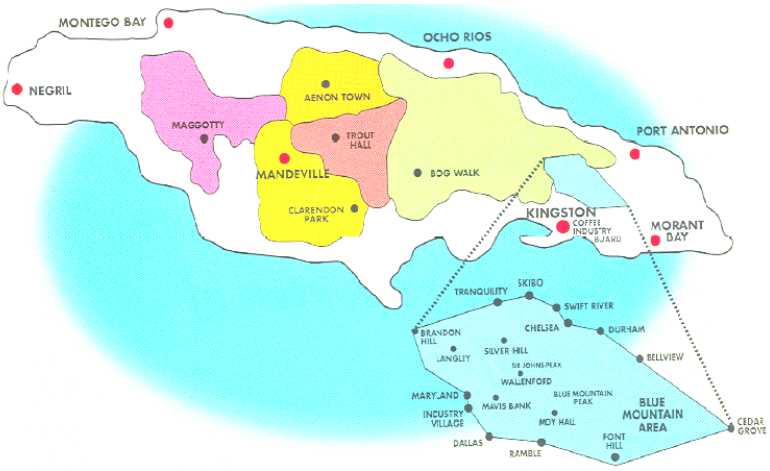
THE IMPACT OF COFFEE PRICES ON THE PERFORMANCE OF NON-BLUE MOUNTAIN COFFEE PRODUCERS



Course:

Independent Study and Research Methods

MSc. Occupational and Environmental Safety and Health

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November 12, 2007

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1.0 INTRODUCTION

Coffee has been grown in Jamaica for over two hundred years. It is mainly grown along the hilly interior of the island; within the legally established boundaries of the Blue Mountain (BM) region (encompassing sections of St. Andrew, Portland and St. Thomas) and outside of these boundaries, in these parishes of St. Mary, St. Catherine, St. Elizabeth, Clarendon, Manchester, Trelawney , St. James and Westmoreland. It estimated that the industry currently employs approximately 9500 (CIB Registration data, 2006) producers, with a ten fold employment effect in field, processing and other operations. Using this estimate, the industry is therefore a source of livelihood for approximately 90,000 persons, many of whom are rural poor, including women (who make up the bulk of reapers).

Jamaican coffee is recognized globally as one of the premium coffees in the world and commands top prices compared to the other coffee producing countries. In 2006 the country produced approximately 12765 bags (72lbs) of green coffee beans or around 0.02% of world's production of 65.87M bags (ICO, 2007). Green coffee is obtained by passing the coffee fruit through several processing stages, and is the form of coffee is primarily traded in. Jamaican coffee supplies to a niche market and retails at about $10 (US) and $7.50 per pound for premium grades of BM and NBM green coffee respectively. This compares to other countries which supply to a commodity market, and earn on average $1.00 (US) per pound of green coffee. Approximately 68% of the export value is returned to the Growers via cherry coffee payment (Daley, CIB 2007). This would lead one to conclude that the Jamaican farmer should be wealthy compared to the

rest of the world. However, the majority of farmers in Jamaica are small farmers, with holdings of less than 5 acres, who earn on average between US $847- $1660 per year from coffee. The cost of inputs must come from these proceeds. Jamaican economic conditions are such that this income is by no means an impressive sum.

Over the last two decades there has been a noticeable decline in the amount of coffee being produced in the NMB regions. This decline has been attributed mainly to the relative non-movement of prices paid per box of NBM coffee compared to the BM coffee. A *'box'* is the unit of measurement used by the Jamaican coffee industry to report yields; and is equivalent to 60lbs of coffee fruit (called cherry coffee). Although there is strong evidence to support the association between price and production, other intervening factors have been identified which may impact on production. For example insecurity of land tenure limits access to loan facilities and can discourage long term commitment to farming.

Mountainous terrain makes it difficult and expensive to transport the product and workers. There are also the problems associated with shortage of labour for reaping, which make labour costs quite expensive. Pests and disease also play a role in reducing yields; and are expensive to control and eradicate.

The disintegration of coffee cooperatives and the downsizing of the Coffee Industry Board have led to a reduction in technical assistance to the farmers, which potentially has led to a lag in technical improvement of the farmer, who may still be relying on

inefficient/ineffective traditional knowledge. Although coffee production in Jamaica is not highly mechanized, many farmers are unable to afford the expensive inputs such as pesticide applicators and irrigation infrastructure. A high level of illiteracy and low level of education among most of the farming population makes technology and information transfer, with limited human resources, difficult. These factors will influence productivity and quality of product, leading to reduced yields and profitability. These constraints are common to all growing regions; hence they should affect both BM and NBM producers in the same way, all other things being equal. However, a BM farmer will earn more than three times the income of a NBM farmer of similar holding, even if they have both made the same level of investment, because of the price he will obtain for each box of coffee reaped.

Meaningful comparisons of production and prices paid for each region can be made from about 1981, from information obtained from the Coffee Industry Board database. Between 1981 and 2006, production in the BM has grown by over 1000%, moving from 40,000 boxes (1981) to 475,416 (2006). Prices have similarly trended upwards from $70/box to $3000/box for the same period. Conversely, production in the NBM region has plummeted to 80,000 boxes in 2006, from 250,000 in 1981. Prices paid per box have moved much more slowly and have stagnated on or around $900 for the last twelve years.

This paper looks at the decline in performance of non-Blue Mountain Coffee over the last two decades, in relation to the prices obtained per box of coffee produced. Performance as defined by the Concise Oxford English Dictionary, Tenth Edition, (2002), is the

"…the extent to which an investment is profitable…" Profitability is used in the economic sense to mean the financial gain that the farmer is able to derive from investing his time, money and other required inputs in the growing of coffee. In summary, the study analyses the decline in the extent to which producing NBM coffee is able to create wealth for the NBM farmer and the role that the price obtained per box has played in this decline (all other factors being considered).

BACKGROUND

Coffee was first introduced to Jamaica in 1728, when the then Governor, Sir Nicholas Lawes imported coffee seedling from Martinique. Growing conditions proved ideal for the crop and within nine years which followed 83,000 pounds were exported. This figure rocketed to a high of over 34,000,000lbs in 1814 (Budhlall, 1986). Most of the coffee was then grown in St. Andrew, where it was first introduced, but production had also spread to other regions such as Portland, St. Thomas, St. Ann, Manchester and St. Elizabeth.

Despite this noble start, by 1943, the industry had almost disappeared with the loss of slave labour after its abolition in 1807, hurricanes, poor growing practices, poor processing practices and inadequate systems of transportation. Government interventions in 1891, 1944 and again in 1948 led to the establishment the Coffee Industry Board to encourage the development of the industry and to promote the welfare of the person engaged in the industry. Coffee continues to be primarily an export product, with approximately 95% of production being exported to Japan, USA, Europe and other

markets.

Blue Mountain coffee is regarded as Jamaica's premium coffee product, and has traditionally attracted higher prices than NMB coffee, by virtue of its superior quality, and the demand for it in Japan, which is our major market. Quality is determined by characteristics of aroma, flavour and taste; size and colour of the beans and level of defects. The quality of BM coffee is generally regarded as superior to that of NBM coffee and hence attracts a higher market price.

3.0 REVIEW OF LITERATURE

There have been several ad hoc studies and report on the situation of the coffee farmer, however, there has been no comprehensive study of the degree to which constraining factors, including earning price, has affected production in NBM zones. Likewise there has been no survey of the attitudes of farmers which may impact on their productivity.

There was however, useful information to be gained from Data and Information Unit of the Coffee Industry Board. This unit collects and analyses industry data related to production, exports, price and other performance indicators and provided relevant information to show correlation between levels of production and prices earned per box of coffee produced.

Coffee Industry Board-External Customer Perception Surveys - Farmers (2005 and 2006) gave information on the most frequent causes for complaints identified by farmers in both

NBM and BM regions. In the NBM region the main causes for complaints over the two year period were money issues (including price paid per box), availability of extension service, crop insurance and cost of inputs such as fertilizer and other agrichemicals. In the BM region, similar issues were identified, but outstanding payments for crop insurance claims was given priority over payment issues and price per box.

The Coffee Industry Board-Lowland Rehabilitation Plan of April 2000, provided good insight into other factors which may affect the performance of NBM coffee production including:

1. Unsatisfactory levels of pest and disease control, especially coffee berry borer and coffee leaf rust.
2. The wide scale use of the variety *Typica* that is delicate to manage and inherently low yielding.
3. The lower returns on investment when compared to Blue Mountain coffee.
4. The lack of low interest funds to finance coffee expansion
5. Inadequate research and technology transfer and low level of technology being applied by too many farmers.
6. The need for new establishment and rehabilitation programme.

4.0 STUDY DESIGN

Data were collected for this study primarily through the analysis of aggregate data housed in the Coffee Industry Board database. This was supplemented by review of ad hoc project proposals and reports, as well as interviews of the Advisory Services Manager,

with responsibility for extension services to all coffee producers and the Data and Information Coordinator, who has primary responsibilities for the collection, storage and analysis of industry statistics.

This methodology was employed to maximize the use of reliable existing data, collected to analyse industry performance and attitudes of the units under analysis. This database reflects the most accurate and current industry statistics, which are used in company and national planning (for example the unit supplies information to the Planning Institute of Jamaica, the Statistical Institute of Jamaica and the International Coffee Organization).

It was practically the only way to complete the study, based on time, budget and human resource constraints.

LIMITATIONS

There was little independent verification of data obtained from the CIB Database and project documents. Therefore any errors contained therein, would have been carried over into the study. Although the CIB has the most comprehensive industry information, data collection relies heavily on correct reporting from production and processing entities. It is therefore subject to errors caused by non-reporting or inaccurate reporting from these entities. There is sometime deliberate under-reporting by entities required to pay a levy on each box of coffee purchased.

5.0 MEASUREMENT OF VARIABLES

The variables analysed in this study are both quantitative and qualitative. They are given below:

1. Performance - measured as levels of production of NBM compared to BM farmers, measured in boxes of cherry coffee produced per crop year.
2. Compensation – measured in prices earned per box of coffee produced, measured in Jamaican dollars. Prices quoted are industry averages (based on information supplied by purchasers)
3. Investment – measured in cost of inputs over a defined period, quoted in Jamaican dollars. These costs are direct expenses related to the establishment and maintenance of one acre of coffee, and do not include land and management costs.
4. Status – described by demographic makeup for each producing zone (age and gender distribution across both zones) and length of time as a coffee farmer.
5. Attitudes – described by information provided by farmers of their most frequent causes for complaints.

Although the unit of analysis in the study is the NBM farmer, comparisons are made to the BM farmer to mitigate the effect of other intervening variables in forming a final conclusion.

6.0 DATA ANALYSIS-FINDINGS

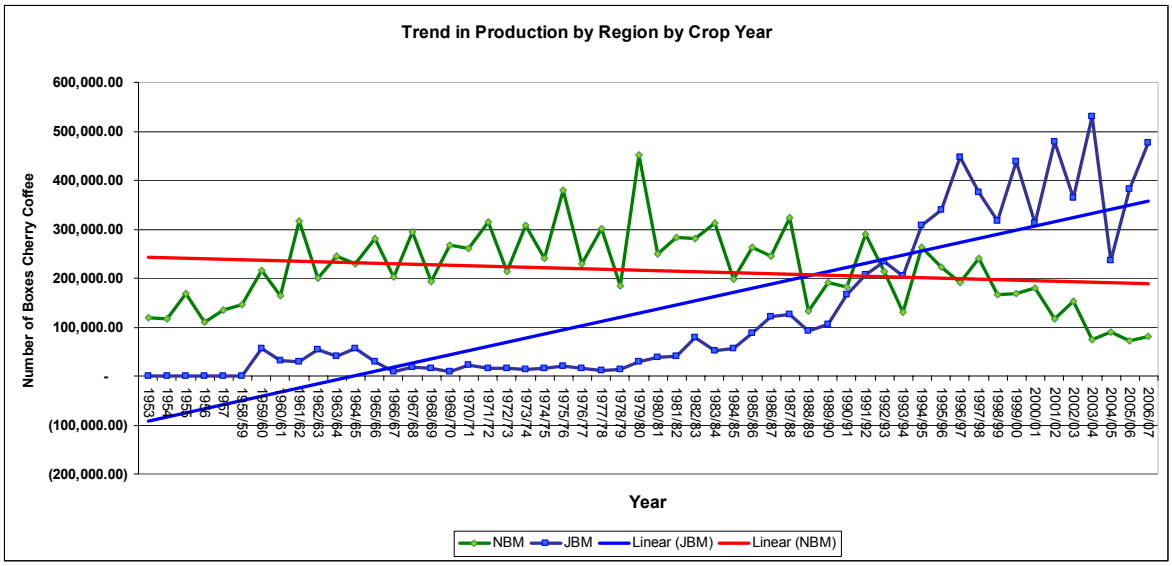

Figure 1. Showing Trend in production of BM vs. NBM regions from 1953-2006

Figure 1 shows the trend in decline in production of NBM coffee between 1981 and 2006 as against a steady increase in BM production over the same period. The bulk of production was in the NBM regions until around the time of Hurricane Gilbert. There was some recovery seen in both zones, up to about 1991-92, attributable to rehabilitation projects. The downturn in NBM production after 1992 seems to coincide with lagging NBM prices (figure 6).

CROP YEAR	BM Production # BOXES	NBM Production # BOXES	Total Production #BOXES
1981/1982	40,417	293,473	333,890
2006/2007	475,416	80,032	555,447
% Change	1076%	-73%	66%
Average % Change	20%	1%	7%

Figure 2. Showing the percentage growth in coffee production between 1981 and 2006

Figure 2 shows the hundredfold increase in production in the BM between 1981 and 2006, compared to the NBM region which had seen production falling by approximately 73% over the same period.`

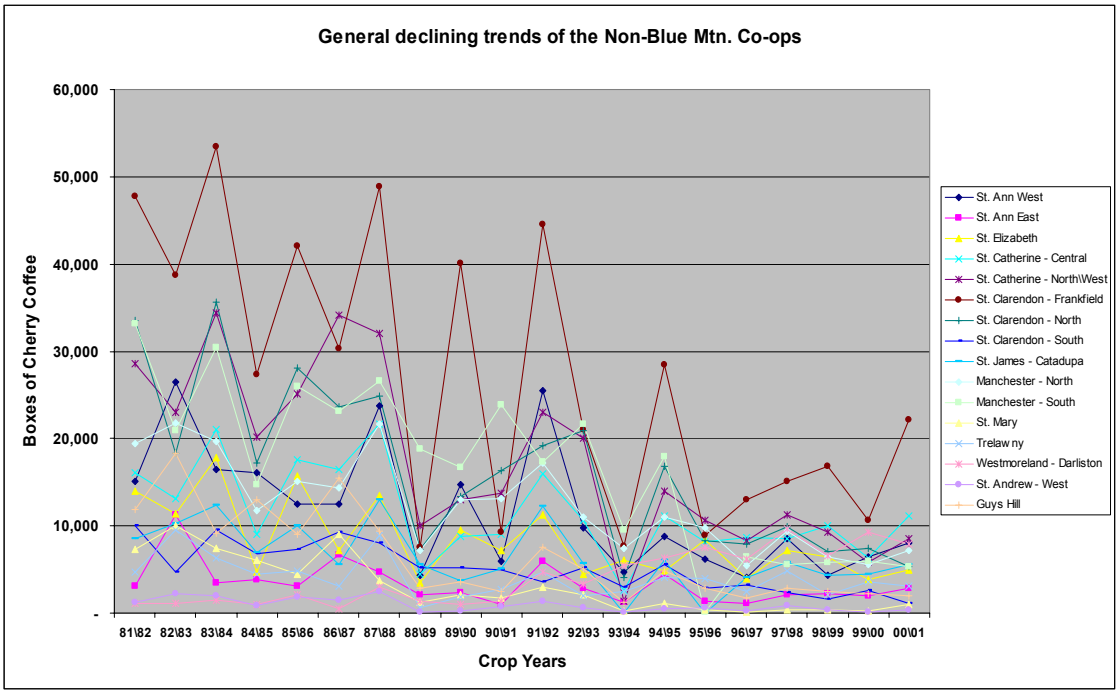

Figure 3. Showing Decline in Production Common to All NBM Growing Regions

Figure 3 demonstrates that the decline in overall production in the NBM zone is attributable to a decline in *all* the growing regions within the NBM zone. Therefore the factor(s) causing the decline in the NBM region is not random, but systematic.

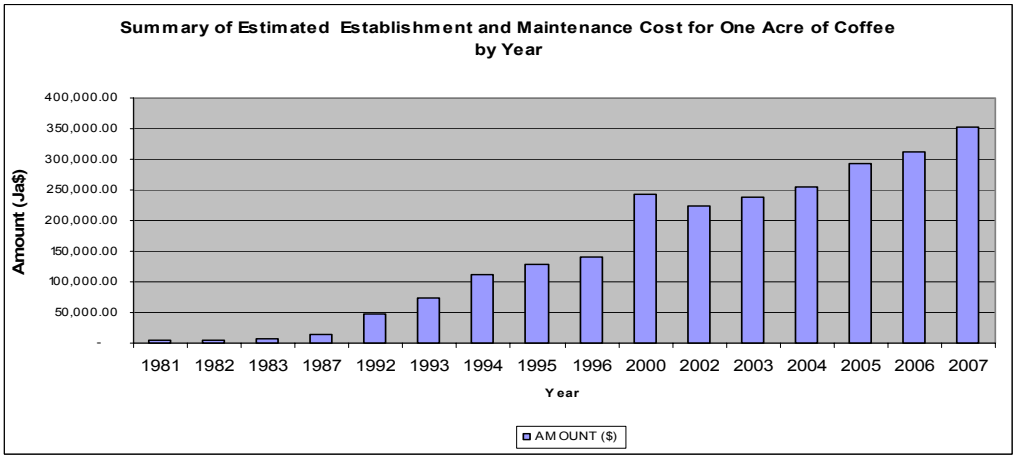

Figure 4. Showing Changes in Estimated Production Costs per One Acre of Coffee (1981-2007)
N.B. Management, supervision and land costs are not included in this estimate

Figures 4 and 5 show the increase in cost of inputs relative to the movement of price in both producing zones. The rate of movement in price for NBM has not been able to

keep pace with rate of increase in cost. It is evident that prices obtained for NBM coffee have remained relatively constant for NBM coffee from 1994 onwards, while prices obtained for BM coffee and the cost of inputs have steadily increased.

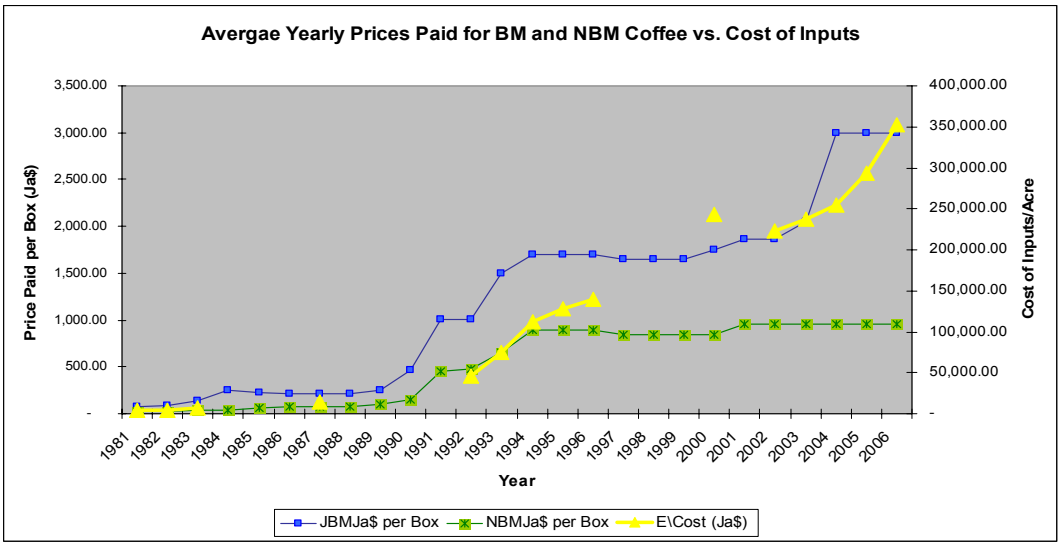

Figure 5. Showing changes in production vs. and estimated cost of inputs between 1981 and 2006

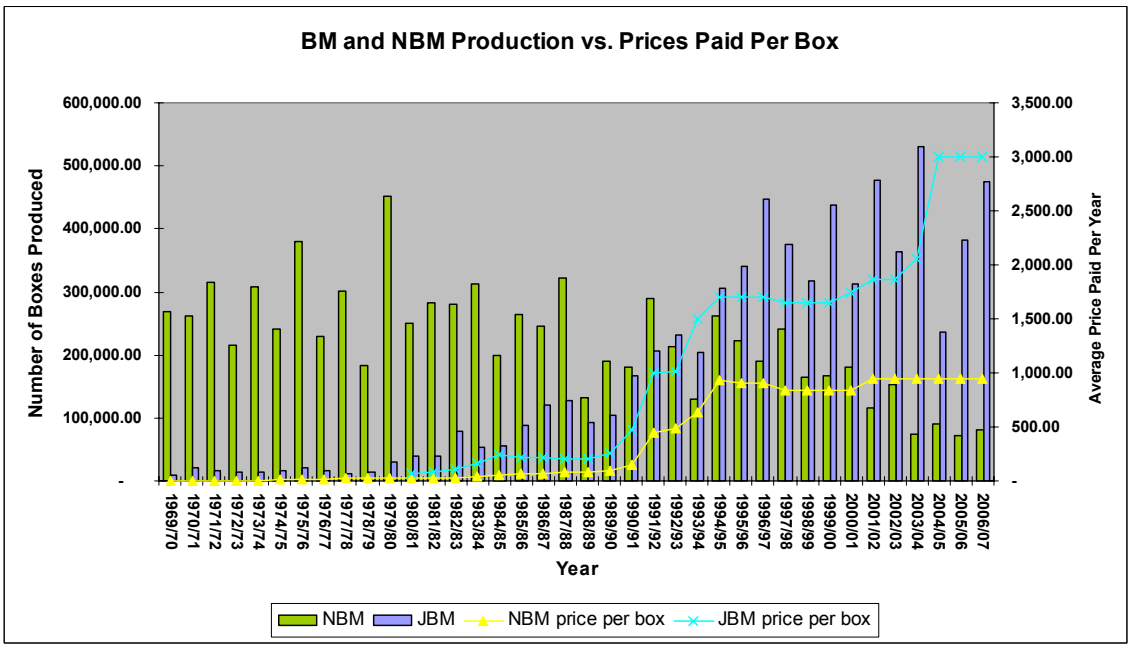

Figure 6. Showing BM &NBM Production vs. Prices obtained per Box of Cherry from 1981-2006

Figure 6 is a summary graph comparing production in the two zones, relative to the earning prices. All other things being equal, there is clearly an association between price

and performance in each region.

The following data were collected in the BM and NBM regions during Customer Perception Surveys in 2005 and 2006. Targets were set based on the most current registration information (2004 data for BM and 2000 data fro NBM). A number equivalent to 5% of the registered population was considered to be representative of the population. Information was collected by CIB staff via face to face interviews.

Top three causes for complaints identified by farmers			
NBM		**BM**	
2005	**2006**	**2005**	**2006**
1. Money Issues/Payment issues/Price 54.7% of respondents (202)	**1. Money Issues/Payment issues/Price** 26.2% respondents (77)	**1. Insurance Claims** 38% of respondents (158)	**1. Insurance Claims** 37% of respondents (137)
2. Extension (services) 12.5% of respondents (46)	**2. Crop Insurance** 12.2% of respondents(36)	**2. Payment issues** 36% of respondents (150)	**2. Payment issues** 20% of respondents (72)
3. Insurance (crop) 7.3%of respondents (27)	**3. Material, fertilizer, chemicals etc.** 6.5% of respondents (19)	**3. Price per box** 11% of respondents (47)	**3. Price per box** 11% of respondents (42)

Figure 7. Excerpted from CIB Customer Perception Survey 2006-Showing response of NBM and BM farmers when asked to: "Identify the most frequent cause for Complaints."

Figure 7 highlights the fact that although farmer from both zones were operating within the same economic and other constraints, they had different priority issues. Money/ payment/price (including price) was given a greater priority by NBM farmers. This may be due to the BM farmers being in a better economic position than NBM farmers, based on earnings; or it could be due to the fact that crop insurance payments owed from

Hurricane Ivan in 2004. This hurricane had caused significantly more damage in the BM zone than in the NBM zone. But it is of note that price was identified by both groups.

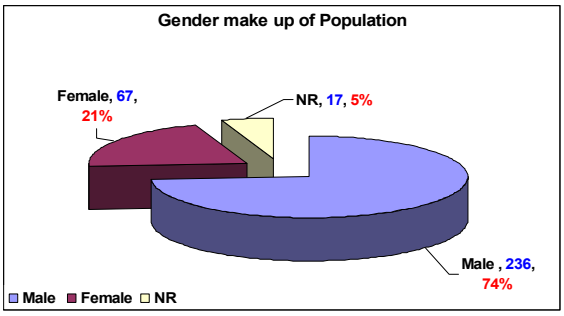

Figure 8a. NBM Farmers

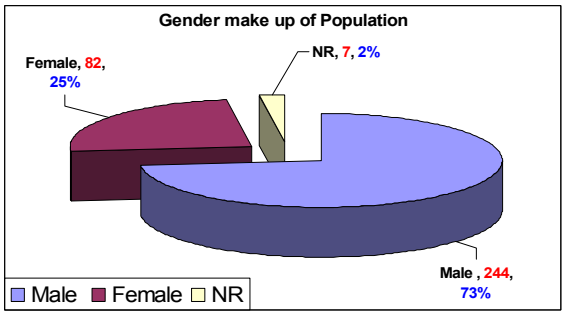

Figure 8a. BM Farmers

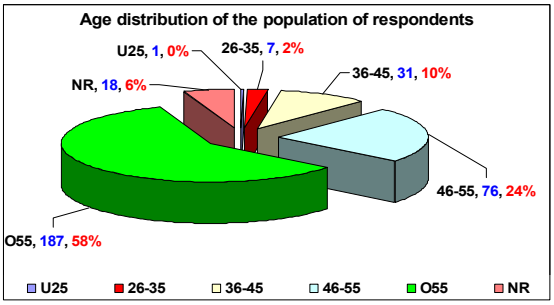

Figure 9a. NBM Farmers

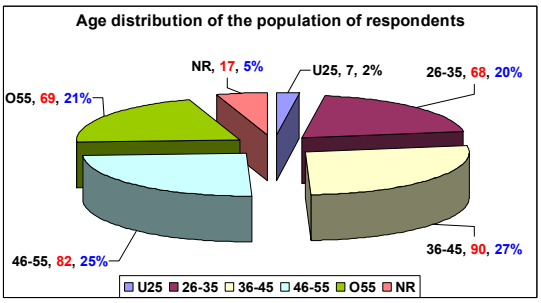

Figure 9b. BM Farmers

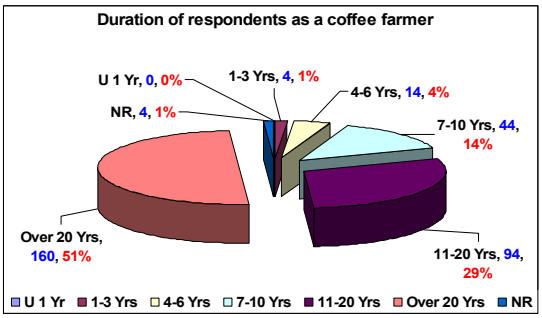

Figure 10a. NBM Farmers

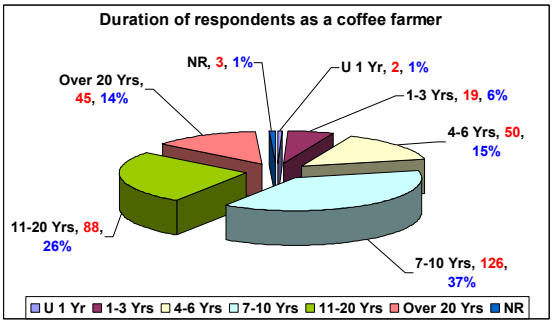

Figure 10b. BM Farmers

If the information obtained from the survey is taken as being representative of the population, then several deductions can be made from the data. According to Figures 8a and 8b, the gender population similar in both regions; with over 70% male farmers. Therefore it can be presumed that this variable should influence production in NBM zone differently than BM zone.

It is observed that, on average, the NBM population is older than the BM population (9a

&9b). Approximately 82% of NBM farmers are over 46 years as compared to 41% of NBM farmers. Older farmers may be less likely to embrace new technology and may be more likely to be illiterate, according to the CIB Capacity Development Project of 2006. Therefore they are more likely to be using outdated and inefficient farming methods. They may not able to apply the energy and time to management of farms compared to a younger persons, which could have negative effects on levels of productivity.

There have been relatively few new farmers in the NBM region (5% of population has been added within the last six years), compared to 20% for BM, suggesting that there is a low level of interest in farming coffee outside of the BM. If this trend continues the NBM sector will eventually disappear as the older population retires or dies.

7.0 CONCLUSIONS AND RECOMMENDATIONS

While there is strong evidence to suggest that price earned per box is the main factor in the decline in coffee production in the NBM regions. Based on other evidence seen, this is not an absolute relationship. Other factors may be influencing production such as the average age of the farming population; their aptitude for and application of new technology/knowledge. The perceptions and attitudes of the farmers in the NBM regions toward coffee production are really not known. While inferences can be drawn from anecdotal evidence and from trends observed in statistics, there must be further examination of the producers themselves. It leaves to be determined whether NBM farmers are taking the same care in their operations as their counterparts in the BM; whether they are investing similar time and effort in the maintenance of farms and

application suitable technology; and whether their farming methods are delivering the maximum production capacity per acre. In the absence of this information, it cannot be conclusively reported that the price earned per box by NBM coffee is the sole cause of the decline in performance of the NBM producing zone. It is recommended that the following be done:

1. An analysis of the potential contribution of NBM coffee to industry earnings must be done;
2. A survey of the opinions, attitudes and status of the farmers must be done which looks at:
    a. Level and type investment made in holdings (i.e. inputs such as fertilization, disease management, man hours, new technology etc)
    b. Incentives/disincentives to becoming/remaining a coffee farmer
    c. Reasons given by former producers for abandoning coffee production
    d. Literacy rates and their role in technology use
    e. The relationship between age and productivity;
3. Based on analysis of information from the activities above, a comprehensive rehabilitation plan for the region must be devised which looks at all these factors; the extent to which they influence production and the strategies to be employed to reduce their impact. The programme must also focus on stimulating the interest of young farmers in the NBM regions to enter into coffee farming to ensure that rehabilitation efforts are sustainable.

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