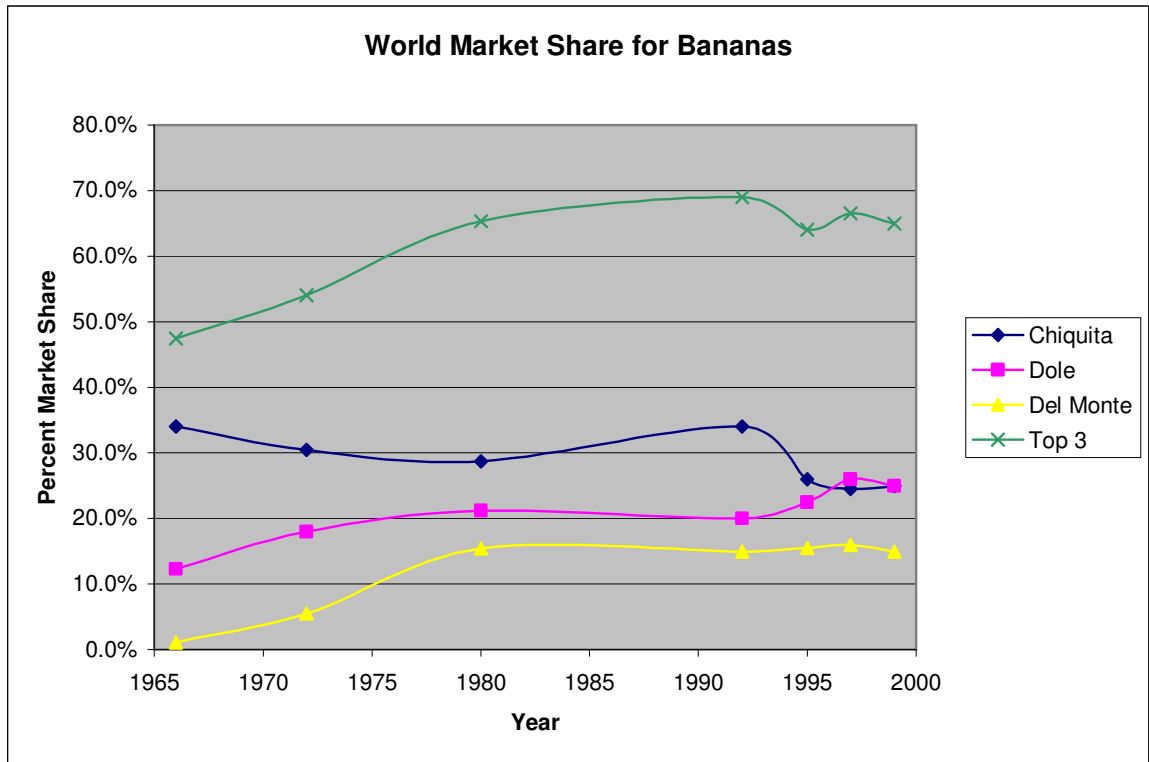


Exhibit 1

Exhibit 1 shows the market shares of the top three firms in world banana market, as well as the total share of these three firms.

Source: P. Arias, C. Dankers, C. Liu, and P. Pilkauskas, The World Banana Economy, Food and Agriculture Organization of the United Nations, 2003

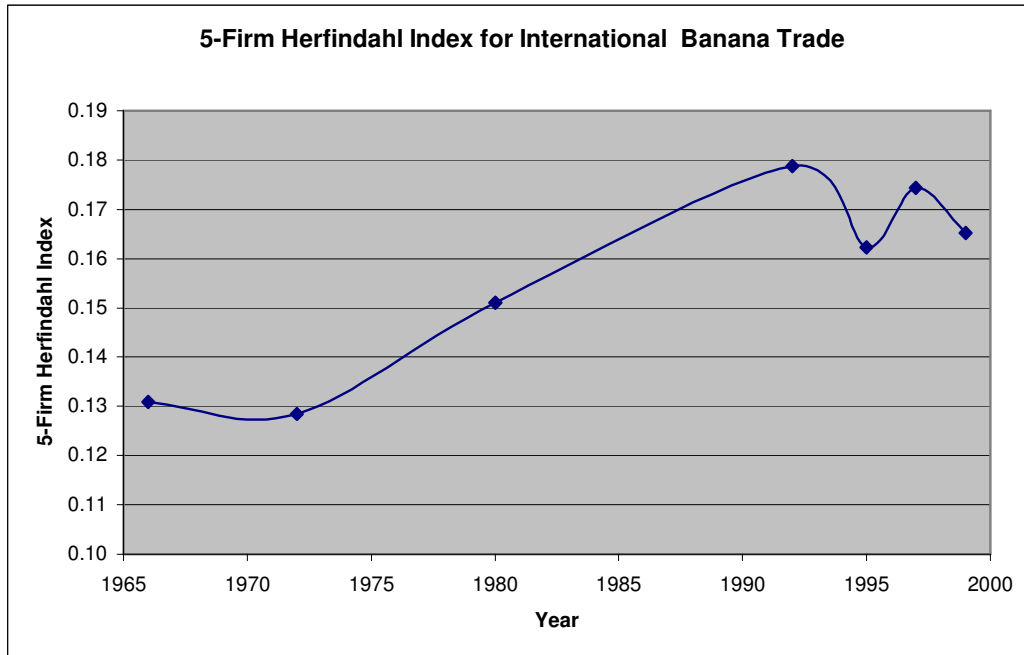


Exhibit 2

Exhibit 2 shows the 5-firm Herfindahl index for the international banana trade. It is calculated as

$$Herfindahl_Index = \sum_{i=1}^5 (S_i)^2,$$

where S_i is the market share of the corporation i , and the sum is taken over the 5 largest corporations in the industry (in terms of market share).

Source: P. Arias, C. Dankers, C. Liu, and P. Pilkauskas, *The World Banana Economy*, Food and Agriculture Organization of the United Nations, 2003

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