COFFEE EXPORT MARKETING STRATEGIC MODEL FOR ASIAN AND AFRICAN COUNTRIES WITH SPECIAL REFERENCE TO INDIA AND ETHIOPIA

Shiferaw-Mitiku Tebeka[1] and Ushadevi K.N[2]

1-PhD Scholar, Department of Rural Marketing Management, Kerala Agricultural University, College of Co-operation, Banking and Management KAU- PO 680656, Thrissur

2-Associate Professor and Head, Department of Rural Marketing Management, Kerala Agricultural University, College of Co-operation, Banking and Management KAU- PO 680656, Thrissur

ABSTRACT

Recently markets are liberalizing and globalizing, international business practices are changing and competition is becoming much more intense. Countries need to create and sustain export strategies that will foster the growth and development as well as exploit commercial opportunity for the nation. In this regard, an attempt was made to quantify the changing structure of Indian and Ethiopian coffee exports. The main objective of the present study was to analyse the export direction and structural changes in coffee exports. Furthermore, to examine the market growth and market share of Indian and Ethiopian coffee export and to measure the market concentration level of major Indian and Ethiopian coffee export destinations. In this regard, secondary data, mainly quantity of coffee exports from India and Ethiopia was collected from International coffee organization for the period (1980-2005). The compound growth rate analysis was carried out to ascertain the market growth in quantity of Indian and Ethiopian coffee export to major export destinations (target markets) and percentage method was used to measure the market share of each export target market of Indian and Ethiopian coffee export destinations. Herfindahl–Hirschman Index was computed to measures the market concentration level of major Indian and Ethiopian coffee export destinations. The Markov chain analysis was computed through linear programming method to assess the transition probabilities for the major Indian and Ethiopian coffee export markets using Lingo Programming computer package. Accordingly,

the major Indian coffee export markets are Russian Federation (23.99%), Italy (14.39%), Germany (11.37%), USA (8.30%), and Japan (3.95%) and others (37.98%) for the study period. Furthermore, the major Indian coffee export markets were categorized as stable markets (Others, Italy and Russian Federation) and unstable markets (Japan and Germany) based on the magnitude of transition probabilities. The Italy, Germany, USA and Japan market were found to be an unconcentrated market (perfect competition) for Indian coffee exports while Russian Federation was found to be moderate concentration market and Others were found to be high concentration(monopoly market). Coffee export from India to USA, Japan and Russian Federation witnessed a negative growth while Italy, Germany and others registered a positive growth in export for the study period. The test further noted that only the growth for USA, Italy and Germany was significant.

Similarly, the major Ethiopian coffee export markets are Germany (29.73%), Japan (18.25%), USA (14.67%), Saudi Arabia (9.96%), France (6.51%) and others (20.85%) for the years 1980-2005.The major Ethiopian coffee exports markets were categorized as stable markets (Germany, USA) and unstable markets (France, Others, Japan and Saudi Arabia) based on the magnitude of transition probabilities. The France, Saudi Arabia and USA market were found to be an unconcentrated market (there is perfect competition) for Ethiopian coffee while, Japan and others were moderate concentration and Germany was found to be a concentration market (monopoly market). With the exceptions of USA market all the other major export destinations of Ethiopian coffee witnessed a positive growth but the growth was statistically significant only for Germany, Japan and Saudi Arabia markets. Accordingly conclusion and policy implications were drawn

Key words: *Compound growth rate, Ethiopia, India, Index, Markov chain, Structural change*

Introduction

Export market is a complex place to explore with many differences, difficulties and fluctuations since it responds to the economic question of many of the world population directly and indirectly involved in it. It poses a variety of challenges including the understanding of the

strategies on how to supply and satisfy the international customer. Strategically positioning a product in the international customer mind can play prominent role for a marketer to compete in the global context.

The flow of international trade has become the subject of a great deal of research. This is mainly because, exports from a country not only represent a way to achieve economic growth, but also provide foreign exchange earnings needed to import the capital and intermediate goods for domestic production and debt servicing obligations (Lord, 1991).

Export marketing of Agricultural commodities like Coffee plays a significant role in changing the life of both rural and urban populations particularly those who are being involved in production, processing and marketing of coffee. Recently, countries like Vietnam, Indonesia and India are the leading coffee exporter countries in Asian Continent while, Ethiopia, Uganda and Côte d'Ivoire are the leading coffee exporter countries in African continent.

Agriculture is the most promising resource sector for Ethiopia and India since most of other economic activities are dependent on this sector, including marketing, processing, and export of agricultural products. Accordingly, further attention was made in the present study on the exporting marketing of one of the Agricultural commodities both in Ethiopia and India, Coffee.

Materials and Methods

The study is based on time series data on coffee export volume of coffee from India and Ethiopia obtained from the various published issues of International Coffee Organizations (ICO for a period of 1980-2005. To examine the market growth and market share of Indian and Ethiopian coffee export in different countries exponential compound annual growth rate model and percentage rate was fitted. Accordingly, export market growth was calculated by using the following formula:

$$CAGR = \left(\frac{Ending\ Value}{Beginning\ Value}\right)^{\left(\frac{1}{number\ of\ years}\right)} - 1 \qquad \text{..... (1)}$$

The export market share of Indian and Ethiopian coffee at different countries were calculated using percentage share method against the total volume of coffee exports from the two

countries. The percentage share of major coffee export destinations (target markets) were calculated using the following formula:

Percentage Share = (Export Volume to individual importer county) *100 .....(2)
Total coffee export Volume

The results generated were further used for running transitional probability matrix.

After calculating the market share and market growth of coffee export from India and Ethiopia one of the commonly accepted measures of market concentration, Herfindahl–Hirschman Index (HHI) was fitted. HHI is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. HHI can range from 0 to 1.0, moving from a huge number of very small firms to a single monopolistic one (importer country). Increases in the HHI generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite. Alternatively, if whole percentages are used, the index ranges from 0 to 10,000 "points". The major benefit of the HHI in relationship to such measures as the concentration ratio is that it gives more weight to larger firms. Herfindahl–Hirschman Index is expressed as:

$$\mathbf{HHI} = \sum_{i=1}^{N} \mathbf{S_i^2} \qquad \text{..... (3)}$$

Where;

S_i is the market share of firm (country) i in the market and, N is the number of firms (countries) in the market. The HHI ranges from 1/N to one, where N is the number of firms in the market. Equivalently, if percents are used as whole numbers, as in 65 instead of 0.65, the index can range up to 100^2, or 10,000. A HHI below 0.01 (or 100) indicates a highly competitive index, A HHI below 0.15 (or 1,500) indicates an unconcentrated index, A HHI between 0.15 to 0.25 (or 1,500 to 2,500) indicates moderate concentration and A HHI above 0.25 (above 2,500) indicates high concentration. A small HHI value indicates a competitive industry with no dominant players. If all firms have an equal share the reciprocal of the index shows the number of firms in the industry. When firms have unequal shares, the reciprocal of the index indicates the equivalent

number of firms (importing countries in this case) in the industry. The closer a market is to being a monopoly, the higher the market's concentration (and the lower its competition).

Markove Chain analysis was computed to examine the coffee export target market of India and Ethiopia using Lingo computer programming package. Year-wise coffee export volume data for the period 1980 to 2005 were used to analyze the direction of trade and changing pattern of Indian and Ethiopian coffee exports. The major Indian coffee importing countries considered were Russian Federation (including the former USSR), Italy, Germany, USA, and Japan and other importing countries with a share of 23.99%, 14.39%, 11.37%, 8.30% and 3.95% respectively, from the total coffee exports from India (1980-2005). Similarly, the major Ethiopian coffee importing countries considered were Germany, Japan, USA, Saudi Arabia, France and other Ethiopian coffee importing courtiers with a share of 29.73%, 18.25%, 14.67%, 9.96%, 6.51% and 20.85%, respectively from the total percentage coffee exports from Ethiopia (1980-2005).

Markov chain model was employed to analyze the structural change in any system whose progress through time can be measured in terms of single outcome variable (Dent, 1967). Recently, the model was also used by Kusuma and Basavaraja (2014) in order to estimate the exports of mango from India. In the present study, the dynamic nature of trade patterns that is the gains and losses in export of Indian and Ethiopian coffee in major importing countries was examined using the Markov chain model. Markov chain analysis involves developing a transitional probability matrix 'P', whose elements, P_{ij} indicate the probability of exports switching from country 'i' to country 'j' over time. The diagonal element P_{ij} where i=j, measures the probability of a country retaining its market share or in other words, the loyalty of an importing country to a particular country's exports (in this case loyalty to India and Ethiopia). In the context of current application, structural change was treated as a random process with five major importing countries and the rest coffee importing countries categorised as others. The assumption was that, the average export of coffee from India and Ethiopia amongst importing countries in any period depends only on the export in the previous period and this dependence was same among all the periods. This was algebraically expressed as:

$$E_{jt} = \sum_{t=1}^{n} [E_{it} - 1] P_{ij} + e_{jt} \quad \text{..... (4)}$$

Where,

E_{jt} = exports from India or Ethiopia to the j^{th} country in the year t , $E_{i\,t}$-1 = exports of i^{th} country during the year t-1 , $P_{i\,j}$ = the probability that exports will shift from i^{th} country to j^{th} country, e_{jt} = the error term which is statistically independent of Eit-1 and n = the number of importing countries

The transitional probabilities P_{ij}, which can be arranged in a (c x n) matrix, have the following properties.

$$\sum_{t=1}^{n} P_{ij} = 1 \qquad where, 0 \leq P_{ij} \leq 1 \qquad \text{..... (5)}$$

Thus, the expected export share of each country during the period‘t’ is obtained by multiplying the exports to these countries in the previous period (t-1) with the transitional probability matrix. Consequently, transitional probability matrix (T) for the period 1980 to 2005 was estimated using linear programming (LP) framework by a method referred to as minimization of Mean Absolute Deviation (MAD).

Min, OP* + I e

Subject to:

X P* + V = Y, GP* = 1, P* > 0

Where,

P* is a vector of the probabilities $P_{ij,}$ O is the vector of zeros, i is an appropriate dimensional vectors of areas, e is the vector of absolute errors, Y is the proportion of exports to each country, X is a block diagonal matrix of lagged values of Y, V is the vector of errors and G is a grouping matrix to add the row elements of P arranged in P* to unity.

Results and Discussions

Coffee Export Marketing Strategy for India

The major importing countries of Indian coffee were Russian Federation[1] (including the former USSR), Italy, Germany, USA, Japan and Others. Export of Indian coffee to Italy and Germany recorded a significant and positive growth rate of 6.69 percent and 3.65 percent in terms of

[1] Figures in table 1 for coffee export to Russian Federation includes coffee export to USSR from the year 1980-1990

export volume. The volume of coffee export to Russian Federation (including the former USSR), USA and Japan registered a negative growth of -0.32 percent, -1.60 percent and -0.27 percent, respectively. However, export to other Indian coffee importing countries grew at 3.60 percent in quantum of export. Most importantly, the total export of coffee to all export market destinations grew at 2.19 percent annually from the year 1980-2005 (see Table 1).

Table 1 : Exports of all forms of coffee from India to the major export market destination
Calander Years 1980 to 2005 **(Metric Tons)**

Indian Coffee Importing countries	Quantity (MT)	Percentage of Market share	CAGR	P Value
Russian Federation (USSR)	891200	23.99%	-0.3243	0.50404
Italy	534597	14.40%	6.68837	1.09E-18
Germany	422423	11.37%	3.65174	7.11E-08
USA	308326	8.30%	-1.5905	0.01635
Japan	146758	3.95%	-0.2717	0.76905
Others	1410775	37.98%	3.6043	3.04E-13
Total Export	3714079	100%	2.18893	1.77E-11

Source: compiled from ICO, (Figures in the table are presented after making further analysis by the researcher)
NB: Coffee exports figures to USSR and Russian Federation were merged for the years 1980-1990)

The Probability of obtaining the result detected by test-statistic of CAGR model was further tested by the P Value and the result affirmed that coffee export from India to Italy, Germany, USA and other Indian coffee importing countries including the total coffee export from India from 1980-2005 found to be statistically significant with a high chance that the relationship is real. However, the result detected by the test-statistic of CAGR model for coffee export from India to Russian Federation (including USSR) and Japan were not statistically significant to reject the null hypothesis, to be different from zero. The result of the P value result indicates that there is only a chance of 50 percent in Russian Federation (USSR) market and 23 percent in Japan market that the relationship is real (see Table 1).

Table 2 : HHI value of market concentration level of Coffee exports from India to major export market destination (Calendar Years 1980 to 2005) (Metric Tons)

Year	Country of destination						
	Russian Federation	Italy	Germany	USA	Japan	Others	Total Export
Total Export (MT)	891200.1	534597	422422.8	308325.5	146758.3	1410775	3714079
HHI Value	2399	1440	1137	830	395	3798	10, 000

Source: compiled from ICO, (Figures in the table are presented after making further analysis by the researcher)
NB: Coffee exports figures to USSR and Russian Federation were merged for the years 1980-1990)

HHI were fitted to examine the market concentration level (competition and market power of Indian coffee importing countries) of major Indian coffee export market destination countries. Accordingly, HHI detected that coffee export to Italy, Germany, USA and Japan market were found to be an unconcentrated market with HHI value of 1440, 1137, 830, and 395 respectively. Since their HHI values were laid below 1500, these four Indian coffee export market destinations were not found to be highly competitive market for coffee export from India. The market concentration level of Indian coffee export to Russian Federation accounted for HHI value of 2399 indicates moderate concentration of the export destination. Others accounted for HHI value of 3798 indicating a high concentration.

Since HHI value implies that the closer a market is to being a monopoly, the higher the market's concentration (and the lower its competition). There is nearly a perfect competition in the coffee export to Italy, Germany, USA and Japan market. While, Russian Federation and Others export market destinations (countries) were found to be monopolistic market destination for Indian coffee exports. (See Table 2). Furthermore, it can be inferred from the result that even though there are many coffee exporting countries to Russian Federation products are differentiated (might be quality, brand image., etc) and hence, are not perfect substitute for Indian coffee. Such kind of market has an Economic implication that neither Indian coffee exporters nor Russian Federation (Indian coffee importers) has complete market information regarding market demand and supply (Hischay, M. 2000). Additionally, since the target market is imperfect completion

(monopolistic competition), it implies that Indian coffee exporters have a degree of control over the price due to existing few barriers to entry and exit (Gan J., et al., 2003).

Table 3: Transitional Probability Matrix for coffee export from India to major export destinations , (Calendar years 1980 to 2005) (Metric Tons)

	Russian Federation	Italy	Germany	USA	Japan	Others
Russian Federation	**0.8713315**	0	4.01E-02	1.53E-02	1.50E-02	5.82E-02
Italy	0	**0.873061**	7.27E-03	0	5.59E-03	0.114083
Germany	0	0.170895	**0.666655**	6.89E-02	9.35E-02	0
USA	0.1478979	0	4.48E-02	**0.688395**	0.118859	0
Japan	0.4529618	0	0	0.148748	**0.353226**	4.51E-02
Others	0	3.35E-02	5.82E-02	1.69E-02	0	**0.891458**
NB: Data from the year 2006-2009 is not available The coffee export from India to the former USSR were incorporated under Russian Federation						

The Transitional Probability Matrix presented in Table 3 provides a broad indication of changes in the direction of export of coffee from India from the year 1980-2005. The major Indian coffee importing countries were Russian Federation (including the former USSR), Italy, Germany, USA, Japan and all other importing countries were grouped under the category of the other countries. The row elements in the transitional probability matrix provide the information on the extent of loss in trade, on account of competing countries. The columns element indicates the probability of gains in volume of trade from other competing countries and the diagonal element indicates probability of retention of the previous year's trade volume by the respective country (Kusuma D.K. and Basavaraja.H., 2014).

It is evident from Table 3, that Others followed by Italy and Russian Federation were found to be the most stable markets among the major importers of Indian coffee as reflected by the probability of retention at 89 percent, 87percent and 87 percent, respectively. The most unstable markets among the importing countries were Japan and Germany with 35.32 percent and 66.66 percent retention. Italy retained with 87.30 percent and Russian Federation retained with 87.13 percent of total coffee export from India.

Since the Others, Italy and Russian Federation markets witnessed high market retention to the Indian coffee. Thus, the aforementioned three target market should be a prominent

strategic focus area of Indian coffee exporters to drive a better profit. Therefore, the present study recommends to strengthening the business ties between India with Others, Italy and Russian Federation. On the other hand, the unstable export market destinations (Japan and Germany) require interventions to help them stabilise.

Coffee export Marketing Strategy for Ethiopia

The major importing countries of Ethiopian coffee for the years 1980-2005 were Germany with a market share of 29.73%, Japan (18.25%), USA (14.66%), Saudi Arabia (9.96%), France (6.51%) and all other exporting countries (20.85%). With the exception of USA coffee export market, Export of Ethiopian coffee to Germany, Japan and Saudi Arabia, France and others recorded a positive growth rate of 1.69 percent, 3.18 percent and 2.96 per cent, 0.67 percent and 0.99 percent respectively, in terms of export volume (Table 4).

Table 4 : Exports of all forms of coffee from Ethiopia to the major export market destinations (Calendar Years 1980 to 2005) (Metric Tons)

Major Ethiopian Coffee export Destinations	Quantity (MT)	Percentage of Market share	CAGR	P Value
Germany	722625	29.73	1.694574	0.003765
Japan	443606.2	18.25	3.184546	3.33E-16
USA	356645.3	14.66	-2.93429	0.001193
Saudi Arabia	242088.5	9.96	2.957617	2.41E-06
France	158221.2	6.51	0.671542	0.146601
Others	506814.4	20.85	0.990588	0.079339
Total Export	2430001	100	1.018064	0.001602
Source: compiled from ICO, (Figures in the table are presented after making further analysis by the researcher)				

The results of CAGR models were further tested against their respective P Value and the result confirmed that coffee export from Ethiopia to Germany, Japan and Saudi Arabia including the total coffee export from Ethiopia from 1980-2005 found to be statistically significant with a high chance that the relationship is real. Export to France and other Ethiopian coffee importing countries registered a positive but not statistically significant growth. However, export to USA

market grew at -2.93 percent and the result is statistical significant at P value of 99 percent chance to be real in the USA market. The growth rate of total quantity of coffee export from Ethiopia to all export market destinations grew at 1.02 percent annually from the year 1980-2005 (See Table 4).

Table 5: HHI value of market concentration level of the major Ethiopian coffee export market destinations (Calendar Years 1980 to 2005) (Metric Tons)

	Country of destination						
Year	Germany	Japan	USA	Saudi Arabia	France	Others	Total Export
Total export (MT)	722625	443606.2	356645.3	242088.5	158221.2	506814.4	2430001
HHI	2973	1825	1466	996	651	2085	10,000

Source: ICO, (Figures in the table are presented after making further analysis by the researcher)

HHI model was fitted to examine the market concentration level (competition and market power of Indian coffee importing countries) of major Ethiopian coffee export market destination countries. Accordingly, HHI detected that coffee export to France, Saudi Arabia and USA markets found to be an unconcentrated market with HHI value of 651, 996 and 1466 respectively. Since their HHI values were laid below 1500, these three export market destinations were found to be not highly competitive market for coffee export from Ethiopia. The market concentration level of Ethiopian coffee export to Japan and other Ethiopian coffee importing countries accounted for HHI value of 1825 and 2085, indicates, moderate market concentration of the export destination. Coffee export to Germany export market accounted for HHI value of 2973 which indicates that a high concentration. Since HHI value implies that the closer a market is to being a monopoly, the higher the market's concentration and the lower its competition. There is nearly perfect competition for Ethiopian coffee in France, Saudi Arabia, USA and Japan coffee export market destinations. While, Germany and other Ethiopian coffee export market destination countries were found to be monopolistic market (See Table 5).

Since coffee export from Ethiopia to France, Saudi Arabia, USA and Japan were found with a perfect competition market structure. Exporting to such markets has an implications that all coffee export firms to the above target markets are selling an identical product; being price takers

(they cannot control the market price of their product) having relatively small market share with no barrier to entry and exit while buyers (importing countries) have complete information about the product being sold and the prices charged by each firm; and the industry is characterized by freedom of entry and exit.

Table 6:Transitional Probability Matrix result for coffee export from Ethiopia to major export destinations, (Calendar Years 1980 to 2005) (Metric Tons)

	Germany	Japan	USA	Saudi Arabia	France	Others
Germany	**0.775895**	0.091291	0.000000	0.052493	0.002670	0.077651
Japan	0.286583	**0.645226**	0.000000	0.000000	0.068192	0.000000
USA	0.114167	0.000000	**0.755137**	0.000000	0.068465	0.062231
Saudi Arabia	0.232261	0.061777	0.000000	**0.612017**	0.000000	0.093945
France	0.000000	0.000000	0.000000	0.000000	**0.330208**	0.669792
Others	0.088419	0.125987	0.145966	0.049528	0.077647	**0.512453**

NB: destination wise coffee export data from the year 2006-2009 were not incorporated due to unavailability of the data

Based on the Linear Programming Transitional Probability Matrix, Markov chain model results presented in Table 6 provides a broad indication of changes in the direction of export volume of coffee from Ethiopia for the period 1980-2005.

The major Ethiopian coffee importing countries were Germany, Japan, USA, Saudi Arabia, France and all other Ethiopian coffee importing countries were grouped under the category of the other countries. It is evident from Table 6, that Germany followed by USA are the two most stable markets among the major importers of Ethiopian coffee as reflected by the probability of total Ethiopian coffee export market retention at 77.58 percent and 75.51 percent, respectively. However, France and Others were found to be the most unstable coffee export market destinations (target market) with probability of retention value of 51.24 percent and 33.02 percent, respectively. While, Japan and Saudi Arabia retained 64.52 percent and 61.20 percent of the total coffee export from Ethiopia, respectively.

Marketing retention implies the lifecycle marketing or loyalty marketing between buyer and seller (in this case exporter country with importer country). Further, a study by Bain and Company (2014), indicated that retention market should be a prominent focus area of any strategic business as is proved that a 5% increase in customer retention can generate up to 125%

in profits. Therefore, the present study recommend to further strengthening the business ties between Ethiopia with German and also USA.

Furthermore, the unstable export market destinations (France and Others) require interventions to help them stabilise, this might be due to unstable price (movement of prices of coffee markets which tend to be exhibit considerable volatility), loss of bargaining power to major competing coffee importer countries and failing the long-term income resulted from an increasing supply of coffee. Hence, export subsidy, involves producers being paid a subsidy to export their surplus at artificially low prices. However, other countries may retaliate and protect their own producers from cheap imports because it can be argued that export subsidies are a form of unfair competition.

Conclusion and policy Implications

Conducting continental level study is naturally expensive, time taking and labour intensive. Most of the businesses, operating in developing countries in Asian and African continents are not supported by research. However; they have to be vigilant enough for such kind of study to contextualize according to their business environment. Since, the present study focused on coffee export marketing strategic direction of Indian and Ethiopian perspective; countries in the two continents might make use of it to make right marketing decision in their business operation.

Furthermore, the increasing share of other countries for Indian and Ethiopian coffee exports clearly shows the need to explore and exploit the market potential of other countries like that of the major selected export destinations. Efforts are also needed to improve the efficiency of production with quality in order to stabilize the markets and also to make the product acceptable and price competitive in other importing countries. Furthermore, most of the economic implications of the present study seek the attention of policy makers in India and Ethiopia .

References

Bain and Company.2014. Customer Loyalty and NPS. [Online] Available: http://www.bain.com /consulting- services/customer-strategy-and-marketing/customer-loyalty.aspx [14-2-2015].

Dent, W. T., 1967. Application of Markov Analysis to International Wool Flows, Review of Economics and Statistics, 49(2): 613-616.

Gan, Joshua, King, Stephen, Stonecash,Robins, mankiw,N.Gregory 2003. Principles of Economics.Thomson Learning ISB 0-17-011441-4.

Hischay M.2000. Managerial Economics. (Rev.ed) Fort Worth: Dryden.p443. ISB 0-03-0256496.

Kusuma D.K and Basavaraja H.. 2014.Stability analysis of mango export markets of India: Markov Chain approach. Karnataka J. Agric. Sci.,27 (1): (36-39).

Lord, M. 1991. Imperfect Competition and International Commodity Trade. Oxford University Press.