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Determinants of Price Premium in the Rotterdam Groundnut Market

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Abstract. The reputation of a firm is based not only on the quality of the goods it offers but also on its reliability as a supplier. The topic is especially important in international trade where one can observe differences in prices of a commodity from different origins, even accounting for the observable characteristics. In this study a model is considered where an importer decides the highest price that he is willing to pay for a commodity from a different origin but with the same characteristics as the one that he is currently importing. If the reliability of both sources is different, one would expect that the less reliable source will receive a lower price. A hedonic price equation using data from a major trader of groundnuts in Rotterdam is estimated. The results indicate that there is a price differential not explained by the product characteristics that favors US groundnuts with respect to Argentine or Chinese groundnuts. The implications of the results are interesting, especially for developing countries trying to capture markets, since part of the price differential is explained by the importer's perception about the supplier reliability. Thus, building a reputation for the product may be a slow process consisting not only of producing the right quality but also of modifying the importer's perception.

Keywords: Imports, Supplier reputation, Price differences, Trade, Groundnuts

1. Introduction

The motto of a current English commodity trading firm is composed of the following two phrases: "Always in the right place at the right time" and "Your quality, at a competitive price" (Carrex International Ltd) [5]. These two phrases, expressing what the reputation of the firm stands for, are the key for understanding that the reputation of a firm is not only based on the quality of the goods it offers but also on its reliability as a supplier, understanding reliability by delivering the product of the agreed quality at the agreed time.

The literature about quality and reputation has focused its attention more on the external quality of the product than on sellers' reliability. For instance, in Shapiro's papers [13, 14] suppliers decide simultaneously the quality of their products and their sales. In his models, consumers learn about the product quality after purchasing it and in this way, firms establish their reputation. Because of this reputation, they receive a premium with respect to the price of products from less reputable firms.

In agriculture, issues of quality and reliability are particularly important due to the fact that agricultural production is exposed to the vagaries of mother nature. Weather can deteriorate a harvest and reduce not only its size but also that portion of the crop corresponding to an exportable quality. It is important to note that the damage affects not only farmers but also the entire supply chain since a purchaser in one stage of the chain may be a supplier in the next stage of the supply chain. In this sense, if the production of an agricultural firm or country is more exposed, for instance, to weather problems, purchasers may perceive the firm or the

country as a risky one or, what is the same, as a less reliable one. This point can be appreciated in the following quote by Chamberlin [6]:

> *"Not only goods, but sellers, must be "standardized" under pure competition. Anything which makes buyers prefer one seller to another, be it personality, reputation, convenient location, or the tone of his shop, differentiates the thing purchased to that degree, for what it is bought is really a bundle of utilities, of which these things are part." p. 8-9.*

The purpose of this paper is to address the importance of suppliers' reliability on the observed price difference of a commodity. The topic is especially important in international trade, as globalization is moving rapidly forward. In international trade one can observe differences in prices of a commodity from different origins, even when accounting for the observable characteristics. It is that this is the case of the groundnuts sold in Rotterdam, where US groundnuts receive a premium with respect to groundnuts from other origins. As pointed out by Carley et al [4] "reliability of timely delivery of groundnuts is a major factor in the export market. China had a problem with time and reliable delivery in 1993. Argentina had problems in 1991 with reliable delivery. […] Many of these factors impact on price."

In addition, the issue about export reliability has been neglected in the international economics literature, despite its importance for developing countries trying to enter in already established markets.

This paper begins with a literature review of the issues related to price premium paid due to a firm's reputation for the quality of its product. Then, in order to motivate the firm reliability issue, a simple theoretical model is formulated. This model shows that an importer or a processor that purchases a raw material crucial for its business, may pay a price premium (or charge a discount) to the product of a firm or from an origin that he believes to be reliable (unreliable). In the subsequent section, a hedonic price equation for groundnuts from different origins on the Rotterdam market is estimated in order to test whether or not the premium observed in the price of US groundnuts is due to observable characteristics or to a different factor that is attributed to export reliability. Finally, some conclusions are presented.

2. Price premium literature

In general, the economic literature has focused on the effect of quality uncertainty on prices. The literature of price premiums due to high quality reputation derives from both the price dispersion literature and the economics of information. In the context of homogeneous products (i.e., no differences in quality) and imperfect information, Salop and Stiglitz [12] formulated a model where consumers' ignorance about the location of low price products and a cost of acquiring such information may result in an equilibrium with price dispersion.

Shapiro [13] extended the framework to the case where a monopolist sets both quality and sales and consumers cannot observe all the relevant attributes of the product before purchasing it. However, the producer can signal consumers through its reputation. He shows that the quality the monopolist chooses to produce is lower under such circumstances than in a perfect competition setting. This result applies both in the case when the firm chooses the quality levels and maintains it during the whole period and when the firm can revise the quality of its product.

Shapiro [14] considers again the same setting of firm reputation and imperfect consumer information but in a competitive context. In his model, on the one hand, firms that have the reputation of producing high quality products receive a premium above their costs. This

premium compensates the initial investments made for building reputation. On the other hand, unknown firms entering into the high quality segment of the market will be selling at a below cost price while investing in reputation. Therefore, until the new entry firm reaches the reputation of the established firms, the market will reflect a price premium in favor of the established firms' products. An interesting extension is presented by Allen and Faulhaber [2] for the case when the production process is noisy and the same firm sometimes may produce high quality and low quality products. This implies that deducing the quality of the product based on past experiences (i.e., reputation) will also be noisy and the equilibrium probably inexistent.

In the context of international trade, Bond [3] studied the impact of quality differences on the welfare of home and foreign countries. Specifically, when the home country produces high quality products and opens to the trade, it will import low quality products if it cannot distinguish between the different quality levels of the products and that occurs because low quality products are cheaper. This will result in a welfare loss for the home country. This problem is avoided by the introduction of information such as labeling. Falvey [9] extended Bond's model to include reputation as a signal used by consumers to infer the quality of the product. As in Shapiro's model, reputation in this model produces a premium for those countries with reputation for selling high quality products.

In agriculture, where nature can easily affect the quality of products, international trade (and also intra trade) has turned to grading and label-of-origin in order to standardize products and ensure their homogeneity. However, even in some cases such as groundnuts traded in Rotterdam, one may observe price premiums paid for the commodity of some specific origin. An alternative way to differentiate products when the quality is somewhat homogeneous is by the reliability of the supplier. This is an aspect that has been less studied than differentiation by quality in the context of international trade, although it has been addressed in the labor economics literature which has referred to the fact that reliable workers are paid a premium [7].

Reliability is an important factor because, even if the quality of the product is standard, late delivery may force the purchaser to incur additional costs. These costs may be translated to the price of the product originating from premium paid to reliable suppliers and discounts allocated from unreliable ones. This is the topic of the next section.

3. Modeling the premium to supplier reliability

To motivate the empirical section, a model is considered where a risk neutral importer has to decide the highest price that he is willing to pay for a commodity from a different origin but with the same characteristics as the one that he is currently importing. If the reliability of both sources is different (e.g., they differ in the probability of delivering the commodity according to the exact terms of the contract), one would expect that the less reliable source will receive a lower price. That is, its price will receive a discount due to its unreliability. Thus, the importer compares his expected profits from both sources and establishes the price difference for the commodity from both sources.

Let us consider an importer specializing in the trade of some commodity. He has a transformation function equal to $Q = \min\left\{\frac{M}{\lambda}, a_0 L^{a_1}\right\}$, where M is the commodity purchased abroad, Q is the commodity sold in the country, and λ is the shrinkage of the imported good if there is any waste. If there is no waste, λ is equal to one, otherwise it is greater than one, and

$a_0 L^{a_1}$ represents the other inputs required for the import, which we will assume to be only labor. a_0 and a_1 are positive parameters, with a_1 between zero and one.

The importer takes the domestic price at which he sells the commodity as given (since it was contracted) and equal to P^S, and the price of his reliable supplier (exporter) of the commodity at P^W. Given the prices and the transformation function, the importer will sell the amount Q^* that maximizes his profits (1), where m is the labor price:

$$\underset{Q}{Max}\,\pi = P^S \cdot Q - m \cdot \left(\frac{Q}{a_0}\right)^{\frac{1}{a_1}} - P^W \cdot \lambda \cdot Q \tag{1}$$

The solution of (1) yields the following expressions for the quantity supplied of the commodity and the profits:

$$Q^* = a_0 \left\{\left(\frac{a_0 a_1}{m}\right)\left(P^S - \lambda \cdot P^W\right)\right\}^{\frac{a_1}{1-a_1}} \tag{2}$$

$$\pi\left[P^S, P^W, m; a_0, a_1, \lambda\right] = \pi\left[P^W\right] = \left(P^S - \lambda \cdot P^W\right) \cdot Q^* - m \cdot \left(\frac{Q^*}{a_0}\right)^{\frac{1}{a_1}} \tag{3}$$

The importer is approached by another exporter that claims that he can also supply the commodity. However, the importer thinks that this exporter is not so reliable, and he will honor the contract only with a probability equal to ω, while he is assigning a probability of one to his current exporter. He knows that if the new exporter defaults the contract, he will have to hurry to purchase the required commodity at the spot market paying a price equal to $(1+\theta)\cdot P^W$, where θ is the premium paid for the commodity at the spot market.

The problem to solve is how much the importer is willing to pay to the new exporter, which he expects may default the contract with a probability of $(1-\omega)$. Let us assume that the criterion used by the importer to set the price to the new exporter is derived by comparing the present value of the profits he makes with his current exporter to the expected present value of the profits that he would make with the new exporter. Thus, let us assume that the interest rate is equal to r, which gives us a discount rate equal to $\beta = 1/(1+r)$. Thus, the present value of the importer's profits when he purchases from his traditional exporter, is equal to:

$$V_0^T = \sum_{i=0}^{\infty} \beta^i \pi\left[P^W\right] \tag{4}$$

The present value of the importer's profits when he purchases from the new exporter, V_0^N, is equal to (5), where ϕ is a proportion between zero and one with respect to the price of the reliable exporter, that gives the maximum price that the importer is willing to pay.

$$V_0^N = \pi\left[\phi \cdot P^W\right] + \sum_{i=0}^{\infty} \beta^i \left\{\omega^i \cdot \pi\left[\phi \cdot P^W\right] + \left(1-\omega^i\right) \cdot \pi\left[(1+\theta) P^W\right]\right\} \tag{5}$$

Therefore, using (4) and (5), the value of ϕ is the one that solves the following equation:

$$\pi\left[\phi \cdot P^W\right] = (1-\beta\omega)\left\{\left(\frac{1}{1-\beta}\right)\cdot\pi\left[P^W\right] - \left(\frac{\beta(1-\omega)}{1-\beta(1-\omega)}\right)\cdot\pi\left[(1+\theta)\cdot P^W\right]\right\} \quad (6)$$

It is clear from (6) that the lower the probability ω, the lower will be the value that the importer will be willing to pay for the new exporter's product. This is depicted in (7):

$$\frac{\partial\phi}{\partial\omega} = -\frac{\beta\left\{\left(\frac{\pi\left[P^W\right]}{1-\beta}\right) - \left(\frac{\beta(1-\omega)\pi\left[(1+\theta)\cdot P^W\right]}{1-\beta(1-\omega)}\right)\right\} + \frac{\beta(1-\beta\omega)}{1-\beta(1-\omega)}\left\{1+\frac{\beta(1-\omega)}{1-\beta(1-\omega)}\right\}\pi\left[(1+\theta)\cdot P^W\right]}{\frac{\partial\pi\left[\phi\cdot P^W\right]}{\partial\phi}} > 0 \quad (7)$$

As shown in (8), the greater the premium paid in the spot market, θ, for getting the commodity on a rush, the lower the price that the importer will be willing to pay to the new exporter.

$$\frac{\partial\phi}{\partial\theta} = -\frac{\frac{\partial\pi\left[(1+\theta)\cdot P^W\right]}{\partial\theta}}{\frac{\partial\pi\left[\phi\cdot P^W\right]}{\partial\phi}} < 0$$

4. Hedonic price analysis

The purpose of this section is to analyze whether or not the premium paid for US groundnut prices in Rotterdam reflects only the observable characteristics such as variety, size, whether or not the nut are shelled, etc. or if the observed prices also reflect other aspects that, in this paper, are associated to exporter reliability.

In order to relate groundnut prices with the characteristics of the groundnuts a hedonic price equation is estimated, which, according to Combris et al [8] is a useful approach to study the price-quality relationship of a product. The method amounts to a possible nonlinear regression analysis of the price on the characteristics of the product. The implicit price of a characteristic is defined as the derivative of the price with respect to the product attribute. If the estimated implicit price is not significantly different from zero, then it is not valued by the consumers, or the characteristic is not considered important in connection with the product.

It is important to note that the appropriate data to test the existence of price premiums is difficult to find. Ideally, one should perform the analysis using prices paid by importers for the different groundnut origins and by separating them according to their observable characteristics. However, import data, even when disaggregated by a six digit customs code, which is the maximum level of disaggregation available for European Union trade data, still conveys an important degree of aggregation. Take, for instance, the data corresponding to the custom code 120220, which presents the information for shelled groundnuts, whether or not broken (excluding roasted or otherwise cooked), aggregate groundnuts of different sizes, a characteristic that is important to explain the price. In addition, the observed unit values may also represent imports contracted at different times, which renders it difficult to compare the prices from different groundnut origins. It is interesting to note that, since most of the trade on shelled groundnuts is concentrated on the medium size groundnuts, i.e., the 40/50 size, even under aggregation, as observed in figure 1, it is possible to infer that US groundnuts are sold at

a premium with respect to the two other important origins that export to the Netherlands, Argentina and China.

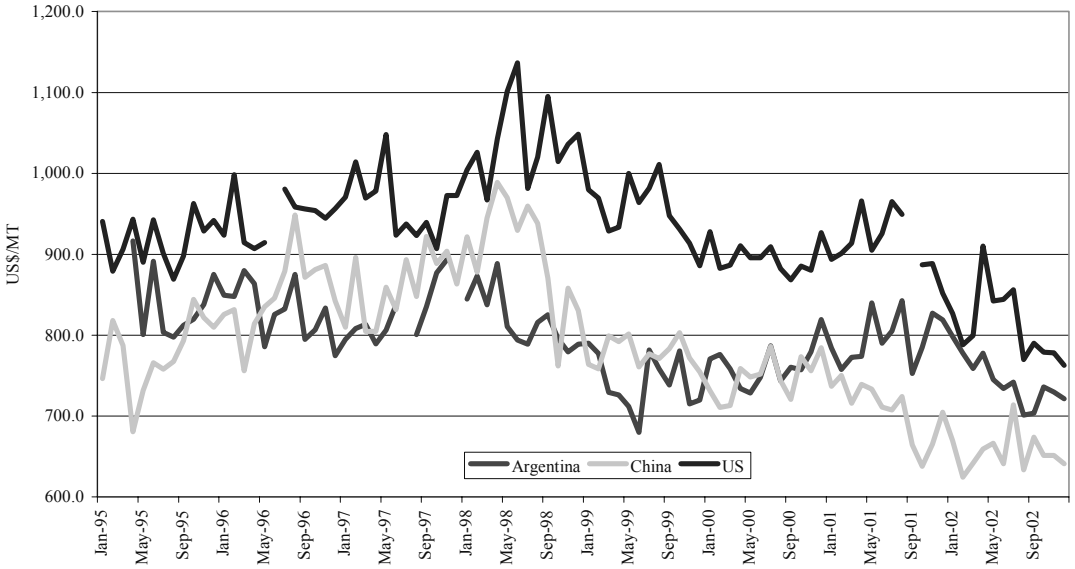

Figure 1. Netherlands, Import unitvalues from Argentina, China and US 1995 - 2002
Source: Eurostat

For the period 1995-2002, the unit values indicate that on average, US groundnut exporters receive a premium of 136 US$ per metric ton (with a coefficient of variation of 51.9 percent) with respect to Argentine exporters and 147 US$ per metric ton (with a coefficient of variation of 39.5 percent) with respect to Chinese exporters.

Table 1. Comparison between import unit values and Aldebaran Commodities prices

	Argentina	China	US	Brazil	South Africa	Sudan
Unit Values						
2001	795.8	707.3	913.2	701.5	787.4	579.8
2002	743.7	655.6	812.2	641.5	652.8	497.8
Aldebaran Commodities 1/						
2001	786.3	735.0	826.7	785.0	823.3	n.a.
2002	712.5	673.8	787.5	696.3	780.0	n.a.

Source: Eurostat and Aldebaran Commodities.
Note: n.a. denotes "not available"
1/ Only 40/50 size

To perform the hedonic analysis data from the price lists of Aldebaran Commodities [1], a major trader of groundnuts in Rotterdam were used. However, this analysis is not without problems

since the prices reported in the price lists are sale prices and not the prices paid for the groundnuts. In this sense, we are going to assume that the differences in prices illustrated in the price list also reflect the differences in prices paid for groundnuts from different origins. In other words, if, for instance, the price list indicates that the US groundnut price in Rotterdam is higher than the price of Argentine prices in Rotterdam, it means that a higher price is paid for US groundnuts than for Argentine groundnuts. Although not perfect, due to the aggregation problem, an idea can be derived regarding this issue by comparing Aldebaran data with the unit values. Table 1 presents such a comparison.

Two aspects are worth observing in table 1. First, Aldebaran prices are similar to the unit values, and both sets of prices decreased from 2001 to 2002, thereby indicating that Aldebaran prices and the unit values are associated. However, a consistent pattern of comparison could not be found. Therefore in some cases Aldebaran prices are higher than the unit values, while in others the situation is just the opposite. The second aspect is that in both sets of prices, US groundnuts convey higher prices than those of groundnuts from other origins. The third aspect shown in the table is that the US prices are higher than the Argentine prices, and these are higher than the Chinese ones. The fourth aspect is that, if we include Brazil and South Africa, both sets produce different price rankings, basically because Aldebaran data show higher prices for groundnuts from these two origins than the unit values.

The hedonic price model to be estimated consists of the following linear equation:

$$P_i = \beta_0 + \beta_1 Z_1 + \beta_2 Z_2 + \beta_3 Z_3 + \beta_4 Z_4 + \beta_5 Z_5 + \beta_6 Z_6 + \beta_7 Z_7 + \beta_8 Z_8 + \beta_9 Z_9 \quad (9)$$

Where:

P_i = Price in US$/MT of the i-th type of groundnuts

β_0 = Intercept

Z_1 = Dummy (Argentine=1, otherwise=0)

Z_2 = Dummy (Chinese=1, otherwise=0)

Z_3 = Dummy (South Africa=1, otherwise=0)

Z_4 = Dummy (Brazil=1, otherwise=0)

Z_5 = Dummy (Sudan=1, otherwise=0)

Z_6 = Size (38/42 size equal to 0 and increasing with smaller sizes)

Z_7 = Dummy (Runner=1, otherwise=0)

Z_8 = Dummy (Blanched=1, otherwise=0)

Z_9 = Dummy (Split=1, otherwise=0)

The explanatory variables can be divided into two groups: observable characteristics and country of origin. The two main observable characteristics for groundnuts are variety and size. Regarding groundnut varieties, a dummy variable was created to differentiate Runners from the other varieties. This was done not only because Runners is the variety that receives the highest prices among groundnuts but also in order to maintain the degrees of freedom given the limited size of the sample. The variable size was converted to a discrete variable by considering the 38/42 size equal to 0 and considering a ranking of the sizes. Other observable characteristics considered were whether the groundnuts were blanched or split. They have to be considered in the explanation of prices because they are a transformation of the raw shelled groundnuts.

The country of origin was introduced by means of intercept dummies. Dummies were included according to whether the groundnuts came from Argentina, Brazil, China, South Africa, and Sudan. Therefore, the intercept (i.e., holding all the country variables equal to zero) represents the US price. An important characteristic from the database is that the trader directly purchases from the countries (i.e., direct exports) and not from other traders.

The estimated hedonic equations are presented in tables 2a and 2b. While 2a presents estimates using a linear equation, table 2b uses a semi-logarithmic equation (continuous variables are in logarithms while dummy variables take zero and one values). Both tables present four equations: two equations for 2001 prices and two for 2002 prices. The hedonic regressions are not estimated by considering both years together (i.e., as a panel data regression) because it allows one to observe the effect of changes in supply/demand on the price of the attributes.

The difference between the equations for each year is the variable "stocks" that were included in order to control for the case when the level of stock on hand has some effect on the price. This occurs in the case where the trader decides to reduce the price of the groundnuts in order to reduce his stocks. All the estimations were carried by OLS and considering White's heteroskedasticity consistent covariance, to correct possible problems in the estimation of the variance covariance matrix due to the use of cross section data.

If one exporting country is considered more reliable than others, then the groundnut prices for that specific origin should show a price premium with respect to other origins considered not so reliable, after taking into account the observable characteristics of the groundnuts. Certainly, this is a crude way to test premiums due to reliability since the observed price premium between countries may have other plausible explanations. For instance, even if not explicit, the country of origin may convey higher standards of grading and uniformity of groundnut shipments [17]. This may be the case, for instance, of China, whose exported groundnuts have recurrently shown the presence of Aflatoxin (i.e., a toxic metabolite produced by certain fungi in/on foods and feeds and which is known to cause cancer in animals), however, this not the case of Argentina's groundnuts.

Overall, the combination of country of origin and characteristics explains a substantial share of the observed price variation. The R2 coefficients in the regressions range from 0.71 to 0.90, and the F-statistics show that all the regressions are significant at 5 percent.

Since we are accounting for all the groundnut origins, the intercept represents the price of US groundnuts size 38/42, and the dummy variables represent premiums (if the sign is positive) or discounts (if the sign is negative) with respect to the US price. US groundnuts receive a premium with respect to the Argentine, Chinese, and Brazilian groundnuts. With respect to the Argentine groundnuts, the US premium went from US$ 231 per Metric Ton in 2001 to US$ 45 per Metric Ton in 2002. This premium range is similar to that of Brazil, which ranged from US$ 143 per Metric Ton in 2001 to US$ 44 in 2002. With respect to the Chinese groundnuts, the US premium went from US$ 200 per Metric Ton in 2001 to US$ 158 per Metric Ton in 2002. With respect to the price of groundnuts from African countries (South Africa and Sudan), US groundnuts seem to carry a premium, although the premium is not statistically different from zero.

In addition, it is interesting to note that the regressions reject the hypothesis that the premiums are constant over time. They do change indicating that the premium may be affected by variations in the relative supply of each groundnut origin. Similar evidence (i.e., change in premiums/discounts) was found by Veeman [17] for the case of wheat, a situation that she attributed to structural change. However, in the case of groundnuts there is no reason (and not enough data) to attribute the observed variation in premiums to a structural change.

From the groundnut observable characteristics variables, size and blanched are significant in explaining differences in prices. An increase in the size variable (i.e., a decrease in the groundnut size) implies a decrease in the groundnut price by US$ 14 per Metric Ton in year 2001 and by US$ 16 per Metric Ton in year 2002. In addition, when blanched, the groundnut price increased by US$ 87 per Metric Ton in year 2001 and US$ 157 per Metric Ton in year 2002.

Table 2a. Hedonic regression analysis - Linear regression
Dependent variable: Shelled groundnut price

Equation	Year	Estimated coefficients and t-statistics											Adjusted	F
		Intercept	Argentina	China	South Africa	Brazil	Sudan	Size	Runner	Blanched	Split	Crop	Stock	R^2	statistic 1/
1	**2002**	792.68	-42.07	-139.74	-13.93	-58.35		-16.44	11.98	157.13	-36.54			0.89	33.6
		(16.22)	(-1.66)	(-2.92)	(-0.29)	(-2.32)		(-2.40)	(-0.27)	(8.36)	(-0.81)				
2	**2002**	789.18	-41.69	-139.81	-12.88	-58.15		-16.50	12.25	157.86	-39.01		0.10	0.89	28.6
		(14.18)	(-1.60)	(-2.85)	(-0.26)	(-2.26)		(-2.34)	(0.27)	(7.95)	(-0.79)		(0.14)		
3	**2001**	905.09	-231.39	-200.54	-39.57	-143.61	-48.78	-24.66	77.13	104.87		-9.83		0.75	15.2
		(12.6)	(-5.30)	(-3.01)	(-0.53)	(-3.33)	(-0.59)	(-2.59)	(1.36)	(3.34)		(-0.38)			
4	**2001**	950.20	-222.08	-173.40	-7.14	-141.02	-57.22	-14.15	105.30	87.91		-30.92	-0.002	0.82	19.7
		(15.16)	(-5.89)	(-2.99)	(-0.11)	(-3.80)	(-0.81)	(-1.62)	(2.13)	(3.20)		(-1.35)	(-3.54)		

Source: Aldebaran commodities price lists 2001 and 2002.
Note: 1/ All the F-statistics are significant at 5 percent.

Table 2b. Hedonic regression analysis - Logarithmic regression
Dependent variable: Shelled groundnut price

Equation	Year	Estimated coefficients and t-statistics											Adjusted	F
		Intercept	Argentina	China	South Africa	Brazil	Sudan	Size	Runner	Blanched	Split	Crop	Stock	R^2	statistic 1/
1	**2002**	6.70	-0.06	-0.23	-0.04	-0.08		-0.02	-0.01	0.19	-0.06			0.90	27.2
		(152.79)	(-1.56)	(-5.47)	(-1.03)	(-2.49)		(-2.25)	(-0.14)	(6.82)	(-0.84)				
2	**2002**	6.67	-0.05	-0.22	-0.04	-0.08		-0.02	-0.01	0.19	-0.06		0.01	0.90	23.3
		(59.87)	(-1.50)	(-5.37)	(-0.92)	(-2.41)		(-2.21)	(-0.12)	(6.60)	(-0.86)		(0.26)		
3	**2001**	6.80	-0.27	-0.24	-0.03	-0.15	-0.03	-0.03	0.10	0.11		-0.02		0.71	12.4
		(69.87)	(-5.30)	(-3.01)	(-0.53)	(-3.33)	(-0.30)	(-2.61)	(1.31)	(2.64)		(-0.68)			
4	**2001**	7.81	-0.26	-0.20	0.01	-0.15	-0.03	-0.02	0.14	0.08		-0.04	-0.101	0.78	15.7
		(24.73)	(-4.90)	(-2.53)	(-0.14)	(-2.97)	(-0.35)	(-1.69)	(2.02)	(2.13)		(-0.38)	(-3.32)		

Source: Aldebaran commodities price lists 2001 and 2002.
Note: 1/ All the F-statistics are significant at 5 percent.

With respect to the groundnut variety, Runner variety seems to carry a premium with respect to the other varieties. However, this result is not robust since it was observed only for the year 2001 regressions, where the premium is equal to US$ 77 per Metric Ton. Similarly, the effect of the stock on hand to the groundnut price was found statistically significant only in the 2001 sample, showing an elasticity equal to -0.1.

5. Conclusions

Estimated coefficients show that groundnuts country of origin is an important variable in explaining groundnut prices, even when taking into account the observable characteristics of the groundnuts marketed. This result allows us to propose that perceived reliability may be an important component of the observed groundnut price, and suspicion of lack of reliability may imply a discount on the paid price for groundnuts.

The data show a price premium for US groundnuts with respect to groundnuts from other origins. However, it is important to point out two issues: first, due to the lack of appropriate data this is a crude test of reliability, since the variable "country of origin", may also give information about issues such as the quality of the country's grading system or uniformity of the shipments. Second, by comparing the two samples, it is clear that premiums/discounts are not constant but they may differ with other factors such as the relative availability of groundnuts from each origin.

The implications of the results are interesting, especially for developing countries competing to gain market access to commodity markets. This normally occurs in developed countries, since these markets suggest that part of the observed price premium may be explained by the importer's perception about the supplier's reliability. Thus, building a reputation for the product may be a slow process consisting not only of producing the right quality but also of modifying the importer's perception of the supplier's reliability.

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