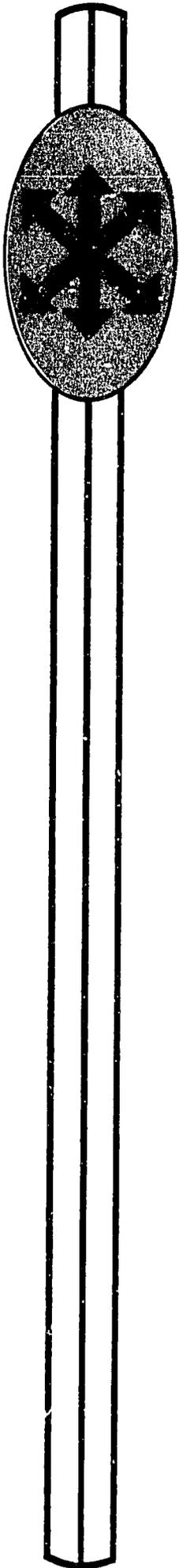


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MARKET FAILURE AMONG SMALL SCALE FARMERS:

The Causes and Implications

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EXECUTIVE SUMMARY

There is widespread belief that small scale farmers in LDC's are systematically exploited by middlemen, although prior research has not validated this hypothesis. This study was designed to analyze the previously unexplored effect producers' preferences might have on farm prices for red beans (*Phaseolus vulgaris*) in the Dominican Republic.

The preference-inducing factors which cannot be duplicated by all buyers were of primary concern; these include tied purchase arrangements, provision of productive resources, consumer goods including groceries, access to additional income, political power, kinship, custom and philosophical advocacy. The effect of additional factors such as frequency of purchase, transfer costs, size of transaction, farmer's wealth, production credit, terms of sale, product quality, and weight manipulation was also analyzed. A statistically representative sample of red bean production for the 1981-82 crop was drawn, producing a total of 845 transactions.

Econometric analysis revealed that when adjustments for quality, consumer preferences and transport costs are made, only the quantity marketed, habitual sales to the same buyer, and local political power of the farm family significantly affect the farm-wholesale price margin. Of equal significance is the lack of any perceptible influence based upon the provision of groceries, kinship,

wealth, tied purchase or weight manipulation. Equally disconfirmed due to their infrequency of occurrence are such factors as provision of productive resources, access to additional income, advocacy of cooperatives, provision of production credit and terms of sale.

Additional analysis indicated that although farmers may express a sense of obligation to middlemen who are kin or sell them groceries, and where a reservation price may be elicited with respect to sale of their crop to an alternative buyer, in fact, their actions revealed such expressions to be meaningless.

Policy implications drawn from this study indicate great care must be taken in evaluating marketing studies based upon insufficient quantitative evidence. There is no indication small scale bean producers in the Dominican Republic are systematically exploited by middlemen. However, individual producers could conceivably enhance their marketing position by bulking their crop into larger lots, exploring the potential for sale to non-traditional buyers, or increasing their local political influence.

BREVE RESUMEN

Existe la creencia muy difundida de que los pequeños agricultores de los países menos desarrollados son explotados sistemáticamente por los intermediarios, pese a que las investigaciones previas no confirman esta hipótesis. El presente estudio fue concebido con el propósito de analizar el efecto que las preferencias de los productores en lo que respecta a elección de intermediario pudieran tener sobre el precio de las habichuelas rojas (*Phaseolus vulgaris*) en la República Dominicana, aspecto éste que no se había estudiado anteriormente.

Los factores peculiares a cada comprador determinantes de dicha preferencia fueron motivo de interés principal. Entre estos se incluyen los siguientes: arreglos de compras vinculadas, suministro de recursos productivos, bienes de consumo (incluidos los comestibles), acceso a un ingreso adicional, poder político, parentesco, costumbres e ideas filosóficas. Se analizó, asimismo, el efecto de factores adicionales tales como frecuencia de las compras, costo de traslados, magnitud de las transacciones, situación económica del agricultor, crédito aplicado a la producción, condiciones de las ventas, calidad del producto y falsificación del peso. Se obtuvo una muestra estadística de 845 transacciones, representativa de la cosecha de habichuelas rojas de 1981-82.

El análisis econométrico reveló que cuando se hacen ajustes sobre calidad, preferencias del consumidor y gastos de transporte, solamente la cantidad comercializada, las ventas habituales al mismo comprador y el poder político local de la familia del agricultor afectan considerablemente el margen de precios al por mayor del producto agrícola. Igualmente significativa es la falta de influencia perceptible basada en el suministro de comestibles, parentesco, situación económica, compras vinculadas o falsificación del peso. Debido a la infrecuencia de la incidencia, no se confirmaron como significativos factores tales como el suministro de recursos productivos, el acceso a ingresos adicionales, la creencia en el régimen cooperativo, el suministro de crédito aplicado a la producción y las condiciones de ventas.

Un análisis adicional señaló que aunque los agricultores manifestaron un sentido de obligación hacia el intermediario pariente o proveedor suyo de comestibles, y expresaron un precio de reserva con respecto a la venta de sus cosechas a otro comprador, lo cierto es que su forma de actuar indica que ese sentido de obligación no tenía ningún peso.

Las deducciones sobre política que se pueden extraer de este estudio indican que se deben evaluar con sumo cuidado los análisis de mercado basados en insuficientes datos cuantitativos. No existen pruebas de que los pequeños productores de

habichuelas de la República Dominicana están siendo explotados sistemáticamente por los intermediarios. Sin embargo, los productores individuales podrían mejorar su situación con respecto a la comercialización de sus productos, aunando sus cosechas en lotes de mayor tamaño, estudiando el potencial de ventas a compradores no tradicionales o aumentando su influencia política local.

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I. INTRODUCTION

The Problem

The belief that an unfair advantage accrues to the person who assembles the goods for later resale is probably as old as commercialized food production. While most modern men would not begrudge the "middleman" his payment for actual services rendered (be they in the form, place or time transformation of the goods thus assembled and resold), there remains an almost universal suspicion that unfair or unjust profits accrue to the individuals, firms and industries engaged in such activities.

Economic theory indicates that constraints to entry combined with formal or informal collusion are the major cause of imperfect markets. Entry, in turn, may be limited by capital constraints, scale economies, franchises, patents, and limited access to information and knowledge. None of these conditions generally appear to apply to the agricultural markets in the lesser developed countries. Moreover, the application of the theories of monopolistic and imperfect competition which predict and explain the existence of unfair (monopolistic) profits to the markets utilized by small scale farmers in the developing countries (LDC's) has not revealed that systematic exploitation is endemic. The belief persists, nevertheless in almost all of these countries that the farmer is exploited by the middleman, particularly so the small scale farmer. In the Dominican Republic, operational plans within the Secretariat of Agriculture (CENSERI's) and the operation of governmental institutions in the marketplace (INESPRE) provide evidence that policy decisions are based upon a perception of widespread exploitation (SEA 1981b).

However, another constraint to entry frequently mentioned in the theoretical literature has not been tested in the LDC's; the effect of

producers' preferences and loyalties for certain middlemen (buyers) because of the economic, social or political power wielded by the middlemen. And increasingly, economists have begun to question whether research methodologies such as the structure-conduct-performance paradigm and analyses of aggregate price differentials between markets are appropriate to or revealing of the kinds of market inequities perceived by LDC users and policy makers (Riley and Weber, Smith, Harriss).

Objectives

This study examines the interface between small scale farmers and marketing intermediaries in an LDC setting to determine the existence, frequency, source and impacts of farmers' preferences for particular buyers or intermediaries. These preferences are hypothesized to be of two types:

- a) those created by services provided by the buyer at the time of purchase of the commodity and directly associated with this transaction, and
- b) those created by the provision of services and existence of inter-personal relationships that are independent of the particular transaction, but which impact upon the terms of sale.

Examples of the first type include timeliness and form of payment, provision of product transport from farm to market, and of credit. Examples of non-transaction services and relationships which may impact upon the terms of sale include kinship, political favor, social obligation, and the provision of groceries and/or inputs on credit by the intermediary.

Hypotheses

Because LDC agricultural markets are characterized by substantial freedom of entry and exit, large numbers of buyers and sellers, and homogeneous products, it is hypothesized that the difference between the competitive price and the price of a buyer who has differentiated his services is small. In economic terms, buyers in these markets can establish limited market differentiation only as a result of the provision of the aforementioned services. Prices will approach or approximate those of a purely competitive market after allowances are made for the costs of providing any added services. This price may be termed the "market differentiated price".

It is the second source of preferences, those not directly related to the sale, which could create the opportunity for substantial price advantage to the buyer. These preferences are derived from characteristics unique to the individual buyer-seller relationship such as social position, political power, kinship and other factors which cannot be reproduced by competitors. Preferences derived from these sources may depress sale prices below competitive prices and below the prices available to the farmer from other buyers. The price of goods exchanged under these circumstances, herein designated the "social preference price", may be substantially lower than both the competitive price and the market differentiated price.

Thus, it is suggested that a hierarchy of prices exists at the first level of transaction between producer and middleman composed of a:

- a) competitive price - a price consistent with a purely competitive market which incorporates the cost of all services at their opportunity cost and which permits only normal profits,

- b) market differentiated price - a slightly lower price permitted middlemen who have differentiated themselves from their competitors by providing that package of transaction-related services most desired by the farmer, and a
- c) social preference price - a substantially lower price permitted those middlemen who possess unique social, political or other relationships with their clientele.

This study tests the following hypotheses:

- a) a hierarchy of prices (described above) exists in small farmer agricultural markets in the Dominican Republic;
- b) in the presence of such a hierarchy, the small scale farmer is more likely to receive the social preference price, i.e. the lowest price;
- c) a differential exists between the social preference price and the market differentiated price which if exceeded, will induce the farmer to seek an alternative buyer for his product, and this differential (premium) varies inversely with the scale of the farm operation.

Selection of Research Area

The decision to conduct this research project in the Dominican Republic was based on several factors:

- a) the country is representative of many of those which are customarily lumped together for analytical purposes as "lesser developed

countries". While there is much debate with respect to the precise interpretation of such terminology, it is not an issue which shall be decided here.

- b) decision makers with the Dominican Republic and the analysts who provide them with information are currently involved in a process which will determine the nations ability to adjust its agricultural and food marketing structure to the increasing demands placed upon it by the burgeoning urban population and apparent inability to increase the production of locally consumed foodstuffs. Thus, the project is both timely and germane to the needs of the country where it has been under-taken.
- c) the literature describing small farmer marketing in the Dominican Republic alludes to the presence of producers' preferences for particular buyers. Although these preferences were described in case studies for apparently isolated areas, there is evidence that policy decision makers have interpreted their influence at a national level and have based market development investments at least partially upon such interpretations.

II. ANALYTICAL PROCEDURE

The economic relationships which have been hypothesized may be written as an equation in a model which describes the nature of the posited relationships. The model may then be tested using multiple regression analysis by fitting empirical data to the specified model.

In their most elementary form, the hypotheses suggest a model which may be specified as:

$$P_f = f(M, S, F)$$

where P_f = the farm level price of a given crop in \$/unit, at which the farmer sold his product,

M = a set of variables representing the market transaction related services provided by the first buyer of the farmer's product,

S = a set of variables representing the preference inducing factors which link the first buyer to a particular farmer,

F = a set of variables representing the wealth of the individual farmer relative to other farmers in his immediate market area.

Market Transaction Related Variables

To the degree buyers have differentiated themselves from each other by providing transaction related services (category M) to their clientele, the model may be used to estimate the degree to which the price paid for a comparable product in a given market at a specific time reflects the provision of a given service or set of services. Listed below are the variables representing transaction related services and a specification of their measure.

Transfer from farm to market

Some measure of the cost incurred by the middleman for transferring the product to the central terminal market from the collection point is required in order to estimate the amount by which the price to the producer is discounted locally to allow for the recovery of this expense by the middleman. This suggests a model in which transfer and farm accessibility costs may be specified as:

$$X_1 = T_{fk} + T_{km} = T_{fk} + D_{km}/V$$

where X_1 = time required to transport crop from farm to central terminal market

T_{fk} = time required to transport crop from farm f to nearest town k located on a hard-surfaced road,

T_{km} = time required to transport crop on hard-surfaced road from town k to central market m ,

D_{km} = distance between town k and central market m ,

V = average velocity for trucks on highways.

As the time and therefore the cost of transferring the product from farm to market increases, the price offered locally to the farmer would be expected to decrease.

Timeliness or frequency of purchase

The frequency or regularity of a scheduled purchase may represent a significant marketing service provided to the farmer by the intermediary, especially in the case of perishable commodities. For example, the risk associated with spoilage is greatly reduced among plantain producers in the Dominican Republic by cutting and assembling at the roadside a prescribed quantity of the product on a set day each month which has been pre-arranged with a buyer (Murray 1976, p. 42).

A rough measure on this variable would be to question each farmer whether in fact his sales are pre-scheduled and for those answering affirmatively, determine the frequency of scheduled purchases per month. It is assumed that such an arrangement represents an additional cost to the buyer, or a service of such importance to the producer that the middleman may transfer the cost of the service to the farmer in the form of a slightly lower price.

A second reason affecting the farmer's preference for a buyer who

provides a scheduled, timely purchase would be the cash needs of the farmer. For those producers short of cash or relatively unable to secure credit to cover recurring expenses, the guarantee of a regular cash income upon which they can depend might induce them to take a lower price. A variable to account for this effect may be specified, such that:

X_2 = frequency of scheduled purchase per month by the buyer.

As the frequency of scheduled purchases increases, the price offered locally to the farmer by an intermediary providing this service would be expected to decline.

Cash advance

Pre-harvest credit in the form of a cash advance on the expected receipts for his crop has long been recognized as a factor tying the farmer to particular intermediary (Abbott, Wharton). Murray (1976) reported cases where no interest was charged on cash advance payments to farmers who subsequently sold their crop to the buyer who provided the advance. However in the event of sale to an alternative buyer, the farmer was expected to repay the cash advance to the original money-lending middleman. with an additional interest charge. It is probably reasonable to assume that a major source of risk for the buyer is the farmer's inability to produce sufficient quantity of the product to cover the advance payment. Thus, the size of the loan in relation to total output may be considered an important determinant of risk. Advance payments that are small in proportion to the expected crop revenues may be considered less risky than loans which are large in relation to the expected crop revenues, indicating a non-linear relationship may exist between credit and expected sale value. Specification of these relationships

may be written as:

$$X_3 = \frac{A(A)^2 + A(1 + i_m + i_p)^t}{(E(R))}$$

where X_3 = cost to buyer of cash advance,

A = amount of cash advance,

$E(R) = P_{t-1}(Y \times H)$

P_{t-1} = previous year's price

Y = average yield,

H = area planted,

i_m = interest rate per unit of time t , i.e. the opportunity cost of capital,

i_p = interest rate charged.

This formulation would have the effect of doubling the cost if the cash advance were equal to the expected revenue. For example, if (A) were equal to .25 of the $E(R)$, then it would add .0625 (A) to the cost. The provision of a cash advance is assumed to have a depressing effect upon the price offered to the farmer for his crop.

Terms of sale

Depending upon the crop and region within the country, the buyer may only partially pay for the product at the farm gate purchase point, delaying final payment until it has been sold in the central market. By delaying total payment for the crop, the purchaser is in effect obtaining a short-term loan from the producer. Since a substantial drop in the central market price might occur during transfer of the product from the farm (due to supply/demand conditions and/or a reduction in product quality or weight), the buyer may also wish to reduce his risk by leaving the final price to the

farmer indeterminate, pending sale of the crop at the central market.

Such arrangements do not in themselves imply a lower or higher price offer to the farmer. But where such arrangements are customary, the farmer who elects to receive a total cash payment at the farm gate may be required (or willing) to discount the per-unit price of his produce in order to forego the risk involved in partial payment and/or an indeterminate final price pending sale in the central market.

A measure of the terms of sale governing the transaction between a particular buyer and farmer could be specified using dummy variables, such that:

$X_4 = 1$, where partial payment is received for the crop,

= 0, where full payment is received for the crop;

$X_5 = 1$, where final price to be paid for the crop is undetermined pending sale by the middleman in the central market,

= 0, where final price for the crop is determined at the moment of the transaction between the farmer and buyer.

This specification allows for the distinction of three categories in the terms of sale:

- 1) where a "loan is made to the cash poor middleman by the farmer in the form of his crop, and the risk of unfavorable market conditions is shared between buyer and seller,
- 2) where only the loan is made to the cash poor middleman, and
- 3) where neither a loan is made nor risk assumed by the producer.

It is hypothesized that these conditions will have an increasingly depressing effect upon the price received by the farmer as one moves from category 1 to

3.

Product quality

It has been assumed to this point that product quality is uniform. This may represent a valid assumption where little or no grading standards exist at the farm level of where no distinction for product quality is made at the point of sale between the middleman and central market wholesaler.

In fact, many buyers make a judgement with respect to product quality, even though the basis for such judgements may appear unsophisticated by U.S. standards. The quality and moisture content of certain grains are estimated visually and by using a bite test in the Dominican Republic. The sound made when corn or red beans are shaken softly in ones hands may have a significant impact upon the price offered by the middleman. Visual inspection may be used to measure the percentage of foreign matter such as soil, stones, husk, and stalk (SEA 1977, Wharton, Murray 1974).

As an alternative, a volume or weight discount may be used to account for variation in quality or weight-loss in transit. In Ecuador, for example, the buyer pays for 100 lb. sacks of potatoes at the farm gate, but insists that each sack be filled to overflowing, thus providing him with 30 to 50 extra pounds per sack (Wiegand 1975). Product quality may also be implied by geographic origin, where producers in a particular region may have differentiated their product in some way, allowing them to exact a higher price (Murray 1974). Thus, a measure of product quality may be specified such that:

$$Q = F(G, R, W)$$

where Q = a measure of quality of product sold by the farmer,

G = a particular grade level,

R = a regional discount based upon the origin of the product and the historic discount associated with that region,

W = a weight or volume premium extracted by the intermediary, based upon the difference between the actual weight or volume of each unit sold and the weight or volume paid for.

Assuming that it is local custom to visually grade the product into three categories, and that five distinct regional premiums characterize the national market, then product quality may be designated by 6 dummy variables. This specification assumes also that a given farmer sells only one homogeneous grade of product, that discounts for a given grade category are the same throughout the country, and that grade levels are well dispersed throughout the country.

To account for the difference in the three grade levels, two dummy variables may be specified, whereby:

$X_6 = 0$, for Grade A
= 1, for grade B,

$X_7 = 0$, for some grade other than Grade C,
= 1, for grade C

To account for five regional premiums, four dummy variables can be constructed, such that:

$X_8 = 0$, for product originating in Region E,
= 1, for product originating in Region A,

$X_9 = 0$, for product originating in region other than B,
= 1, for product originating in Region B,

$X_{10} = 0$, for product originating in region other than C,

= 1, for product originating in Region C,

$X_{11} = 0$, for product originating in region other than D,

= 1, for product originating in Region D.

To account for the potential for weight manipulation, a variable may be constructed such that:

$X_{12} = 0$, where sale weight and price quotation weight are in same units,

= 1, where they are different, thus providing a situation in which weight confusion and manipulation might occur.

Preference Inducing Factors

It has been hypothesized that a substantially lower price is extracted by those middlemen who exercise unique social, political, or other powers which allow them to establish a preferred relationship with their clientele. The set of variables representing the preference inducing factors (designated S in the model) which account for the difference between a market differentiated price and a substantially lower, preferred-buyer price are described below.

These variables reflect the impact of conditions or factors which are not part of the immediate transaction, but which may affect the price received by the farmer due to their influence upon the relationship established between the farmer and a particular buyer. They represent unique characteristics which may not be duplicated by other intermediaries.

Tied purchase

Tied purchase, or the understanding that purchase of crop A will assure the sale of crop B could be included among the first set of variables listed

above, except that no explicit cost accrues to the buyer for providing such assurances. A measure of the significance of such an arrangement would be to question the farmer whether, in fact, the sale of his crop to middleman A implies that this same buyer will purchase crop B. This variable may be specified as

$X_{13} = 1$, where sale of crop A to buyer A implies his purchase of crop B,
= 0, where it does not.

It might be assumed that the impact upon the price offered for crop A is negative, i.e. that the advantage of a guaranteed outlet for other crops would induce the farmer to accept a lower price for product A. A similar effect might occur in the case of a perishable for which adequate storage or transport facilities are limited. However, the impact could conceivably be the opposite, where the buyer offers a slightly higher price for crop A in order to guarantee access to crop B, especially when a shortfall in production of crop B is anticipated.

Access to productive resources

Here again we are faced with the provision of a service which, if defined with sufficient precision, may not be duplicated by every middleman. It may be assumed that some buyers enjoy local access to productive resources, such as land, machinery, animal power, water for irrigation, and who own sufficient quantities of inputs such as fertilizer, pesticide, seed, etc., that can be made available to (or withheld from) their client farmers. Wharton refers to these intermediaries in his triad of marketing types as merchandisers (although his reference was primarily to their provision of consumer goods).

The incidence of the provision of productive resources by the middleman

can be easily determined by questioning each farmer. However, attaching a value to the provision of (or access to) the resources (which is distinct from the value of the input dummies themselves) is more difficult. Thus dummy variables may be specified for the provision of productive resources (or access to them), such that:

$X_{14} = 0$, where no productive resources are provided,
= 1, where fertilizer or access to it is provided,

$X_{15} = 0$, where none are provided,
= 1, where pesticide or access to it is provided,

$X_{16} = 0$, where none are provided,
= 1, where seed or access to it is provided,

$X_{17} = 0$, where none are provided,
= 1, where machine or animal power or access are provided,

$X_{18} = 0$, where none are provided,
= 1, where land or access to it is provided,

$X_{19} = 0$, where none are provided,
= 1, where irrigation water or access is provided.

Consumer goods

The provision of consumer goods, especially daily food requirements at the local rural grocery store, has been amply cited as one of the dilemmas facing the small scale farmer (Murray 1976, Werge, Wharton). Where the intermediary or his family are the owners of a local grocery, a degree of power may be exercised by such an intermediary in the purchase of crops from

those farmers who patronize his store (as reported by Murray)

Such an arrangement could not be easily duplicated by other buyers and its frequency of incidence can be easily verified by specifying a dummy variable, such that:

$X_{20} = 1$, where the farmer purchases food from the grocery store of the intermediary (or his family) who buys the farmer's crop,

$= 0$, where he does not.

It is hypothesized that such a relationship would allow the buyer to pay a lower price to his client farmer.

Additional income

Where the buyer also provides the farmer with access to additional income (e.g. seasonal employment), the farmer might be more inclined to sell his crop to this particular buyer, and also at a lower price. Thus, the provision of access to additional income may differentiate the buyer from alternative intermediaries, allowing him to establish a preferred status among local farmers, while at the same time providing him the opportunity to purchase the farmer's crop at a lower price.

The provision of this kind of "service" could be specified as:

$X_{21} = DW$

where D = days employed off his own farm by an intermediary,

W = local day-labor wage rate.

Political power

The inter-relationships between politics and commerce are so apparent as to sometimes be ignored in marketing studies. Political favor in a developing country provides many of the same benefits as in the most

industrialized nations, but the greater lack of resources in an LDC may allow such benefits to attain a higher level of significance. Given a choice of buyers to whom he may sell his crop, it is not unlikely that a small scale farmer will choose to release his crop to a buyer (or his family) who wields local political power and the flow of benefits derived thereof. But the exact nature of the relationship is difficult to specify, and one could imagine situations where the relative degree of political status between the parties involved would determine the outcome or impact of their transaction. In other words, it may be just as advantageous to the buyer to seek out farmers who wield some political power.

A measure of the political power exercised by the intermediary would be assumed to decline as his proximity to such power becomes more distant. In the event a farmer sells his crop to a politically powerful buyer, a scale measure of that power may be posited, whereby:

$$X_{22} = K_b - K_f$$

where K_b , K_f = a factor representing the political power of the buyer (b) and the farmer (f), where either is equal to:

- 0 = no political connections,
- 1 = distant relative of regionally elected official,
- 2 = distant relative of locally elected official,
- 3 = immediate family of regionally elected official,
- 4 = immediate family of locally elected official,
- 5 = is a regionally elected official,
- 6 = is a locally elected official;

and where "elected" may in fact imply appointed by the next higher political entity, or may represent membership in the country's rural constabulary, police, national guard or other entity charged with maintaining law and

order.

It is hypothesized that a negative influence on the farm level price characterizes the situation where the intermediary enjoys a relative degree of political power.

Kinship

A sense of social obligation which carries over to the economic aspects of village life has been identified by Werge in his description of living patterns in a remote, mountain village in the Dominican Republic. The essence of the obligation is captured in the Spanish folk homily, "Hoy para ti, manana para mi", which translates literally as "Today for you, tomorrow for me". The economic and social interdependence of extended families in traditional cultures has been amply documented. Sharpe described similar sentiments among coffee growers in his 1977 study of peasant politics among Dominican highlanders. However, Jones' study of market imperfections, cited in Eicher and Baker's review of African development research (p.186), concluded there were "few signs that family ties impair functioning of markets".

Given the apparent presence of such relationships in the Dominican context, an attempt has been made to measure their significance. The effect of such living patterns may impact upon the sale of farm products even where the buyer establishes a ritual kinship relationship such as "compadrazco" (literally, co-parenthood), whereby a person becomes the godparent of a friend's or relative's child, thus binding the adults through special socio-economic and religious obligations.

It is hypothesized that the existence of such kinship relations may carry a negative influence on the price offered the farmer by the

intermediary with whom such a relationship exists, although the influence may be of the opposite direction. Such relationships are certainly not easily duplicated by all intermediaries on an individual basis. The effect may be specified using a dummy variable, whereby:

$X_{23} = 1$, where the farmer sells his product to kin,

$= 0$, where sale is transacted with someone other than kin.

Habitualness

To the degree farmers are unaware of alternative sales arrangements or are unknowledgeable of alternative buyers for their crop, habitual dependence upon one buyer may have a negative effect on the price they receive for their crop (Shepherd, cited in Nicholls, p.200). Dependence upon long term arrangements may represent a lack of information (which may imply a high cost for securing same), or simply a lack of desire to explore new possibilities.

Habitual sales arrangements could be assumed a function of the farmer's age, number of years for which the arrangement has been sustained, lack of awareness of alternative buyers, or lack of knowledge of alternative buyers for his crop. For the purposes of this analysis, a relative measure of the farmer's utilization of alternative buyers in his area may be specified, such that:

$$X_{24} = B_i/B'$$

where B_i = number of occasions since Hurricane David that farmer sold crop to the most recent buyer (or his family),

B' = number of occasions during same period that farmer sold his crop to all buyers

It is assumed that as the percentage of occasions sold to the same buyer

increases, the farmer is more habit-bound, and the effect on the price he receives for his product will be negative.

Advocacy

Nichols documented several cases in the U.S. where farmers chose to market their crop through a cooperative at a lower price than the prevailing farmgate price, in spite of the fact that no additional economic gain would be forthcoming. Where a farmer sells his crop to a buyer based upon mutual faith in or advocacy for a particular belief, it may be assumed the farmer would be more willing to accept a lower price for his crop. Using cooperatives as an example of such a relationship, a variable may be specified to capture the effect on the farm price offered, whereby:

$X_{25} = 1$, where the farmer sells his crop to a cooperative,
= 0, where the farmer sells his crop to some other buyer.

Effect of Farm Size or Wealth on Price

The third hypothesis suggests that the small scale farmer is more likely to receive the lowest price offered for a particular product in his market area. Therefore, a third variable, designated (F) in the farm price model, is included to estimate the effect of farm size upon the observed price offered the farmer. This criterion assumes there are no other conditions which distinguish small and larger scale farm operations other than size within the "small scale" farmer stratum. In other words, it is assumed that small scale farming is randomly dispersed within a given market area and therefore no significant additional costs are incurred by the middleman in reaching smaller scale as compared to larger scale farmers within the stratum.

A measure of the farm size and relative wealth or socio-economic status of the farmer within his community may be designated:

$$X_{26} = H_O = H_R + V_L$$

where H_O = value of farmland owned by the farmer,

H_R = value of farmland rented, sharecropped or to which the farmer has access

V_L = value of farm livestock.

A second method for testing this hypothesis would be to base the measure on size of transaction, where:

X_{27} = Quantity of product sold to intermediary.

While not an exact proxy for relative wealth, such a measure of scale effect would provide valuable additional information with respect to the relative competitive position of small scale farmers.

Selection of Target Crop

In designing the research, an initial decision was required with respect to which crops should be included. Equally convincing arguments can be made for including either all of the foodcrops or only a few representative crops, or perhaps only one. If a large number of crops were sampled, the fixed costs of the survey would be spread over a larger number of observations. But the fixed costs of the survey are small compared to variable costs associated with additional observations, thus the total cost of the survey would rise substantially with each additional crop included in the survey. Preliminary estimates indicate that a total crop survey would cost seven times more than a survey limited to one crop.

To the degree farmers' preferences for particular buyers are crop

specific (either individually or by category, i.e. perishables), or that the degree of influence is dependent upon the crop transacted, then a sample including all crops or a large number of them would guarantee that such relationships would be captured by the sampling procedure. However, the evidence of the anthropological case study previously cited indicates that farmers' preferences for particular buyers exists for a variety of crops (Murray). From this evidence it may be assumed that such preferences are socio-economic patterns not limited to any one particular crop, thus obviating the need to sample all crops in order to capture evidence of their extent and influence.

Consideration was given to all the major cash crops of Dominican farmers including yuca, plantain, tomatoes, peanuts sugarcane, sweet potatoes, onions, garlic, cocoa, coffee, tobacco, pidgeon peas, rice, corn, red beans and fruits.

Since the sampling procedure envisioned for this analysis depends upon the ability of the farmer to recall the circumstances surrounding the sale of his crop, the accuracy of his response would be enhanced if the crop were being harvested or had just been harvested at the time of the survey (January through March). Neither yuca (cassava) nor plantain fulfill this criterion (see Table 1). Furthermore, this initial analysis requires observations upon a crop for which a large proportion of the harvest is marketed through private sector middlemen. This consideration would eliminate rice, tomatoes, peanuts, sugar cane and sweet potatoes (Table 1).

Onion and garlic production is limited to a small number of farmers with two very specific geographic regions, while the number of coffee growers within the small scale farmer stratum is relatively small compared to some alternative crops. Corn is grown by a large number of small scale farmers, usually interplanted with red beans, but nearly 80% of the production is

TABLE 1 - Criteria for Crop Selection for Marketing Study in the Dominican Republic, 1981-82.

Criterion	Rice	Corn	Beans	Pidgeon Peas	Yuca
Farm Size					
Number	n.a.	5767	3854	1710	4435
% Sales		59	62	70	54
Harvest Period	n.a.	Nov-Jan	Jan-Mar	Feb-Mar	Sep-Nov
Privately Marketed					
Number	0	3530	2255	1103	2246
Percent	0	36	36	45	27
Price Variation					
Lowest	n.a.	Low	10%	n.a.	12%
Highest	n.a.	20%	36%	n.a.	29%
.....					
Criterion	Potato	Plantain	Tomato	Onion	Garlic
Farm Size					
Number	559	1416	1835	Few	Few
% Sales	91	38	93	70	80
Harvest Period	Feb-May	May-Aug	Dec-May	Dec-Apr	Mar-May
Privately Marketed					
Number	n.a.	625	197	Few	Few
Percent		17	10	80	85
Price Variation					
Lowest	12%	n.a.	23%	33%	17%
Highest	40%		45%	54%	56%

(continued)

Table 1 - (Continued)

Criterion	Peanuts	Coffee	Tobacco	Cacao
Farm Size				
Number	5085	476	1431	3699
% Sales	95	100	92	98
Harvest Period	n.a.	n.a.	n.a.	n.a.
Privately Marketed				
Number	0	214	1431	2874
Percent	0	45	92	76
Price Variation	n.a.	n.a.	n.a.	n.a.

Source: Sector Analysis, USAID, 1977)

Note: Farm size refers to number and percent of parcels of small farms, interplanted, of 8 to 79 tareas in which sales occurred. Privately marketed refers to number and percent of parcels of small farms, interplanted, of 8 to 79 tareas, on which sales to local assemblers and wholesalers occurred.

destined for poultry consumption, with the remaining 20% split between forage and human consumption. If a non-food crop were required for the analysis, corn would be a better selection than tobacco, which is planted and sold among a much lower number of small scale farmers (Table 1). Pidgeon peas (guandules) are sold primarily to processors for export although recently they are becoming more popular among Dominican consumers.

Cocoa (cacao) is a very region specific crop which grows best at a specific altitude, usually in conjunction with coffee. Among the important fruit crops, only papaya is harvested in appreciable quantities during the period of the study, but the relative quantity produced and regional extension are significantly inferior to bean production.

Red beans (*Phaseolus vulgaris*) were found to meet many of the desirable criteria for a target crop. They remain unchanged in form throughout the marketing process and harvest periods coincide with the survey recall period (November through May). They are grown primarily by small scale farmers who market the bulk of their harvest through commercial channels. Beans are a significant part of the Dominican diet and are grown in every part of the country, as a cash crop for home consumption. The crop is grown throughout the year, with regional variation due to rainfall and temperature conditions. In the mountainous regions, up to three crops a year may be harvested, while in the lower flatlands, only two crops a year are customary. The heaviest periods of regional harvests coincide in December through March (Table 2).

Depending upon the region, beans may be rotated with rice, peanuts, corn, garlic, onions, sweet potato, cassava and tobacco. Oftentimes, they will be interplanted with corn, cassava, peanuts or plantain. In 1975-76, approximately 45 percent of the total land area dedicated to beans was interplanted, of which 44 percent was non-irrigated, providing yields of .61 qq per tarea (390 lbs. per acre). The remaining 1 percent planted under

TABLE 2 - Months of Harvest, Area Planted, and Average Farm Size for Red Beans (*Phaseolus vulgaris*) in the Dominican Republic, by Region, 1975-76.

REGION	MONTHS OF HARVEST	AREA PLANTED (,000t)	(%)	AVERAGE FARM SIZE (t)	PERCENT OF FARMS 1-40t
North	Feb - Mar				
	Jul - Aug	159	21	27.4	94.5
	Nov - Dec				
Southwest	Mar - Apr				
	Jul - Aug	290	39	24.8	98.3
	Nov - Dec				
Central	Feb - Mar				
	Jul - Aug	130	18	17.9	96.4
	Nov - Dec				
East	Feb - Mar	24	3	17.3	96.8
	Apr - May				
South	Mar - Apr	61	8	15.5	98.2
	Apr - May				
Northwest	Dec - Jan				
	Feb - Mar	37	5	11.1	98.5
	Jul - Aug				
Northeast	Feb - Mar	47	6	7.5	99.2
	Dec				
Nationally		748	100	17	97.4

Source: SEA, No.22, 1976

irrigation yielded 1.2 qq per tarea (780 lbs. per acre).

Of the remaining 55 percent of cropland committed to red bean production that was not interplanted, 45 percent was rainfed, yielding .64 qq per tarea (416 lbs. per acre), and 10 percent was under irrigation, with yields of 1 qq per tarea (675 lbs. per acre). The predominant cultivator of beans falls into the designation of small scale farmers, since those who cultivate the crop own on the average, only 17 tareas (1.07 hectares or 2.6 acres). Table 2 illustrates the regional dispersion of production and farm size.

Sampling Procedure

The area frame used as a basis for selecting the survey sample is the same used by the Secretariat of Agriculture for its quarterly production surveys. The segmented stratified sample drawn for this survey represents all national red bean production harvested between November 1, 1982 and May 1, 1983.

Three separate teams of enumerators, each consisting of four technicians and one supervisor were selected from the experienced group of personnel who conduct the quarterly production surveys for the Secretariat of Agriculture. Following a four day training session and field test conducted by the author and previous quarterly supervisors, the teams dispersed throughout the countryside for a ten day period during the second and third weeks of February, 1982. The author visited each team during the first three days in the field, and returned to provide additional supervision for two of the teams during the remaining period. A second survey was conducted during the first two weeks of May, 1982, using the same procedure described above. A total of 647 usable interviews were generated. However, where a farmer reported more than one sales transaction, each transaction has been treated as a separate event. Thus, in the descriptive statistics reported below, a

total sample population of 664 farmer transactions are utilized.

The Questionnaire

Based upon the information required to test the hypotheses, a series of questions were developed and translated to Spanish. Subsequently, the questions were arranged to facilitate the interviewing process and were formatted to aid tabulation and field supervision. The translation was reviewed and modified by native speakers of Spanish at the Interamerican Institute of Agricultural Cooperation (IICA) prior to field testing and a final version was developed and field tested with the assistance of the Quarterly Survey personnel of the Secretariat of Agriculture. A copy of the questionnaire appears in the Appendix.

Upon completion of the final version of the questionnaire, a survey manual was prepared, based upon the manual previously developed for use by the Quarterly Survey teams. Control sheets and a table of codes were prepared, and all materials for the survey were printed at IICA's Santa Domingo office.

Data Processing

All of the completed questionnaires were reviewed for completeness and acceptability, and codes were assigned to the locational information on the first page. The data were then loaded electronically into a controlled format which provided automatic tab settings, upper and lower limits on the data entry, and built-in checks with respect to the congruency of the data. The data were subsequently programmed into a SAS data set, where each questionnaire entry was provided with an alphabetic approximation of its content, plus the digit corresponding to its position on the questionnaire.

An ordinary least squares regression program was used to analyze the data. The regression was submitted to the University of Kentucky's IBM 370, utilizing the SAS Institute's SYSREG procedure. A modified version of the model described above was used; the results of the analysis are described below.

III. RESULTS OF ANALYSIS

Introduction

It is obvious that in order for a particular preference inducing factor to substantially affect the price received by a farmer, it must in fact occur. Those that are not found in practice or only rarely regardless of their conceptual validity can not be interpreted as causing widespread exploitation of farmers. Moreover, the impact of variables with low frequencies can not be estimated with multiple regression analysis, the method used in this study. Therefore, it was determined that all factors with a frequency of less than 3 percent would be considered disconfirmed.

Preference Inducing Factors Excluded from Regression

The preference inducing factors which were disconfirmed are:

- X_2 - frequency of scheduled purchase per month (data collected were only relevant to a non-perishable crop),
- X_3 - cash advance from farmer to buyer,
- X_4 - partial or delayed payment at time of sale,
- X_5 - delayed determination of sale price,
- X_{14} - X_{19} - provision of productive resources,
- X_{21} - provision of income opportunities,
- X_{25} - advocacy (none were transacted through cooperatives).

Tables 7 summarizes the frequency of these factors.

Preference Inducing Factors Included in Regression Analysis

The presence of a large number of the factors specified in the model and

TABLE 5 - Provision of Loans, Productive Resources, and Income Opportunities to Farmers by Intermediaries, and Terms of Sale Arrangements for Red Beans, Dominican Republic, 1981-1982

TYPE	RESPONSE	FREQUENCY	PERCENTAGE
Loans from buyer of crop	Yes	14	2
Loans from other buyer	Yes	4	1
Resources from buyer of crop	Yes	7	1
Resources from other buyer	Yes	26	4
Income opportunities from buyer of his crop	Yes	7	1
Income opportunities from other intermediary	Yes	26	4
Partial payment or no payment at point of transaction (sale)		6	1
Full payment at point of transaction		658	99
Determination of final sale price:			
At moment of transaction (sale)		6	100*
Ex-post transaction		0	0

* Percent of farmers who received only partial or no payment for crop at point of sale; see above.

reported in the literature were revealed in an analysis of the data. Their frequency of occurrence is reported below.

X_6-X_7 - Quality of product or grade levels

Farmers were asked the grade level at which their beans had been priced by the intermediary. The response is tabulated in Table 4. The farmers were subsequently questioned if the quality of their crop had been affected in any way, and if so, by what. Their response is also tabulated in Table 4.

X_8-11 - Regional qualitative differences

Several dummy variables were suggested in the model to account for regional qualitative differences. Literature from the Dominican Republic describes the conduct of wholesale grain merchants who systematically purchase all available truckloads of beans from two particular regions prior to purchasing beans from the rest of the countryside. Regional stratifications of the sample were maintained for the regression analysis as separate variables.

X_{12} - Weight manipulation

A proxy dummy variable for shortweighting (which was impossible to actually observe, given the nature of the survey) was generated, where:

X_{12} = 0, if the unit of weight of the quantity sold equals
the unit of weight of the product price,
= 1, if the weight unit of the quantity sold does not
equal the weight unit incorporated into the selling price.

X_{13} - Tied purchase arrangements

The farmers were asked whether selling their beans to the person who purchased their crop implied this same person would necessarily purchase some

TABLE 4 - Grade Categories by Intermediaries and Farmer's Estimates of Red Bean Quality, Dominican Republic, 1981-82.

CATEGORY OR RESPONSE	FREQUENCY	PERCENTAGE
Grade designation by intermediaries:		
First Quality	299	45
Second Quality	301	45
Third Quality	51	8
Not Specified	13	2
Estimate of quality by farmer:		
Affected by - Dampness, humidity	201	30
- Insects, disease	93	14
- Foreign matter	13	2
- Other, not listed	40	6
Not affected	317	48

TABLE 5 - Frequency of Tied Purchase Arrangements, Red Beans,
Dominican Republic, 1981-82.

RESPONSE	Frequency	Percentage
Yes - Sale of beans implies purchase of other crops from farmer	56	8
No - No implication of additional purchases of other crops	605	91
Doesn't know	3	1

other kind of crop. The response (Table 5) indicates that the frequency of occurrence is not so low as to totally disconfirm consideration of this variable in the model. Additionally, there is a strong theoretical basis a priori for considering the impact of this factor, although its relative infrequency could create problems in the regression analysis.

X_{20} - Provision of groceries

The farmers were questioned whether or not the intermediary (or his family) who purchased the farmers' crop owns a grocery store. The farmers were also questioned whether or not the grocer from whom they secure their groceries is also a buyer of red beans. The response to both of these questions is recorded in Table 6.

Given the additional information recorded in the survey which illustrates the power of local grocer/intermediaries (described below) and in light of the relatively frequent occurrence of this condition and its frequent notation in the literature, its inclusion in the original model specification appears to be justified.

X_{22} - Political power

The potential existence of political power on the part of the farmers and that of the buyers was determined. For each positive response, the category of the political or appointive (official) office was recorded in subsequent questions, which are reported in Table 7. The variable X_{22} in the model statement was designed to represent the difference in relative power between buyer and farmer, where:

$$X_{22} = K_b - K_f,$$

where K_b = the power of the buyer,

TABLE 6 - Frequency of Grocer Intermediaries Purchasing Red Beans, Dominican Republic, 1981-82.

TYPE	RESPONSE	FREQUENCY	PERCENTAGE
Intermediary who purchased crop owns a grocery store:	Yes	120	18
	No	359	54
	Unknown	185	28
Farmer's grocer purchaser: is a bean purchaser:	Yes	119	18
	No	544	82
	Unknown	1	0

TABLE 7 - Official Positions Held by Farmer and Buyer or Their Families, Red Beans, Dominican Republic, 1981-82.

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
FARMER:	Yes	168	25
	No	496	75
BUYER:	Yes	20	3
	No	365	55
	Unknown	279	42

K_f = the power of the farmer.

However, investigation revealed that of the 25 percent of farmers who possess some measure of political power by virtue of their own or their family members official positions as elected or appointed functionaries (above, Table 7), only 1% may be attributed to the farmer's own status. The remaining frequency of occurrence in this category is due to the farmer's family where 14 percent (n=95) are regional officials and 10 percent (n=67) are local officials.

Given the very low frequency of occurrence in the buyer category (only 3 percent), the variable was reduced to a simple qualitative measure of 3 categories using 2 dummy variables, whereby:

$X_{22a} = 0$, farmers family are neither local nor regional officials,

$= 1$, farmer's family members are local officials

$X_{22b} = 0$, farmer's family are neither local nor regional officials,

$= 1$, farmer's family members are regional officials.

It is expected these variables will have a positive impact upon the price received by the farmer.

X_{23} - Kinship

The farmers were asked whether or not the buyer of their crop was a family member or kin (including ritual kinship). In an additional question, they were asked whether any of their family or kin in the area purchase red beans. The response is tabulated in Table 8.

Although the frequency of occurrence is relatively low for the first category, the literature suggests kinship may play an important role in the establishment of a preferred relationship between a farmer and buyer.

TABLE 8 - Kinship Relationships Between Buyer and Seller, Red Beans, Dominican Republic, 1981-82.

CATEGORY	RESPONSE	FREQUENCY	PERCENTAGE
Buyer is kin of farmer:	Yes	40	6
	No	624	94
Kin of farmer is a buyer:	Yes	89	13
	No	575	87

Additional information generated by the survey (reported below) gives added support to the decision to maintain this variable in the regression analysis.

X₂₄ - Habit

The original rationale postulated the inclusion of this variable to measure the impact of traditional or habitual sales upon the farm price. Data on a modified specification of the variable were recorded; the number of sales made to the most recent buyer since Hurricane David (August, 1979), and the number of sales to any buyer during the same period. This modification shortened the originally specified recall period from 10 to only 2 years while allowing a potential total of 8 to 10 sales (i.e. crops) during the period specified.

X₂₆ - Wealth

Land ownership and/or access has traditionally been used as an indicator of wealth in rural areas of Latin America. Many small scale farmers also purchase and/or raise poultry, goats and other livestock as an income generator and as an investment alternative, since few savings and loan associations operate in these rural areas (USAID 1980).

The land areas may be evaluated at their average return to typical small farm crops and the livestock evaluated at the current wholesale average price to create an index of the farmers' overall wealth status.

Observations on property and access to land were recorded in several categories, as well as the number of livestock owned. Totals in each category were evaluated based upon crop income returns estimated by CENDES technicians for small scale farms in the north-central region and average wholesale livestock prices (Robiou 1980, SEA 1981a).

To calculate a measure of the farmers' wealth, land was valued at RD\$50

per "tarea" (one sixth of an acre) and irrigated land at twice that amount, while sharecropped land was valued at half the value of owned land. Poultry were evaluated at RD\$3 apiece, goats at RD\$30, and cattle at RD\$300 per head.

X₂₇ - Quantity of product sold

The quantity of beans sold by each farmer (converted to cwt) was tabulated for each farmer, as an auxiliary indicator of the impact of scale upon the farm price. Table 9 and 10 indicate the aggregate quantities of beans sold and acreage planted by category.

Y - Average price difference (dependent variable)

The dependent variable was specified to reflect the expectations of the buyer for the price he would receive in the central wholesale market. This was accomplished by averaging over a five day period the previous maximum wholesale market price on the date of purchase lagged three days. Thus, the dependent variable is the difference between the farm price (converted to a standard measure of RD\$/cwt) and the previous (days 3 through 7) average maximum wholesale market price in Santo Domingo. Each of the variables included in the regression analysis and their expected sign may thus be specified (Table 11).

Impact of Preference Inducing Factors

For purposes of testing the model, data from an additional survey conducted during the same period using the same questionnaire and procedure were pooled with the larger data set. This survey was taken among small scale farmer members of the integrated rural service centers (CENSERI's). The data was obtained by two teams of rural extension advisors who work

TABLE 9 - Quantity of Red Beans Produced and Sold, among Respondents, Dominican Republic, 1981-82.

QUANTITY (lbs.)	PRODUCED		SOLD	
	Frequency	Percentage	Frequency	Percentage
Up to 50	4	1	15	2
51 to 100	4	1	15	2
101 to 200	32	5	53	8
201 to 300	57	8	73	11
301 to 400	36	5	29	4
401 to 500	62	9	71	11
501 to 1000	165	25	152	23
More than 1000	304	46	256	39

TABLE 10 - Area Planted to Red Beans and Land Tenure Among Respondents, Dominican Republic, 1981-82.

FREQUENCY OR TYPE	NUMBER OF TAREAS					
	None	.1-7.9	8-32	33-79	80-500	501+
AREA PLANTED:						
Number of farmers		130	397	110	26	1
Percentage		20	60	16	4	0
AREA FARMED:						
DRYLAND:						
Frequency	266	35	148	104	104	7
Percentage	40	5	22	16	16	1
IRRIGATED						
Frequency	446	23	121	59	15	0
Percentage	67	4	18	9	2	0
RENTED						
Frequency	638	4	12	6	3	1
Percentage	96	1	2	1	0	0
SHARECROPPED						
Frequency	538	17	66	33	10	0
Percentage	81	3	10	5	1	0
OTHER						
Frequency	580	11	41	14	14	4
Percentage	87	2	6	2	2	1
TOTAL						
Frequency	0	38	264	195	152	15
Percentage	0	6	40	29	23	2

Table 11 - Expected Impact of Variables Included in Model, Red Beans, Dominican Republic, 1981-82.

Variable	Name	Expected Sign	Comments
X ₁	TOTLTIME	+	As the time between site of transaction and central wholesale market increases, price offered at transaction site will decrease
X ₆	GRADE B	+	A significant coefficient indicates the influence of 2nd quality category of beans as compared to the first, which is the omitted category. It should lower the price offered at the farm.
X ₇	GRADE C	+	Same as above, but representing influence of 3rd quality category
X ₈	REGION A	-	A significant coefficient indicates the influence of regional origin, in this case, beans from the Santiago and Cibao areas, as compared to the omitted Eastern Region. Should have a negative influence on farm-wholesale price margin.
X ₉	REGION B	-	Same as above, but representing beans from Santo Domingo and Bani areas.
X ₁₀	REGION C	-	Same as above, but representing beans from San Juan de la Maguana area.
X ₁₁	REGION D	-	Same as above, but representing beans from the Constanza area.

(continued)

Table 11 - (Continued)

Variable	Name	Expected Sign	Comments
X ₁₂	WEIGHT MANIP	+	A significant coefficient indicates the influence of weight manipulation by the intermediary, as compared to the omitted category, where no such manipulation occurs. It is assumed that such tactics allow the buyer to offer a lower price due to the confusion they create.
X ₁₃	TIED PURCHASE	+	A significant coefficient indicates the influence of the desire of the farmer to find an outlet for his secondary crops later in the year through the same buyer. It is assumed here that he will accept a lower farm price for his beans in order to be guaranteed an outlet for his secondary crops.
X _{20a}	GROCERIES CASH	+	A significant coefficient indicates the influence of the farmer's food purchasing arrangements where he is purchasing groceries for cash from the person who purchased his beans, as compared to the omitted category where such food purchase arrangement exists. It is assumed such an arrangement would have a negative impact upon the farm price received for the bean crop.
X _{20b}	GROCERIES CREDIT	+	Same as above, except groceries are purchased on credit or for cash and credit.

(continued)

Table 11 - (Continued)

Variable	Name	Expected Sign	Comments
X _{22a}	FARMPWR 1	-	A significant coefficient indicates the influence of the farmers family within the local power structure, as compared to the omitted category where no family members are officials. It is expected to have a positive impact upon the farm price offer.
X _{22b}	FARMPWR 2	-	Same as above, except that farmers family members are regional officials.
X ₂₃	FAMILY/KIN	?	A significant coefficient indicates the influence of kinship upon the farm price, where the buyer is a family member or ritual kin and the omitted category represents no relationship. The influence of the relationship on the farm price is unknown.
X ₂₄	HABIT	+	As the degree of habitualness, i.e. percentage of sales to the same buyer crop after crop increases, it is assumed that a lower price will be "allowed" at the farm level.
X ₂₆	WEALTH	-	As the wealth of the farmer increases, it is assumed that his mobility is enhanced, thus increasing the likelihood of his receiving a higher farm price.
X ₂₇	SACKSOLD	-	This variable captures the effect that scale of transaction could have on the sale price. It is assumed that lower transaction costs are associated with larger volume sales.

throughout the countryside with these federations of farmer associations. A total of 181 useable interviews were generated.

Of the total number of observations considered valid for analysis (845), all those which contained an occurrence of a disconfirmed preference inducing factor were excluded from the regression analysis. In addition, all of the questionnaires which contained price/quantity information generating a negative dependent variable were deleted as anomalies uncontrolled for by the survey procedure which required up to three months recall with respect to date of sale and exact price/quantity information. Thus, a total data set consisting of 722 questionnaires was used in the regression analysis. The results of the analysis are indicated in Table 12. A review of each variable in the context of the hypotheses being tested follows.

X_1 - transfer from farm to market - TOTLTIME (+)

This variable was included to capture that part of the farm-wholesale price variation associated with the costs incurred by the middleman for transporting the crop from the point of transaction to the wholesale market, thus providing a "homogeneous" product upon which to test the effect of producers' preferences.

The analysis indicated that for each minute of increased travel time between the purchase point and wholesale market (Santo Domingo), the difference between the farm and wholesale price decreased by 2 cents per hundredweight. This finding is total contrary to the expected relationship wherein it was assumed that as distance between purchase point and wholesale market increased, the farm price offered by the middleman absorbing increased transport costs would be lower as the distance (time) increased, thus causing a positive impact on the farm-wholesale margin.

The high significant coefficient but incorrect sign for this variable

Table 12 - Results of Regression Analysis, Producers' Preferences,
Red Beans, Dominican Republic, 1981-82

Variable	Expected Sign	Coefficient	Standard Error	Level of Significance
Intercept	+	12.9	3.2	***
TOTLTIME	+	-.02	.005	***
GRADE B	+	2.5	.63	***
GRADE C	+	6.1	.99	***
REGION A	-	9.1	2.7	***
REGION B	-	4.7	3.1	.13
REGION C	-	4.3	2.7	.11
REGION D	-	8.7	2.7	***
WEIGHT MANIP	+	.008	.75	
SACKSOLD	-	-.02	.008	**
HABIT	+	1.85	1.00	*
WEALTH	-	-.0002	.02	
FARMPWR 1	-	-1.5	.89	*
FARMPWR 2	-	-.04	.83	
TIED PURCHASE	+	1.8	1.1	
FOOD CASH	+	-1.1	1.4	
FOOD CREDIT	+	-.80	1.5	
FAMILY/KIN	?	-1.9	1.3	

R-Square = .19 Degrees of freedom for error = 722

Levels of Significance: *** = .01 level

 ** = .05 level

 * = .10 level

suggests distortions in the Santo Domingo price structure which may result from the importation and sale of beans by INESPRES which would temporarily depress prices in the central market. If buyers are storing beans in facilities distant from Santo Domingo for later release into the Santo Domingo wholesale market (as suggested by Murray), then a negative sign for this variable could be expected. This tendency would be additionally strengthened if imports by INESPRES absorbed all available storage capacity in Santo Domingo.

Although it is apparent that the model as specified is inadequate for dealing with the interrelated problems of storage and INESPRES import/sale activities, inclusion of this variable was primarily to isolate the effect of preference inducing factors upon the farm price, which it does accomplish. The types of buyers are reported in Table 13.

X_6 - second quality beans - Grade B (+)

The analysis indicates that second quality red beans received, on average, RD\$2.50 per hundredweight less than first quality beans, which is in keeping with a priori expectations. However, when compared to average national price differences between first and second quality beans for the same harvest period, the coefficient appears to understate the price differential (Table 14). This difference may only reflect the incompatible nature of the price series data; the wholesale price series is based upon data gathered by SEA technicians for the "maximum", modal, and "minimum" market prices, whereas the series collected by INESPRES technicians (and used in Table 14 for comparative purposes) is based upon first and second grade quality designations.

In any event, inclusion of this variable was to allow for the removal of "quality" considerations from the model in order to secure a homogeneous

TABLE 13 - Types of Buyers and Location of Transaction for Red Bean Sales, Dominican Republic, 1981-82.

CATEGORY	FREQUENCY	PERCENTAGE
LOCAL BUYERS:		
Local assembler	63	9.5
Grocer	54	8.1
Local trucker	54	8.1
Local agent	17	2.6
Neighbors	9	1.4
Farmers Association	2	.3
TOTAL	199	30
NON-LOCAL BUYERS:		
Non-local trucker	342	51.5
Other-Not listed	95	14.3
Commission man	21	3.2
Price Stabilization Institute	5	.8
Agricultural technician	2	.3
TOTAL	465	70
BUYER PICKED UP CROP	460	69
FARMER DELIVERED CROP TO BUYER	204	31

TABLE 14 - Average Monthly Wholesale Price for Red Beans, First and Second Quality, Dominican Republic, 1981-82.

MONTH	PRICE IN RD\$/HUNDREDWEIGHT		
	First Quality (a)	Second Quality (b)	Difference (a-b)
November	62.27	59.36	2.91
December	56.70	52.74	3.96
January	45.93	39.34	6.59
February	53.50	47.67	5.83
March	n.a.	n.a.	n.a.
April	49.41	40.69	8.92
May	62.68	52.45	10.23

Source: INESPRES, Departamento Estudios de Mercadeo, Gerencia de Comercializacion, Santo Domingo, 1982.

product upon which to test the effect of producer preference inducing factors, and this has been accomplished.

X₇ - third quality beans - Grade C (+)

Similar to the results described above, analysis reveals that third quality beans receive, on average, RD\$6.10 less than first quality red beans. Again, this coincides with the expected relationship and has the primary goal of removing quality considerations from the analysis of the price effect of preference inducing factors.

X⁸ - Region A - Santiago (-)

Compared with bean prices from the excluded category (Region E - Eastern Region), prices for beans from the Santiago Region reveal a farm-wholesale price margin of RD\$9.10 greater than the Eastern Region.

These and subsequent regional coefficients generated signs which are contrary to the expected relationships. The literature indicates red beans originating from San Juan (Region C), Santo Domingo (Region B), Constanza (Region D) and Santiago (Region A) enjoy a premium price (in ascending order) due to consumer preference, and should therefore demonstrate a smaller farm-wholesale margin than beans from the Eastern Region. This contradiction can be explained if the Eastern Region were a deficit producer during the survey period, or if there was a temporal deterioration in the normal quality of beans from the Santiago Region. This would generate a situation where locally produced beans enjoy a price premium. It should be noted also that very few of the survey observations correspond to the Eastern Region.

While it is interesting to speculate with respect to the cause of this unexpected outcome, inclusion of the regional variables to account for varietal and related factors is primarily for the purpose of isolating their

influence within the model, where the concern is to analyze the effect of producer preferences. Coefficients for the remainder of the regional variables coincide with a priori expectations if we assume the Eastern Region was a deficit producer during the period covered in this survey.

X₉ - Region B - Santo Domingo (Bani/Ocoa) (-)

The analysis reveals that the farm-wholesale price margin for beans originating in the Santo Domingo-Bani-Ocoa area is RD\$4.70 per hundredweight greater than the Eastern Region.

X₁₀ - Region C - San Juan de la Maguana (-)

In a similar manner, the margin for San Juan red beans is RD\$4.30 per hundredweight greater than the farm-wholesale margin for Eastern Region beans.

The coefficient for X₉ and X₁₀ were not significant at the standard acceptable lower limits of significance. However, in an alternative routine using a modified dependent variable and where data were stratified temporally, both of the coefficients maintained their expected sign and magnitude, and occasionally slipped into an acceptable realm of significance.

X₁₁ - Region D - Constanza (-)

Inclusion of this variable to account for taste and varietal differences for beans from the Constanza region indicated a margin RD\$8.70 per hundredweight greater than the Eastern Region farm-wholesale price margin.

X₁₂ - weight manipulation - WEIGHT MANIP (+)

Analysis of this variable, which was specified to represent the

potential for unfair weight manipulation on the part of the buyer, indicated a coefficient not significantly different from zero, thus allowing acceptance of the null hypothesis. While the influence of this factor is apparently not significant at a national level, there may be regional potential for its influence upon the farm-wholesale margin. However, regional stratification of the data based upon the origin of the product revealed no significant relationship, although when stratified temporally to represent origin, the data revealed a weakly significant relationship for transactions undertaken in the San Juan area.

This may only reflect customs reported in the literature where many of the itinerant truckers purchasing beans in that area during the indicated period are from outside the region (i.e. the reknown Moca truckers), who are accustomed to basing their price offer on Cibao (Moca) units of measure rather than the customary San Juan units.

As an additional test, all data for both the SEA and CENSERI surveys were pooled, and a comparison made. Where the price quotation and amount sold were referred to in the same unit of weight measure, a value of 0 was assigned. Where they were unequal (signaling the potential for weight manipulation), a value of 1 was assigned. These two categories were then compared to the situation where the stated sales prices and calculated sales price (total payment received divided by quantity sold) were equal, and where they were not. As shown in Table 15, 17 percent of the transactions (144/830) exhibited a difference between stated and calculated sales prices for those situations where there was potential for weight manipulation. Or, expressed more directly, of the 202 transactions where potential for short-weighting occurred 71 percent of the transactions exhibited a difference between the stated and caluclated sales prices (144/202).

Calculation of the mean for each price category (stated and calculated)

Table 15 - Potential for Weight Manipulation and Relationship to Stated and Calculated Sale Price of Red Beans at Farm Level, Dominican Republic, 1981-82.

CATEGORY	POTENTIAL FOR WEIGHT MANIPULATION	
	No	Yes
	Frequency	
Stated and calculated sale price equal	551	58
Stated and calculated sale price unequal	77	144

Note: $\chi^2 = 272.56$: greater than χ^2 at .01,1, thus reject null hypothesis.

revealed only an RD\$1.01 per hundredweight difference between the two. However, when the mean prices for each category were compared, no statistically significant difference was evidenced between the categories, thus leading to acceptance of the null hypothesis that no real price difference is apparent based upon the potential for weight manipulation (Table 16).

X_{22a} - Farm family members are local officials - FARMPWRL (-)

For the sample population surveyed, proximity to local political power through the farm family member's occupational status in an official local capacity generated the expected direction of influence upon the farm-wholesale price spread.

Of those farm families who counted among themselves a member of the local officialdom, a significant decrease of RD\$1.50 per hundredweight occurred, on average, between the farm and wholesale price for their red beans, thus providing them with a greater return for their crop than those farmers whose families were not associated with local official positions.

X₂₄ - habitualness - HABIT (+)

This variable was included in the model to capture the effect of a farmer's dependence upon a single buyer since Hurricane David and to represent his less than aggressive approach to marketing. As expected, the analysis revealed a positive relationship whereby the difference between farm and wholesale price increased RD\$1.85 per hundredweight for each degree that dependence upon a single buyer increased.

Tabulation of data from the survey revealed that in 58 percent of the transactions, the farmer had consulted with only one buyer or less, and 41 percent were able to recall the name of the buyer (Table 17). Observations

TABLE 16 - Potential for Weight Manipulation and Relationship to Average Stated and Calculated Sale Price of Red Beans, RD\$/hundredweight, Dominican Republic, 1981-82.

CATEGORY	POTENTIAL FOR WEIGHT MANIPULATION	
	No	Yes
	Average Price	
A. Stated and calculated sale price equal	41.98	40.33
B. Stated and calculated sale price unequal (calculated price)	40.18	43.14
.....		
A. Stated and calculated sale price equal	41.98	40.33
C. Stated and calculated sale price unequal (stated price)	40.02	37.63

Note: χ^2 for A/B = .1279, thus accept null hypothesis at .01 level

χ^2 for A/C = .0047, thus accept null hypothesis at .01 level

TABLE 17 - Number of Buyers Consulted Prior to Sale of Red Beans and Knowledge of Buyer's Identity, Dominican Republic, 1981-82.

CATEGORY	FREQUENCY	PERCENTAGE
NUMBER OF BUYERS CONSULTED:		
None	177	27
One	206	31
Two	96	15
Three	105	15
Four	31	5
Five	24	4
Six to Ten	22	3
More than ten	3	1
RECALLS NAME OF BUYER:	272	41
DOESN'T KNOW BUYERS NAME:	392	59

on age and education indicated that 63 percent of the farmers surveyed were under 50 years of age and had not advanced beyond three years of formal schooling (Table 18 and 19).

X₂₆ - affect of farm size or wealth - WEALTH (-)

It was hypothesized that poorer farmers would be more likely to receive a lower price for their crop than wealthier farmers. Although the expected sign for the coefficient was forthcoming, the coefficient itself was not statistically significant, thus allowing acceptance of the null hypothesis that the effect of this factor upon the dependent variable is not significantly different than zero. This outcome was unexpected, since the literature describing peasant agriculture and marketing in the LDC's has generally ascribed greater bargaining power to the wealthier segments of the rural population.

X₂₇ - quantity of product sold to intermediary - SCALE (-)

In confirmation of the hypothesized relationship, the quantity of beans sold by an individual farmer revealed an inverse relationship to the margin between farm and wholesale market price. For each additional hundredweight of beans sold, the margin is reduced by 2 cents.

Remaining Variables

None of the remaining variables in the model demonstrated a sufficient level of statistical significance to allow rejection of the null hypothesis with respect to their influence upon the dependent variable. However, the lack of a significant explanatory role is, of itself, significant in view of previously reported observations of a case history nature.

TABLE 18 - Age of Farmers by Age Group, Red Bean Marketing Study,
Dominican Republic, 1981-82.

AGE GROUP	FREQUENCY	PERCENTAGE
Less than 20 years old	13	2
20 to 29	91	14
30 to 39	153	23
40 to 49	157	24
50 to 59	142	21
60 to 69	71	11
Over 70 years old	36	5
Unknown	1	0

TABLE 19 - Years of Education Completed by Farmers, Red Bean Study, Dominican Republic, 1981-82.

YEARS OF EDUCATION COMPLETED	FREQUENCY	PERCENTAGE
None	139	21
One to three	283	43
Four to six	161	24
Seven to twelve	66	10
Over twelve	15	2

X_{22b} - Farm family members are regional officials - FARM PWR2(-)

Apparently, the relationship between a farmer and members of his family who are part of the regional officialdom had no measureable impact upon the difference between farm and wholesale price.

X₁₃ - tied purchase arrangements - TIED PURCHASE (+)

No significant relationship was revealed with respect to the expectation of additional sales (of other crops) to the bean purchaser and the prices he offered to farmers where such a relationship was operational.

X_{20a} - buys groceries for cash from intermediary - FOOD CASH* (+)

The analysis produced the opposite sign of that which was expected, but more importantly, no significant relationship was found between the provision of groceries (for cash payment) by the bean purchaser and the producer who purchased groceries from that intermediary. This outcome is quite at odds with the observations of anthropologists who observed marketing and family structure in these same regions, as reported in their case histories.

X_{20b} - buys groceries on credit from intermediary - FOOD CREDIT (+)

The revelation is even more apparent in the case where groceries were purchased for cash and credit. The exaggerated power of merchants who exercise such direct control over the potential welfare of small scale farmers was repeatedly referred to in the observations of Wharton, Murray and Werge. A strong bias in policy and planning decisions based upon this belief is also apparent in official publications (SEA 1981b).

Yet, the existence of such power on the part of buyers who also provide their clients with groceries on credit was not revealed in this analysis.

X₂₃ - family and/or kin are bean purchasers - FAMILY/KIN (+)

It was expected that kinship between buyer and seller might impact significantly upon the price received by the farmer for his crop. Analysis of data from this survey revealed no such relationship, thus allowing acceptance of the null hypothesis. Sub-routines of the model failed to produce alternative results either regionally or temporally.

Additional Findings

In a series of observations (135-147), the farmers were asked to rank order the importance of a series of factors which could be used to determine their choice of an intermediary providing alternative services. The results of each set of factors are revealing.

In Table 20, the first set of rankings indicate a preference for buyers who are able to provide immediate economic, transaction related benefits, such as cash payment and superior prices. A less important set of benefits or services tend to be grouped together in their ranking; these include such factors as the provision of inputs, purchase at the farm gate, groceries on credit and access to land.

In Table 21, a second set of services are ranked, revealing a strong preference among the farmers for those buyers who might provide production credit and immediate cash requirements. Less important was the provision of the more intangible services such as those associated with kinship and political power (officialdom).

These findings support the regression analysis results, where such services or factors as groceries and/or inputs on credit, kinship, tied purchase, and buyer political power were either disconfirmed a priori (due to infrequency of occurrence) or found to be statistically insignificant in

TABLE 20 - Ranking of Preferred Middleman Services by Red Bean Farmers - Set I
Dominican Republic, 1981-82.

RESPONSE	FREQUENCY AS FIRST CHOICE	RANK	WEIGHTED* FREQUENCY	RANK
WHERE THE BUYER:				
Pays for crop immediately in cash	269	2nd	3228	1st
Offers the best price	270	1st	2918	2nd
Sells groceries on credit	35	4th	2138	3rd
Provides inputs on credit	59	3rd	2128	4th
Buys crop at farm gate	19	5th	1753	5th
Provides access to land	12	6th	1752	6th

* Note: The choice for each category response was weighted (i.e. first choice = 6, second choice = 5, etc.) and the sum of the weighted response calculated by category. The weighted rank was calculated as: $\text{Frequency} / (\text{Sum of weights} \times \text{number of observations})$.

TABLE 21 - Ranking of Preferred Middleman Services by Red Bean Farmers - Set II
Dominican Republic, 1981-82.

RESPONSE	FREQUENCY AS FIRST CHOICE	RANK	WEIGHTED* FREQUENCY	RANK
WHERE THE BUYER:				
Loans money for planting	228	1st	3118	1st
Loans money for emergencies	196	2nd	2907	2nd
Provides cash advance on crop	74	4th	2431	3rd
Is relative or kin	92	3rd	2217	4th
Will buy other crops	49	5th	1973	5th
Is an official	24	6th	1268	6th

*Note: The choice for each category response was weighted (i.e. first choice = 6, second choice = 5, etc) and the sum of the weighted response calculated by category. The weighted rank was calculated as: $\text{Frequency} / (\text{Sum of weights} \times \text{number of observations})$.

their influence upon the margin between farm and wholesale prices.

Reservations price associated with buyers providing inputs, groceries or kinship.

A series of three additional questions were structured to elicit a more quantitative measure of the impact of certain factors on the farmer's choice of a particular buyer. In a hypothetical setting where a buyer were providing inputs or groceries on credit, the farmer was queried whether he would feel obligated to sell his crop to such a buyer. In the event of a negative response, the farmer was asked whether he might do so in "appreciation" for the credit received. He was also asked what effect non-sale to the credit provider might have on access to credit in the future. Finally, the farmer was asked how much more a buyer who was not providing inputs or groceries on credit would have to offer to get the crop.

As shown for the case of inputs in Table 22, approximately three-quarters of the farmers surveyed indicated no sense of obligation to the input provider, though slightly more than half this group said they would sell him their crop in "appreciation" for the credit provided. In response to the question regarding the price level at which the farmer would forego selling his crop to the input provider, the mean reported reservation price for the foregone goodwill was 12.7 percent of the actual purchase price, or RD\$5.27 per hundredweight over the purchase price. And significantly, 50 percent of the farmers felt that non-sale of their crop to the input provider would negatively prejudice their access to inputs on credit in the future.

In the hypothetical case where groceries were provided on credit by the bean purchaser, the sense of obligation was approximately equal to the foregoing case of an input provider. Slightly more than three-quarter's of the respondents felt no obligation to sell him their crop (see Table 23). Of

TABLE 22 - Red Bean Farmer's Response to Provision of Inputs on Credit by Intermediary and Reservation Price to Non-Preferred Buyer, Dominican Republic, 1981-82.

RESPONSE	FREQUENCY	PERCENTAGE
Farmer feels "obligated" to sell crop to input providing middleman:		
Yes	179	27
No	477	72
Part of crop	4	.5
Unknown	4	.5
Farmer does not feel obligated, but would sell to input provider in "appreciation":		
Yes	273	57
No	196	41
Unknown	11	2
Response of input provider anticipated by farmer if crop not sold to him:		
Credit continued	324	49
No future credit	332	50
Unknown	8	1
Actual sale price and reservation price to alternative buyer, RD\$/cwt:		
<u>Item</u>	<u>Actual price</u>	<u>Reservation price</u>
N	653	653
Mean	41.50	46.77
Std. Dev.	8.98	26.40
Minimum	21.00	80.00
Maximum	80.00	667.00
Std. Error	.351	1.04
Variance	80.60	699
Coef. of Var.	21.60	56.60

TABLE 23 - Red Bean Farmer's Response to Provision of Groceries on Credit by Intermediary, and Reservation Price to Non-Preferred Buyer, Dominican Republic, 1981-82.

RESPONSE	FREQUENCY	PERCENTAGE
Farmer feels "obligated" to sell crop to grocery providing middleman:		
Yes	155	23
No	501	76
Part of crop	6	1
Unknown	0	0
Farmer does not feel obligated, but would sell to grocery provider in "appreciation":		
Yes	298	59
No	191	38
Unknown	14	3
Response of grocery provider anticipated by farmer if crop not sold to him:		
Credit continued	378	57
No future credit	277	42
Unknown	9	1
Actual sale price and reservation price to alternative buyer, RD\$/cwt:		
<u>Item</u>	<u>Actual price</u>	<u>Reservation price</u>
N	653	653
Mean	41.50	46.76
Std. Dev.	8.98	26.60
Minimum	21.00	1.00
Maximum	80.00	667.00
Std. Error	.351	1.04
Variance	80.60	707
Coeff. of Var.	21.60	56.90

this group, 59 percent indicated they would do so, nevertheless, in appreciation for the credit extended. When questioned with respect to the price an alternative buyer would have to offer, the farmers indicated an average reservation price 12.6 percent greater than the price actually received, i.e. \$5.26/cwt. over their received price. Less than half of the farmers felt the sale of their crop to an alternative buyer would negatively prejudice their access to groceries on credit from the original provider in the future.

Finally, the farmers were questioned with respect to a hypothetical situation where a member of their family or kin were a purchaser of red beans. Fewer than 10 percent indicated any sense of obligation to sell their crop to a kinsman, although almost one-third felt that sale to an alternative buyer might cause some resentment on the part of their kin (Table 24). And once again, the reservation price attached to foregoing a social obligation of this kind was 13.5 percent over the actual purchase price, or an additional RD\$5.60 per hundredweight.

The qualitative response to these questions seems to corroborate the essentially low to moderate degree of importance placed upon such services or factors as input and grocery provision, and kinship, as revealed above in the ranking of preference producing factors (Tables 20, 21).

However, the quantitative measures of the reservation price associated with the foregone social obligations or benefits seem exaggerated (i.e. 12.5 to 13.5 percent of the purchase price), given the apparent lack of significance for the two variables included in the regression model (i.e. groceries on credit and kinship). Nor were the signs of the coefficients for these variables in the model corroborated by this series of questions. An increase in the price extracted from an alternative buyer would signify a

TABLE 24 - Red Bean Farmer's Response to Purchase of Crop by Family or Kin, and Reservation Price to Non-Family or Kin Buyer, Dominican Republic, 1981-82.

RESPONSE	FREQUENCY	PERCENTAGE
Farmer feels "obligated" to sell crop to intermediary who is family or kin:		
Yes	49	7
No	594	90
Part of crop	13	2
Unknown	8	1
There would be resentment on part of family or kin if crop not sold to them:		
Yes	199	30
No	440	66
Unknown	25	4

Actual sale price and reservation price to alternative buyer, RD\$/cwt:

<u>Item</u>	<u>Actual price</u>	<u>Reservation price</u>
N	653	653
Mean	41.50	47.10
Std. Dev.	8.98	26.69
Minimum	21.00	1.00
Maximum	80.00	667.00
Std. Error	.351	1.04
Variance	80.60	712
Coeff. of Var.	21.60	56.60

lower expected price from the grocery provider or kin and thus a positive rather than negative influence on the difference between the farm-wholesale prices.

Congruence of beliefs and actions

One final test of the significance of the social preference inducing factors was conducted in the case where groceries were provided on credit or where the potential for sale to a family member or kin existed. The case of input provision on credit was not included in this series of tests since it occurred so infrequently among the sample population.

The test measured the degree of congruence between the farmers' stated beliefs, as revealed in the questions just reviewed, and their actions, as recorded in the survey data. The degree of congruence between the farmer's expressed reservation price and his true reservation price is revealed in those situations where he chose to sell his crop to an alternative buyer in spite of an offer from a family member/buyer.

Of the 39 cases where information was available, the data reveal that farmers extracted their stated opportunity cost in only 9 cases (Table 25). In other words, for the 39 cases where a family buyer existed and for which their price offer was available, in only 9 cases did the farmer, upon sale of his crop to an alternative buyer, actually receive a price equal to or greater than the family member's price plus the stated opportunity cost.

This finding tends to support the ranking of factors (Table 21) and the regression analysis (Table 12) in which a familial or kinship relationship with the buyer was ranked low and where no significant impact upon the farm-wholesale price margin was detected.

A second measure of the congruence between the farmer's stated belief and his actual behavior when confronted with the decision of whether to sell

Table 25 - Congruence of Farmer's Actions and Beliefs with Respect to Family Purchase and Reservation Price, Red Beans, Dominican Republic, 1981-82

ID	(a) Actual Saleprice	(b) Stated Re- servation Price	(c) Apparent Opportunity Cost(b-a)	(d) Family Price Offer	(e) Congruence (If a=d+c)
<u>SEA SURVEY</u>					
6	38	40	2	35	yes
20	52	54	2	50	yes
76	54	60	6	53	no
95	30	36	6	29	no
101	50	58	8	50	no
105	33	37	4	33	no
108	40	42	2	40	no
168	56	58	2	56	no
173	40	50	10	38	no
203	36	39	3	36	no
247	58	83	25	42	no
258	33	54	21	33	no
258.1	42	54	12	33	no
267	30	34	4	38	no
272	36	45	9	27	yes
293	35	38	3	32	yes
294	36	38	2	34	yes
298	37	39	2	35	yes
339	39	45	6	38	no
383	44	45	1	41	yes
501	32	34	2	32	no
530	47	50	3	47	no
534	47	50	3	47	no
556	42	46	4	42	no
601	33	38	5	33	no
<u>CENSERI SURVEY</u>					
18	36	38	2	35	no
28	39	42	3	39	no
36	60	70	10	50	yes
42	32	36	4	32	no
38	34	40	6	32	no
52	36	38	2	30	yes
69	45	50	5	67	no
97	30	36	6	33	no
165	33	38	5	33	no

his crop to a family member or a non-family member was tested. The congruence of the farmer's actions with his belief may be indicated by assigning a value of one to those occasions where his action coincided with his stated belief, and a value of two where it did not, such that:

BELIEF	ACTION	
	Sold to relative	Not sold to relative
Felt obligated	1	2
Did not feel obligated	2	1

The possibility of congruence must first be determined i.e. whether a family member/buyer exists. Subsequently, the presence of absence of congruence is determined by comparing the farmer's actions to his stated beliefs, as shown in Table 26.

As is evident from the Chi-square test, the null hypothesis was accepted (at the .01 level of significance), indicating no relationship between the farmer's stated beliefs and his actions. Thus, even in this case, where the farmer indicated a sense of "obligation" to sell his crop to a family member and where the opportunity existed, in fact, he did not do so.

The same analysis was made for a buyer who provides groceries. The congruence of the farmer's action where it coincides with his belief can be indicated by assigning a value of one (1-Yes) to those cases where his action coincided with his stated belief. In spite of a stated sense of obligation to do so, the farmers' actions belied their stated intentions or beliefs.

Finally, the farmer's response indicating whether or not he thought local farmers would sell their crop in "appreciation" to a buyer who provided them with groceries on credit was analyzed. This measure of congruence provides one additional test for the significance of these conditions, although its qualification as a gesture of "appreciation" ascribes a weaker

TABLE 26 - Congruence of Red Bean Farmers Actions and Beliefs
 With Respect to Transaction With Family Member or Kin,
 and Sense of Obligation, Dominican Republic, 1981-82.

BELIEF	ACTION	
	Sold to Relative	Not Sold to Relative
Felt obligated	7	10
Did not feel obligated	39	31

Note: $\text{Chi}^2 = 1.1602$, thus accept null hypothesis at .01 level.

Table 27 - Congruence of Red Bean Farmers Actions and Beliefs
 With Respect to Transaction With Grocery Provider, As
 an Obligation, Dominican Republic, 1981-82.

BELIEF	ACTION	
	Sold to Grocer	Not Sold to Grocer
Felt obligated	18	32
Did not feel obligated	26	80

Note: $\text{Chi}^2 = 2.2079$, thus accept null hypothesis at .10 level.

connotation than the previous tests, as indicated in Table 27. Again, the Chi-square test leads to acceptance of the null hypothesis (at the .01 level of significance). There was no statistical evidence to support the notation that, in fact, the farmer sells his crop to the grocer in appreciation for the groceries he is receiving on credit (Table 28). These results support the findings described above, where grocery provision was ranked only moderately among factors used to select a preferred middleman (Table 20) and the regression analysis, which revealed no significant impact of grocery provision upon the farm-wholesale price margin.

Additional Information

For comparative purposes, additional information with respect to source of price information, local and non-local buyers who purchase in area, and variety of beans planted was collected (Tables 29, 30, 31).

TABLE 28 - Congruence of Red Bean Farmers' Actions and Beliefs
 With Respect to Transaction with Grocery Provider, In
 Appreciation, Dominican Republic, 1981-82.

BELIEF	ACTION	
	Sold to Grocer	Not Sold to Grocer
Would sell in appreciation	38	91
Would not sell in appreciation	7	21

Note: $\text{Chi}^2 = .2235$, thus accept null hypothesis at .01 level.

TABLE 29 - Source of Price Information for Farmers

Source	Frequency	Percentage
Neighbors	147	29
Non-Local Trucker	115	23
Local Trucker	55	11
Local Agent	48	9
Grocer	28	5
Local Assembler	27	5
Agric. Technician	21	4
Radio	19	4
Farmers Association	18	4
INESPRE	16	3
Commission Man	8	2
Farmers Cooperative	6	1
Newspaper	2	0
CENSERI	2	0

Source: Market Study of Red Beans (Anschel and Wiegand 1982).

TABLE 30 - Number of Local and Non-Local Buyers who Purchase in Area

Number	Local		Non-Local	
	Frequency	Percent	Frequency	Percent
None	178	27	46	7
1	125	19	46	7
2	103	16	47	7
3	41	6	48	7
4	31	5	39	6
5	40	6	37	6
6 to 10	69	10	87	13
More than 10	77	11	314	47

Source: Market Study of Red Beans (Anschel and Wiegand 1982).

TABLE 31 - Variety of Beans Planted

Variety	Frequency	Percentage
Pompadour	72	11
Contstanza I	35	5
Jose Beta	62	9
Checo	372	56
Checo Pompadour	49	7
Uther Not Listed	73	11
Unknown	1	1

Source: Market Study of Red Beans (Anschel and Wiegand 1982).

SUMMARY

The objective of this study was to examine the interface between small scale farmers and marketing intermediaries in an LDC setting to determine the existence, frequency, source and impact of farmers' preferences for particular buyers or intermediaries. The preferences were suggested to be of two types:

- a) those created by services provided by the intermediary at the time of purchase and directly associated with the transaction,
- b) those created by the provision of services and existence of interpersonal relationships that are independent of the particular transaction but which may impact upon the terms of sale.

Introduction

The Dominican Republic was chosen as a setting representative of the countries facing problems commonly encountered in those which have been designated as LDC's. The study concentrated on the marketing of red beans (*Phaseolus vulgaris*) throughout the Dominican Republic during a seven month period between November 1981 and May 1982, during which period the largest portion of the annual red bean production is marketed. While the sample is representative of the bulk of the annual crop and bean farming and marketing practices nationwide, nevertheless, a degree of caution must be maintained with respect to overgeneralization from this temporally representative sample.

Statistical procedures for expansion of the sample to estimate national production and acreage in beans have been developed by the Secretariat of Agriculture, but application of such a procedure to a survey of this kind is

inappropriate. A sample drawn from a frame representing the kinds of farmer-buyer relationships examined in this analysis would have been more appropriate, but no such frame exists.

Possible Sources of Producers' Preferences

The sources of producer's preferences based upon transaction related services were suggested in previous research. These included:

- a) transfer costs from point of sale to the wholesale market,
- b) provision of production credit by the intermediary to the farmer,
- c) only partial payment for the crop at the time of sale,
- d) deferrment of final price determination pending sale of the crop by the middleman in the wholesale market,
- e) grading of the product into quality categories at the farm level transaction,
- f) provision of price premiums based upon the geographic origin of the crop (reflecting varietal or qualitative consumer preferences),
- g) the opportunity for the farmer to sell his crop in the same units of measure upon which the price quotation was made.

The sources of additional preference inducing factors also mentioned in the literature, but which are independent of the particular transaction included:

- a) the provision of tied purchasing arrangements whereby the sale of the farmers' beans implies additional transactions with the same intermediary for other crops,
- b) the provision of production resources to the farmer by the intermediary (or his family),
- c) the provision of groceries to the farmer by the intermediary (or his family) who owns a retail establishment,
- d) the provision of employment to the farmer by the intermediary (or his family),

- e) the provision of access to political or official influences to the farmer by the intermediary (or his family), and vice-versa,
- f) the provision of access to fulfilling societal obligations where the buyer and farmer are linked through family or ritual kinship,
- g) the provision of "risk free" and non-threatening market involvement by providing the farmer with the opportunity to do business crop after crop with the same buyer,
- h) the provision of philosophical and/or moral satisfaction to the farmer by allowing him to market his crop through a cooperative.

The existence of these services and their incidence (i.e. frequency of occurrence) were ascertained through the application of a national survey among bean producers who had marketed at least some portion of their crop through commercial channels.

Existence, Frequency and Impact of Transaction Related Services

With respect to transfer costs, it was found that 30 percent of the transactions were conducted through "local" intermediaries, the balance being channeled through other, non-local buyers. Although the buyer (whether local or non-local) picked up the crop in 69 percent of the transactions reported, the farmers ranked this service as relatively unimportant. This indicates that farmers would be willing to transport their crop to the nearest town if the price there were greater than the price at the farm plus transportation costs. Apparently, the cost for most farmers currently exceeds the perceived benefits of marketing their crops off the farm.

The test for the impact of this service (i.e. its effect upon the farm-wholesale price margin) was inconclusive. Although the cost of transporting the crop (measured in units of time between the point of transaction and the wholesale market) was highly significant in the regression analysis, the coefficient was of the wrong sign. The most probable explanation of this apparent anomaly is that wholesale price levels in Santo Domingo were

depressed due to the importation, storage, and sale of red beans by the price stabilization institute (INESPRE), which has traditionally imported beans in November and December. A secondary effect of large imports at this time would be to severely restrict available storage space in Santo Domingo for domestically produced beans, thus forcing their storage into provincial wholesale warehouses.

It was suggested in the literature that provision of a cash advance by the intermediary would allow him to establish a preferred relationship with producers to whom such loans were extended. In fact, the existence of this service among intermediaries purchasing red beans was disconfirmed; in only 18 of the 664 transactions surveyed had a loan been extended by an intermediary (less than 3 percent of the sample). Although questions related to alternative sources of credit were considered for inclusion in the survey, they were deemed to be too sensitive at a time when institutional loans were falling due.

In any event, the provision of credit by intermediaries does not appear to be common practice among bean producers, thus rendering moot any measure of the impact of this service in establishing producer preferences or its impact upon the farm-wholesale price margin. Interestingly, for all of the brouhaha associated with this "insidious" practice, it was one of the most highly ranked services desired by farmers. A possible conclusion with respect to this non-service could be that its negative impact upon farmer well-being has been greatly exaggerated.

The third transaction related service, partial payment for the crop at the time of transaction, was found to be of such low incidence that its potential impact was disconfirmed. One may conclude that such a result is due to the choice of crop, for which immediate payment is customary, as

compared to perishables such as plantain, where the buyer may have strong cause to share the risk associated with marketing a perishable product. It should be noted that immediate payment for the crop was ranked very highly among the services preferred by farmers.

In conjunction with deferred payment, determination of the final price pending sale by the intermediary in the wholesale market was found to occur not at all, thus rendering the impact nil.

Determination of crop quality is apparently attempted at the farm level, by both farmer and intermediary, as evidenced by price quotations according to grade in 98 percent of the transactions and the farmers own approximation of product quality. However, when a sample (albeit small) of graded beans from the country were evaluated by an expert wholesale merchant, it became apparent that the grade designations made in the field by the intermediaries grossly over-represented the quality of the beans. Subsequent analysis indicates that the test was perhaps totally invalid as even an indicator of crop quality designations at the farm level.

When the impact of the buyer's grade designation was tested, a highly significant coefficient was revealed, wherein the second quality grade classification increased the farm-wholesale price margin by RD\$2.50 per hundredweight, and the third quality grade designation by RD\$6.10 per hundredweight. INESPRES price data indicate an average price differential at the wholesale level between first and second quality beans ranging from RD\$2.91 up to RD\$10.23 per hundredweight, depending upon the month of sale, thus lending an additional degree of credibility to the regression results.

The intent of capturing the quality characteristics of the beans was primarily to remove consideration of quality from the analysis, thus allowing for the examination of preference inducing factors based upon a homogeneous product and uniform farm-wholesale price differentials.

Given the high incidence of grade level designations reported at the farm level and their apparent reflection at subsequent levels within the market channel, the assertion found in some previous analyses that no "formal" grading occurs at the farm level should perhaps be re-evaluated.

The regional origin of the product was introduced into the model with the same purpose as the grade designation, i.e., to remove the influence of this variable upon the analysis of preference inducing factors. While the coefficients associated with the impact of the region designations reflect a priori expectations, the associated expected signs were reversed due to the inadvertant selection of a deficit producing region as the omitted category of dummy variables. In any event, the signs and coefficients are consistent and the provision of a premium for beans originating in certain geographic areas is significantly apparent for several regions and weakly so for others. Although this does not reflect the provision of a transaction related service, it does indicate a sensitivity among intermediaries in their farm level transactions for the regional origin of the crop, and thus a consumer preference which is transmitted back through the marketing channel in the form of higher farm prices.

Literature reporting farmers and policy makers negative perceptions of the "sharp trading practices" of intermediaries, especially with reference to their manipulation of weights and measures, is so common as to have made it become a characteristic assumed of every middleman. Although it was not possible to actually observe weight manipulation due to the historic nature of the data, a proxy was developed to indicate those situations where the potential for shortweighting was present. This occurred when the buyer's price quotation was in units of measure other than those which the farm used to designate the quantity of crop he had sold. This study revealed that

although there was a high percentage of cases showing a significant difference between the reported sale price and a price based upon total receipts divided by total quantity sold for those situations where weight manipulation could potentially have occurred, further analysis indicated that the price differentials were statistically insignificant. Nor was any impact of shortweighting apparent on the farm-wholesale price margin.

Although these results do not eliminate the possibility that weight manipulation occurs, nevertheless, they do not support the belief there was widescale, systematic manipulation of weighting for the 1981-82 bean crop.

In summary, few of the suggested market transaction services assumed to be associated with the establishment of producers' preferences were found to be either frequent or significant in their impact upon the farm-wholesale price margin. Although the sign associated with the effect of transfer costs was unexpected, a reasonable explanation for this occurrence has been suggested and may be analyzed; in any event, it does not affect the test for producers' preferences.

Credit provided by the intermediaries to "bind" the farmer into obligatory sales arrangements was not in evidence. The farmers desire for immediate payment was strongly supported by the almost total absence of arrangements to the contrary, thus making final price determination pending sale of the crop at the wholesale level also negligible.

There was a little support for the contention that beans are sold ungraded at the farm level; on the contrary, there was some evidence indicating wholesale grade differentials may be accurately reflected in farmgate transaction prices. The same is true of consumer preferences for beans from particular regions, for which regional price differentials were apparent.

Finally, the rather commonly held belief that buyers engage

systematically in dishonest weighing practices was not supported by the evidence, and no measurable impact upon the farm-wholesale price margin was apparent in this data set.

Existence, Frequency and Impact of Preference Inducing Services

Although only 8 percent of the farmers indicated that tied purchase arrangements existed for the sale of their crop, the provision of this service was tested to measure its impact upon the farm-wholesale price margin. No significant effect was detected; additionally, the provision of tied purchase arrangements was among the lowest ranked services desired by producers. Thus, for bean producers in the Dominican Republic, access to an assured outlet for other crops is not a significant consideration in their choice of a buyer. Nor, apparently, does the provision of this service by the intermediary allow him to establish any measure of monopsonistic power at the farm level among bean producers.

A second "service" widely referenced in the literature to explain the inordinate influence of middlemen in the purchase of farm goods is the provision of the productive resources, thus binding the recipient to the crop purchaser. In fact, the frequency of such arrangements was so low (c.a. 1 percent) as to render this hypothesis disconfirmed. Nor did this potential service enjoy high appeal among producers who ranked it at the low end of possible alternative services.

Perhaps the most frequently mentioned preference inducing or binding factor in the literature is the provision of food and consumer goods through the local grocery store which the intermediary or a member of his family owns. Although nearly 20 percent of the intermediaries involved in the purchase of beans in this survey were in a position to provide this service,

its provision evidenced no significant impact upon the farm-wholesale price margin. The provision of groceries was ranked in the middle of other possible services. There was little sense of obligation among producers to sell their crop to an intermediary who had sold them groceries, although more than half said they would do so in appreciation.

However, when examination was made of the actual behavior of farmers who had indicated a sense of obligation and to whom groceries had been sold by an intermediary, their actions were not congruent with their stated intentions or beliefs. Nor were they congruent with respect to indicating their appreciation for groceries extended on credit. Given the apparent lack of impact upon the farm-wholesale price margin and the lack of congruence exhibited by grocery recipients, it is difficult to accept the generalized belief that intermediaries in a position to provide groceries on credit are thereby endowed with monopsonistic power or that such arrangements provide them with an opportunity to generate producer preferences for their services as an intermediary.

The fourth preference inducing service, the provision of income opportunities to the farmer by the intermediary was disconfirmed, at least among bean producers, due to its practically total lack of occurrence.

Farmer knowledge of the buyer's status within the local and regional power structure was revealed to occur so infrequently as to render its impact inconsequential. Nor was such status considered to be an important factor when selecting a buyer. However, a significant negative impact on the farm-wholesale price margin was generated among those farm families who counted among themselves a member of the local (though not regional) officialdom.

Whether or not the buyer was related to the farmer through familial ties or ritual kinship (co-parenthood, godparent) apparently had no measurable impact upon the farm-wholesale price margin. Potential for sale to a family

member existed for 13 percent of the farmers interviewed, yet only 6 percent sold their crop to kinsmen. The presence of kinship was ranked quite low among factors determining the selection of a buyer, and additional analysis revealed that in spite of a moderate sense of obligation and a relatively high reservation price, in fact, those farmers confronted with the opportunity chose to sell their crop to an alternative buyer at prices which did not begin to approach the price level they had indicated would be necessary to motivate them not to sell to their kinsmen.

Analysis of the impact of recurrent or habitual sales to the same buyer, crop after crop, revealed a significant widening influence between the farm and wholesale price levels, which may be assumed to have had greater incidence at the farm level in the form of lower prices. Almost one-half of the farmers surveyed were able to recall the most recent buyer by name and 58 percent of the farmers had consulted with only one (or less) buyers prior to selling their crop.

The influence of the farmers philosophical beliefs, using advocacy of cooperativism as an indicator (as suggested in Nicholls) was disconfirmed. None of the producers interviewed had marketed their crop through a cooperative. Evidence from a separate survey among farm association members revealed that only 5 of 181 sales had been transacted through these cooperative-like organization. In summary, five of the eight services which might have been associated with the establishment of producer preferences were found to occur with sufficient frequency to merit analysis of their impact upon the farm-wholesale price margin. Of these, only two provided a significant measure of impact upon the dependent variable: the local political influence of the farmer's family and the propensity among some farmers to sell their crop, season after season, to the same intermediary.

Several additional considerations were tested. It was suggested in the introduction to this study that small scale farmers are more likely to receive the lowest price for their crop. If the interpretation of smallness is based upon the farmer's relative wealth, then no significant impact upon the farm-wholesale price margin was revealed. However, when the interpretation of scale is based upon the quantity of product sold in a given transaction, a small but statistically significant negative impact upon the dependent variable is generated, thus adding support to the hypothesis. However, this may be explained by reduced costs per unit associated with large transactions.

With respect to the existence of a differential between the social preference priced and market differentiated price, the study revealed that no significant difference with respect to market behavior (i.e. choice of buyer) existed between those who were provided access to socially preference inducing factors and those who were not.

Policy Implications

The analysis revealed that for those farmers tied to a particular buyer (as indicated by the degree of consecutive sales to the same buyer), efforts encouraging the farmer to explore alternative sales arrangements would reduce the farm-wholesale price margin, with benefits accruing to the producer. If non-dependence upon a recurrent buyer is assumed to indicate a more aggressive marketing posture by the farmer and a desire for additional information, then the provision of such information through alternative channels to farmers unable or unwilling to moderate their dependence upon a particular intermediary would be helpful.

The sale of larger quantities of beans was associated with a reduction

in the farm-wholesale price margin. Assuming this reduction is associated with a higher farm level price, farmers would benefit from programs which facilitate bulking their crops into larger transaction units, as long as the costs associated with such a procedure do not exceed the benefits of a higher farmgate price.

Access to or the possession of local political power on the part of the farmer's family was associated with a decreased margin between wholesale and farmgate price levels. Policies which encourage greater integration of farmers and farm associations into the local power structure would thus be expected to enhance the market position of the farmer when he sells his crop.

Although the study lends support to previously published documents citing the intermediary's dual role in some cases as a rural grocery store owner, the impact analysis detected no significant relationship between this situation and the magnitude of the farm-wholesale price margin. Nor was any coercive or restrictive influence upon the farmer market behavior revealed in these situations.

The provision of inputs and/or loans by intermediaries was also disconfirmed, as was the influence of kinship. Only 1 percent (8/664) of the farmers had sold their crop prior to harvest. The primary implication policy makers may wish to draw from these results is that great caution must be exercised in the interpretation of marketing studies based upon insufficiently representative data. Although descriptive studies of a case history nature provide valuable insights and direction, they should perhaps be used primarily as a point of departure for more carefully structured and exhaustive evaluations prior to the implementation of policy decisions.

Production credit was ranked quite highly among factors which would influence the farmer's decision with respect to the choice of an

intermediary. That Dominican farmers are in need of sufficient and timely credit has been amply documented elsewhere. Their willingness and desire to secure such credit through the intermediaries is, however, surprising and would strike most observers as lending sheepskins to wolves. But perhaps these old perceptions should be laid aside or at least tested. It is conceivable that a very carefully structured experiment could be conducted whereby institutional production credit is channeled through intermediaries, with the note held by the lending institution and with no obligation on the part of the farmer to sell his crop to the lending intermediary. It should be noted, however, that only 30 percent of the bean purchasers were local.

Quality or grade designations are apparently a part of the marketing process for transactions at the farm level, and price differentials appear to be reflected throughout the system. Given the farmers' apparent awareness of quality and price differentials, the need for additional research is indicated to determine the causes of low quality and the costs of improving it at the farm level. Such an analysis might conceivably indicate that quality improvements could be obtained more efficiently elsewhere in the marketing channel, rather than at the farm level.

Among bean producers, immediate payment for their crop was ranked even more highly than receiving the best possible price. Cooperatives and farm associations engaged in marketing activities would benefit from procedures which allow for the immediate compensation of farm members at the moment of transaction, even if the procedure requires an initial per unit payment at a substandard price level. National programs designed to regulate price and supply fluctuations for crops such as beans might also enjoy greater voluntary support among farmers in their policies were designed to provide for immediate cash payment at the point and moment of transaction.

Appropriate Marketing Research Design

If the standard approach to price analysis frequently used to test for market imperfections had been utilized, it is quite probable that no significant imperfections at the national level would have been revealed. But neither would the impact upon individual farmers of access to local political power, quantity of production sold, or the effect of habitual sales have been captured. On the other hand, a less rigorous survey generating fewer quantitative observations might have led to a series of conclusions at odds with the reality of farmer market behavior. This is especially obvious in the measures of congruence between the farmer's stated beliefs and intentions and his actions.

The study was purposely designed to allow for its application, with only minor modifications, to other crops. The impact analysis utilized a widely disseminated procedure which could be easily accomplished using a desk-top calculator or computer.

Suggested Additional Research

As indicated above, there are certain properties associated with particular crops, such as perishability, production for processing, non-edibility and state control of marketing, which would affect the manner in which such crops are marketed. It may be assumed that the characteristics revealed in this study of bean producers and intermediaries are not universal.

By selecting a perishable product and also one destined for processing, the methodology used in this study could be tested with respect to its effectiveness in revealing those characteristics which may impact directly upon the farmer, creating a climate for imperfect competition.

Given the unexpected results associated with transfer costs, a more accurately specified and detailed analysis of transport costs and services, and the impact of imports on storage availability and wholesale price levels should be considered.

That quality distinctions are made at the farm level for beans by both farmer and intermediary has become apparent. However, the incidence of the price differential has not been fully ascertained, and an analysis to determine who benefits from such grade designations and by how much needs to be made.

Given the very small coefficient associated with the sale of larger units of beans, additional investigation is required to ascertain whether significant additional benefits could be secured by marketing larger quantities of the product (i.e. beyond the quantities sampled in the analysis) and the magnitude of any costs associated with bulking small individual lots into larger units.

Finally, a more detailed and profound analysis should be conducted with respect to the magnitude and limits of economic benefits which may accrue to bean farmers who integrate themselves more fully into the local power structure.

General Conclusions

Several general conclusions can be drawn from this study. There is little evidence that red bean farmers are exploited by middlemen in such a way as to reduce the price farmers receive for their product. The income differentials observed between bean producers and middlemen are a reflection of access to human and physical resources (wealth), and are not the result of exploitation through price manipulation as some like to believe. Thus, even well-intentioned programs (such as the CENSERI's) are doomed to failure if

their underlying assumption is to redress unequal bargaining power. If they are to succeed, they must provide services more efficiently than are now being provided by the middlemen. Given the apparent experience to date, it would appear the CENSERI's have been unsuccessful in doing so.

Since Dominican red bean prices are determined in the world market, the government can only hope to increase real income among peasant farmers by increasing their efficiency in utilizing existing resources, through redistribution of wealth to small farmers, or increasing the efficiency of the marketing system for beans. The most obvious opportunities for these probably reside in storage programs, as suggested by the great fluctuations in prices which are an indicator of insufficient storage capacity. However, very specific recommendations must await further research.

Moreover, programs which intend to reduce prices to the consumer must be sensitive to maintaining efficiency in the production and marketing systems or risk effects contrary to their intent. At the most basic level, subsidization of retail prices through the importation and sale of beans at below cost may reduce plantings in following seasons, both increasing the need to import in the future and reducing farm income if other, lower-income crops are substituted for beans. Similarly, if bean stocks (hoards) are expropriated, the buyer-middleman's risks are increased, which may result in a reduction of the price he offers at the farmgate. It is suggested that mechanisms for supplementing low incomes should be considered rather than manipulating bean prices, while simultaneously, programs to increase the economic efficiency of bean production and marketing should be instituted.

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MARKET STUDY OF RED BEANS - SEA/IICA/UKY - DOMINICAN REPUBLIC - 1982

NOTE TO INTERVIEWER: Accept only those farmers who have sold red beans since November 1, 1981 up to today.

PREAVISO: ___ Identify self ___ Purpose of survey ___ Length of interview ___ Confidentiality ___ May refuse interview or terminate it without prejudice ___ Answer any questions.

BY SIGNING THIS FORM, I HEREBY AFFIRM THAT I HAVE READ THE ABOVE PREAVISO TO THE SUBJECT AND HAVE ANSWERED HIS QUESTIONS.

Signature of Interviewer

<u>I. IDENTIFICATION</u>			
1. Interview Number		001	
2. Location	Segment.....	002	
	Province.....	003	
	Municipality.....	004	
	Section.....	005	
	Village.....	006	
	Interviewer's Number.....	007	
3. Result of the interview:			
1. Complete	2. Incomplete	3. Rejected	008
4. If rejected, why?			
1. Refused interview	2. Sickness	3. Other _____	009
		(specify)	
5. Date and hour of the interview			
1st Visit (Day/Month)		010	
Time begun _____	Time ended _____		
2nd Visit (Day/Month)			
Time begun _____	Time ended _____		
6. Name of Interviewer	_____		
	(print)		
7. Name of Supervisor	_____	Signature	_____
Comments:	_____		

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17. (Of this production, how much was:)		
Stored	:Quantity	035
	:Unit of measure(See Table #1)	036
	:Weight of the unit	037
	:In: 1. Pounds 2. Kilos	038
18. Of the production stored, what quantity was destined for:		
Seed	:Quantity	039
	:Unit of measure(See Table #1)	040
	:Weight of the unit	041
	:In: 1. Pounds 2. Kilos	042
Home consumption	:Quantity	043
	:Unit of measure(See Table #1)	044
	:Weight of the unit	045
	:In: 1. Pounds 2. Kilos	046
Wait for a better price	:Quantity	047
	:Unit of measure(See Table #1)	048
	:Weight of the unit	049
	:In: 1. Pounds 2. Kilos	050
19. How many months can red beans be stored for:		
	Seed	051
	Consumption	052
	Wait for higher price	053
20. What kind of beans did you plant? Variety (See Table #2)		054
	Quantity	055
	Unit of Measure(See Table #1)	056
	Weight of the unit	057
	In: 1. Pounds 2. Kilos	058
(If more than one)	Variety (See Table #2)	059
	Quantity	060
	Unit of measure(See Table #1)	061
	Weight of the unit	062
	In: 1. Pounds 2. Kilos	063
21. How many tareas did you plant for this most recent crop?		064

<u>III. MARKETING OF THE BEANS</u>			
22. Did you sell your crop or part of it: 1. When it was planted 2. At flowering 3. After the harvest 4. Other _____ (specify)		065	
23. In addition to selling your own crop, have you <u>ever</u> purchased other farmer's bean crops, to resell? 1. Yes 2. No (Go to Question #26)		066	
24. Since November 1st, 1981, have you purchased other farmer's crops? 1. Yes 2. No (Go to Question #26)		067	
25. How much did you purchase?	:Quantity	068	
	:Unit of measure(See Table #1)	069	
	:Weight of the unit	070	
	:In: 1. Pounds 2. Kilos	071	
26. Before selling your last crop, did you get information about the current selling price? 1. Yes 2. No (Go to Question #28)		072	
27. From whom did you receive the information? (See Table #3)		073	
		074	
		075	
		076	
28. How many intermediaries did you deal with before selecting the one to whom you sold your crop?		077	
29. Of the red bean buyers who customarily purchase beans in the area where you sold your crop, how many are: From that local area		078	
	From outside the local area	079	
30. Are there any red bean buyers in this area who are also public officials? 1. Yes 2. No (Go to Question #33)		080	
31. What category of official is the buyer? (See Table #4)		081	
		082	
		083	

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32. What price was he offering when you sold your crop? (RD\$)	084
:Unit of measure(See Table #1)	085
:Weight of the unit	086
:In: 1. Pounds 2. Kilos	087
:Date (Day/Month)	088
33. Do you or any of your family hold public office? 1. Yes 2. No (Go to Question #35)	089
34. What category is the position? (See Table #4)	090
	091
35. Do you have any family or kin in this area who purchase red beans? 1. Yes 2. No (Go to Question #38)	092
36. What is the relationship? (See Table #5)	093
	094
37. What price was he offering when you sold your crop? (RD\$)	095
:Unit of measure(See Table #1)	096
:Weight of the unit	097
:In: 1. Pounds 2. Kilos	098
:Date (Day/Month)	099
38. The owner of the grocery store where you purchase food for your family: Is he a buyer of red beans? 1. Yes 2. No (Go to Question #40)	100
39. What price was he offering when you sold your crop? (RD\$)	101
:Unit of measure(see Table #1)	102
:Weight of the unit	103
:In: 1. Pounds 2. Kilos	104
:Date (Day/Month)	105
40. Did you buy inputs for cash or credit from a red bean buyer who <u>was not</u> the buyer who purchased your crop? 1. Yes 2. No (Go to Question #42)	106

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41. Which inputs did you purchase from him and what was their cost?(See Table #6)		
For Cash	:Input	107
	:Total(RD\$)	108
	:Input	109
	:Total(RD\$)	110
	:Input	111
	:Total(RD\$)	112
On Credit	:Input	113
	:Total(RD\$)	114
	:Input	115
	:Total(RD\$)	116
	:Input	117
	:Total(RD\$)	118
42. Since the beginning of 1981, have you received a loan from a red bean buyer who <u>was not</u> the buyer who purchased your crop?		
	1. Yes 2. No (Go to Question #43)	119
	What is his category(See Table #3)	120
	How much was the loan?(RD\$)	121
	On what date received?(Day/Month)	122
	In what month repaid(or will repay)	123
	If interest charged, how much?(RD\$)	124
43. Since the beginning of 1981, other than red beans, have you sold any crops to INESPRES? 1. Yes 2. No (Go to Question #49)		125
44. What other crops did you sell to INESPRES? (See Table #7)		126
		127
		128
		129
		130
45. How did the prices paid by INESPRES compare to prices paid by other buyers in this area? 1. The same 2. Better 3. Worse		131

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46. When were you paid by INESPRES? 1. At moment of sale(Go to Question #48) 2. After the sale 3. Other _____ (specify)	132
47. How many weeks did you wait for INESPRES to pay you for your crop?	133
48. The sale you made to INESPRES, was it through/by: 1. A non-CENSERI Association 2. A CENSERI Association 3. A direct sale 4. Other _____ (specify)	134
49. Please indicate in order, to what degree the following factors influence your decision of which buyer to sell your crop, (1 - 6), where a buyer:	
Buys crop at farmgate	135
Sells groceries on credit	136
Provides land	137
Provides inputs/resources on credit	138
Pays for crop immediately, with cash	139
Offers the best price	140
50. Please indicate in order, to what degree the following factors influence your decision of which buyer to sell your crop, (1 - 6), where the buyer:	
Will buy other crops from you	141
Loans money for emergencies	142
Gives cash advance on crop	143
Loans money to plant crop	144
Is a government official	145
Is a relative or other kin	146
51. How many sales did you make of your last crop, both large and small?	147

<u>IV. BUYERS OF RED BEANS</u>		BUYER I		BUYER II		BUYER III	
52. Name of the buyer(s):							
I.							
II.	148		220			291	
III.							

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	BUYER I	BUYER II	BUYER III
53. What is the category of the buyer?(See Table #3)	149	221	292
54. On what date was the sale price set with this buyer? (Day/Month)	150	222	293
55. How were the beans delivered? 1. The buyer picked them up. 2. The farmer took them to the buyer	151	223	294
56. Where were the beans picked up or delivered? (See Table #8)	152	224	295
57. What is the name of the town closest to this place that is located on a hard-surfaced road? I. II. III.	153	225	296
58. How many hours of travel is this town from the delivery/pick-up site: By vehicle? By Animal?	154 155	226 227	297 298
59. How much did you sell to this buyer? :Quantity :Unit of measure(See Table#1) :Weight of the unit :In: 1. Pounds 2. Kilos	156 157 158 159	228 229 230 231	299 300 301 302
60. What was the sale price? (RD\$) :Unit of measure(See Table#1) :Weight of the unit :In: 1. Pounds 2. Kilos	160 161 162 163	232 233 234 235	303 304 305 306
<div style="border: 1px solid black; padding: 5px; width: fit-content;">ENTER THE HIGHEST PRICE/UNIT IN QUESTIONS #91, 95, 98; ON PAGES 12 & 13.</div>			
61. What was the total received for this sale(RD\$)?	164	236	307
62. At what grade did the buyer set his price for your beans? 1. First 2. Second 3. Third	165	237	308

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		BUYER I	BUYER II	BUYER III
71. If interest is charged, how much, without counting the principal? (RD\$)		185	257	328
72. Did you purchase inputs for cash or credit from this buyer or any of his family? 1. Yes 2. No (Go to Question #74)		186	258	329
73. Which inputs did you purchase from this buyer and what was their total cost? (See Table #6)				
For Cash	Input	187	259	330
	Total (RD\$)	188	260	331
	Input	189	261	332
	Total (RD\$)	190	262	333
	Input	191	263	334
	Total (RD\$)	192	264	335
On Credit	Input	193	265	336
	Total (RD\$)	194	266	337
	Input	195	267	338
	Total (RD\$)	196	268	339
	Input	197	269	340
	Total (RD\$)	198	270	341
74. By selling your beans to this buyer, does it imply that he or a member of his family will necessarily purchase some other crop from you? 1. Yes 2. No (Go to Question #76)		199	271	342
75. What are these other crops? (See Table #7)		200	272	343
		201	273	344
		202	274	345
		203	275	346
		204	276	347
		205	277	348
76. Does this buyer or any of his family own a grocery store? 1. Yes 2. No (Go to Question #79)		206	278	349

	BUYER I		BUYER II		BUYER III	
77. How do you purchase your groceries in his store? 1. For cash 2. On cash and credit 3. On credit 4. Don't buy (Go to Question #79)	207		279		350	
78. If you purchase on credit: Since 1981 until now, what was the most you ever owed on account?(RD\$)	208		280		351	
79. Has this buyer or his family ever provided you with employment? 1. Yes 2. No (Go to Question #82)	209		281		352	
80. How many days worked for him or his family since 1981 until now?	210		282		353	
81. How much did you get paid per day?(RD\$)	211		283		354	
82. Is this buyer a relative or kin of yours? 1. Yes 2. No (Go to Question #84)	212		284		355	
83. What is the relationship? (See Table #5)	213		285		356	
	214		286		357	
84. Has this buyer or any of his family (or do they now) held a government position? 1. Yes 2. No (Go to Question #86)	215		287		358	
85. What is/was the category of that position?(See Table #4)	216		288		359	
	217		289		360	
86. Since Hurracane David: How many times have you sold your red bean crop to this same buyer?	218		290		361	
87. How many times have you sold your red bean crop to some other buyer?	219					

NOTE: NOW RETURN AND ASK QUESTIONS #53 THROUGH #86 FOR BUYER II, and BUYER III.....
UNLESS THEY ARE THE SAME PERSON, IN WHICH CASE, ONLY REPEAT QUESTIONS #53
THROUGH #66.

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V. GROWERS' CUSTOMS IN THIS AREA

<p>88. In general, if a farmer in this area buys his inputs on credit from an intermediary: Would the farmer feel <u>obligated</u> to sell him his crop?</p> <p>1. Yes (Go to Question #90)</p> <p>2. No</p> <p>3. Part of it (Go to Question #90)</p>	362
<p>89. Even though he might not feel obligated to do it, would he perhaps sell a part of his crop to the intermediary in appreciation? 1. Yes 2. No</p>	363
<p>90. If he didn't sell any to the intermediary, is there a chance the buyer would not sell him inputs on credit in the future?</p> <p>1. No, nothing would happen to the farmer</p> <p>2. Yes, the intermediary would withhold sales on credit in the future</p>	364
<p>91. If an intermediary who sold you inputs on credit were to offer <input type="text"/> for your crop: How much would another intermediary have to offer for you to sell your crop to him, and not to the buyer who provided the inputs on credit?</p> <p style="text-align: right;">Price(RD\$)</p>	365
<p>92. In general, if a farmer in this area purchases his groceries on credit from an intermediary who owns a grocery store: Would the farmer feel <u>obligated</u> to sell him his crop?</p> <p>1. Yes (Go to Question #94)</p> <p>2. No</p> <p>3. Part of it (Go to Question #94)</p>	366
<p>93. Even though he might not feel obligated to do it, would he perhaps sell a part of his crop to the intermediary in appreciation? 1. Yes 2. No</p>	367
<p>94. If he didn't sell any to the intermediary, is there a chance the buyer/owner of the grocery would not sell him groceries on credit in the future? 1. No, nothing would happen to the farmer</p> <p>2. Yes, the intermediary would withhold sales on credit in the future.</p>	368

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95. If an intermediary who sold you groceries on credit were to offer <input type="text"/> for your crop: How much would some other intermediary have to offer for you to sell your crop to him, and not to the buyer who provided the groceries on credit?	Price(RD\$)	369
96. In general, if a farmer has a relative who is an intermediary: Would the farmer feel <u>obligated</u> to sell him his crop? 1. Yes 2. No 3. Part of it		370
97. Is it possible some resentment might arise if the farmer did not sell his crop to the relative/intermediary? 1. Yes 2. No		371
98. If a relative of yours who is an intermediary were to offer <input type="text"/> for your crop: How much would some other intermediary have to offer for you to sell him your crop, and not to the buyer who is your relative?	Price(RD\$)	372
99. During last year, did you harvest a red bean crop about this same time, i.e. <input type="text"/> ? 1. Yes 2. No (Terminate the interview)		373
100. What kind of production did you get?	Quantity	374
	Unit of measure (See Table #1)	375
	Weight of the unit	376
	In: 1. Pounds 2. Kilos	377
101. What kind of beans did you plant?	Variety(See Table #2)	378
102. How much of this crop did you sell?	Quantity	379
	Unit of measure(See Table #1)	380
	Weight of the unit	381
	In: 1. Pounds 2. Kilos	382
103. At what price did you sell the crop? (RD\$)		383
	Unit of measure(See Table #1)	384
	Weight of the unit	385
	In: 1. Pounds 2. Kilos	386
104. On what date did you sell the crop? If there was more than one sale:	(Day/Month)	387
	(Day/Month)	388
	(Day/Month)	389

INDICATE THE TIME INTERVIEW ENDED ON PAGE 1

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TABLE 1: UNITS OF MEASURE

01 Package	10 Kilo
02 Box	11 Can
03 Case	12 Pound
04 Load	13 Thousand
05 Braid	14 Hundredweight
06 100 count	15 Stalk
07 Dozen	16 Sack(large)
08 Fanega	17 Other
09 Cup	(specify)

TABLE 4: GOVERNMENT OFFICIALS

01 Relative is regional official
02 Relative is local official
03 Farmer is regional official
04 Farmer is local official
05 Buyer is regional official
06 Buyer is local official

TABLE 5: FAMILY RELATIONSHIPS

01 Siblings, parents, children, grandparents
02 Nieces, nephews, aunts, uncles cousins
03 In-laws
04 Godparent, godchild, coparent

TABLE 7: OTHER CROPS

01 Rice	27 Chile pepper
02 Corn	28 Garlic
03 Red beans	31 Onions
04 Cassava	35 Okra
05 Sweet Potato	41 Tayote
06 Pidgeon Peas	45 Avocado
07 Plantain	50 Fruits
08 Bananas	65 Sesame
09 Tobacco	66 Peanuts
11 Coffee	68 Limas
12 Squash	69 Soy beans
13 Cacao	70 Black beans
19 Name	71 Other (specify)
22 Yautia	

TABLE 2: VARIETIES

01 Pompadour
02 Constanza I
03 Constanza II
04 Jose Beta
05 Catalina
06 Checo
07 Checo-Pompadour
08 Other
(specify)

TABLE 6: INPUTS/RESOURCES

01 Fertilizer	05 Land
02 Pesticide	06 Irrigation water
03 Seed	07 Other (specify)
04 Tractor/Oxen	

TABLE 7: LOCATION OF SALE

01 Farm of the producer
02 On road some distance from farm
03 Nearest town
04 Municipal seat
05 Provincial capital
06 San Juan de la Maguana
07 Santiago
08 Santo Domingo
09 Other (specify)

TABLE 3: BUYERS/INFORMATION

01 Owner of grocery store
02 Local assembler
03 Local agent
04 Local trucker
05 Non-local trucker
06 Agent on commission
07 INESPRES(Price Stab. Inst.)
08 Association
09 Cooperative
10 CENSERI
11 Neighbors
12 Radio
13 Newspaper
14 Sec. of Ag. Technicians
15 Other (specify)

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