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India's Sugar Trade: A fresh look

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Abstract

International sugar trade is of strategic importance to India as it helps in maintain stability in the domestic sugar prices despite the cyclicality in production. Also, the potential for expanding sugar production in India exists and can be fully exploited if adjustments were introduced to ensure a market driven relationship between sugar and sugarcane prices. Higher domestic sugar prices than international sugar prices suggest the significant policy change are needed in India. India is 4th largest exporter of sugar and has the potential and advantage in export of sugar to sugar deficit countries in the Middle East and East Africa. The study also suggests that there is urgent need to divert the export of sugar from existing countries where, the price realization is less to the countries where the price realization is comparatively more.

Keywords: Sugar, international Trade, production, consumption

JEL Code: Q1, Q170

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International sugar trade is of strategic importance to India as it helps in maintain stability in the domestic sugar prices despite the cyclicality in production. Also, the potential for expanding sugar production in India exists and can be fully exploited if adjustments were introduced to ensure a market driven relationship between sugar and sugarcane prices. Higher domestic sugar prices than international sugar prices suggest the significant policy change are needed in India. India is 4th largest exporter of sugar and has the potential and advantage in export of sugar to sugar deficit countries in the Middle East and East Africa. The study also suggests that there is urgent need to divert the export of sugar from existing countries where, the price realization is less to the countries where the price realization is comparatively more.

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1. Introduction

Sugar is one of the most important commodities; produced and consumed around the world. Sugar is produced in over 123 countries worldwide but over 70% of world sugar production is consumed domestically and the remaining is traded in the world. Since only a small proportion of world production is traded freely, sugar prices have been volatile in the world market. India is the 2nd largest producer of sugar in the world next to Brazil and also largest consumer of sugar. (Source: USDA Foreign Agricultural Service). India is also largest producer of khandsari and Gur.

Sugar is derived mainly from sugarcane and sugar beet. Around 80 per cent of sugar is derived from sugar cane and is largely grown in tropical countries. The remaining 20 per cent comes from sugar beet grown mainly in the temperate zones in the North. In general, the costs of producing sugar from sugar cane are lower than that for sugar beet.

India is the second largest producer of sugar in the world having a share of over 16 percent of world's sugar production after Brazil's 22 percent. In India, two grades of sugar namely S-30 and M-30 are produced where grade S-30 dominating the share in total production. Production of sugar, inter alia, depends on recovery rate of mills. Recovery rate of a sugar mill mainly depends on sucrose content in the sugarcane, conditions of plant and machinery, cane supply arrangement in the State and agro-climatic conditions in the region (CACP Report 2011). In India, the recovery rate has been hovering around 10 percent for a long time despite the fact that the government has extended large assistance from Sugar Development Fund (SDF) for modernization of plant and machinery of sugar mills to cane development.

Indian sugar production is characterized by a cyclic production pattern with typical sugar cycles lasting 2-3 years, as production adjusts to fall in price which in turn leads to lower supplies, price increase and higher production. The growing Indian economy and a growing population (about 1.8 percent per annum) would support growth in sugar consumption. Bulk consumers such as soft drink manufacturers, bakeries, confectionary, hotel and restaurant consumers account for 60 percent of milled sugar demand. Local sweet shops consume most of India's Khandsari sugar production. Gur is mostly consumed in rural areas for household consumption and feed use (USDA, 2012). Moreover, with an increasing demand for ethanol, sugarcane is transformed into an important renewable energy crop.

Sugar export is heavily concentrated in a handful of countries with Brazil dominating the group. Other leading sugar exporters are Thailand, Australia and Mexico. The majority of sugar entering international trade is raw sugar while refined sugar share is very low. Global imports of sugar remain more diversified than exports and are spread over a larger group of countries including the European Union, United States of America, China, Indonesia, Russian Federation, Malaysia and South Korea.

The cyclical nature sugar production has caused distortions in the export of sugar from India. Sometimes it is necessary to import the sugar to maintain the domestic prices of sugar under control. India has exported 4.64 million MT of sugar in the year 2007-08 but import 2.42 Million MT of sugar in 2009-10. This kind of trend is observed in India due to cyclical production nature. Still India has improved the sugar export in last decades thanks to various initiatives by the government to increase production.

In view of this, the present study "India's sugar trade: A fresh look" is an attempt to be understood the world sugar production and consumption,

world sugar trade. Study also focus on production, utilization pattern of Sugarcane, Sugar production and consumption in India, Sugar trade in India, Trade policy of sugar in Indies and India's sugar trade competitiveness are also explored in this study.

The paper is organized in five sections. After this first section on the Introduction section 2, present a brief review of literature. In the section 3 detailed the methodology of the study and section 4 focuses on the results and discussion. Then concluding observation is made in the section 5.

2. Brief review of literature

It is obvious that Dass (1984) an increase in domestic production of sugar and its relative export price would lead to an increase in quantum of countries disposable income would try to depress the quantum of its export. Panchamukhi *et al* (1986) found that developing countries emerged as very significant marks for sugar and honey. Pal (1992) observed negative growth rates in sugar in their export earning and quantum of exports. The negative growth rate in sugar export was attributed to an increase in domestic demand. Khan and Talha (1993) studied the trends in sugar export in India during period 1960-61 and 1991-92 where they observed overall rise of nearby 195.7 %. However, during the year 1979-80 and 1980-81, the export of sugar from the century fell sharply and consequently India had to import. Singh and Kumar (1999) studied trends, challenges and opportunities for world cane market and it was argued that globalization would increasingly impact upon the world sugar market presenting both threats and opportunities. Jain (2001) has outlined the Indian policy measures to promote exports and the factors which would have a direct long-term impact on the cost of sugar production. Gawali (2003) studied distortion in world sugar trade and argued that the high level of domestic support given by many

countries to their domestic sugar industry including production subsidies and import barriers has distorted international trade in the commodity.

Sommer (2004) studied the market for sugar and indicated that Brazil and India's exports were substantial, but their consumption is over 90 per cent of production in the domestic market. Anonymous (2008) analyzed that the domestic sugar balances was the main driver of India's foreign trade in sugar. Gulati *et.al* (2013) Indian trade policy has oscillated between complete exports bans to high import duties with an overarching objective to attain domestic price stability at relatively low price levels. Lenka Rumankova and Lubos Smutka (2013) analyzed the world sugar market and identify the main determinants of the world supply and demand for sugar. Sugar reserves, its price, the acreage of sugarcane and the GDP are the main determinants which influence the prices of sugar in world market.

3. Methodology

The need for increasing exports both for increasing foreign exchange and promoting overall economic growth of the country is well recognized. The share of agricultural export in total export is substantial. With the growth of the economy, this share is projected to decline. An analysis of agricultural export and their future potential is therefore of great importance especially when export earnings are going to play critical role in coming phase of economic development. Sugar is an important commodity of agricultural export and plays an important role in export earning in India. Also, India is major sugar producing country and it ranks second in the world sugar production. Hence, the sugar commodity has been considered in the present investigation in order to know the dynamics of sugar export from India.

The present study is based on secondary data. The annual time series data are used for the entire period from 1989-1990 to 2012-13. Data are obtained from Foreign Agricultural Service, USDA, Directorate of Economic and

Statistics, Ministry of Agriculture, Hand Book of Sugar Statistics, Agricultural Statistics at a Glance, APEDA, FAO Trade Year Books, FAO Production Year Books and DGCI&S. To examine the world and Indian sugar trade, tools like, percentage, ratio, Compound Annual Growth Rate, Average Growth Rate, Co-efficient Variance, etc are used.

4. Results and Discussion

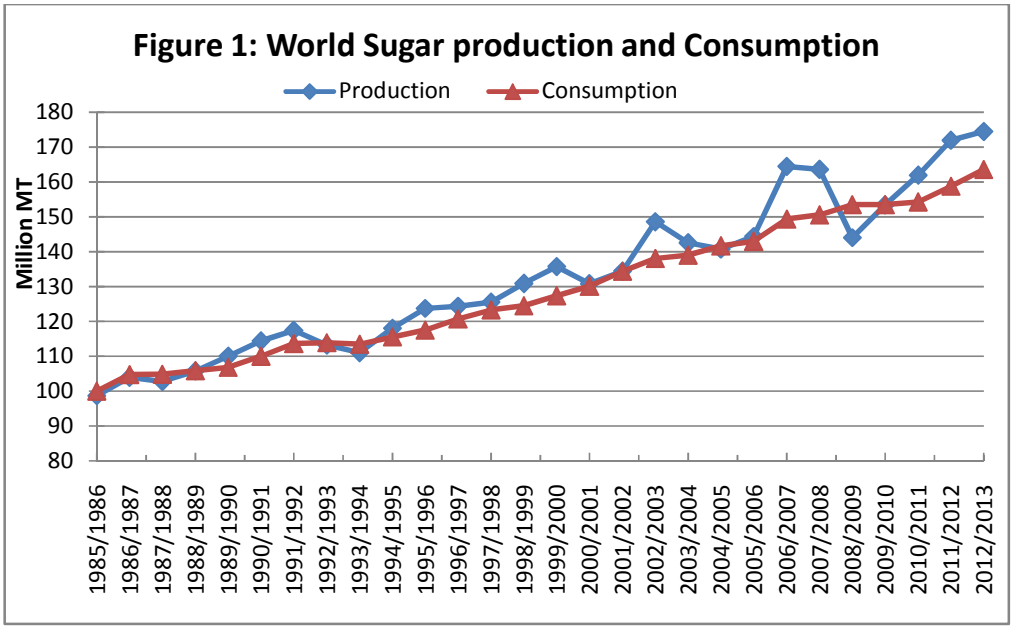
4.1. Global cane and beet sugar production and consumption

The sugar is extracted from two different raw materials sugarcane and beet; both produce identical refined sugar. Sugar cane, in contrast, is cultivated in tropical and sub-tropical regions mainly in Brazil, Cuba, Mexico, India and Australia and accounts for around two-third of world sugar production, Sugar beet is cultivated in countries with temperate climates, mainly in Western, Central and Eastern Europe, the United States, China and Japan. Chili, Morocco and Egypt are accounts for the balance one third of world production. In fact this ratio is further moving into the direction of dominance of sugarcane in the production process as producing sugar from sugar beet is relatively expensive. In contrast to sugarcane, sugar beets are directly processed into refined sugar. Raw sugar is produced only from sugarcane. Raw sugar and refined sugars are two different products traded internationally. Beet sugar producing countries export refined sugar, while cane sugar producing countries export either raw or refined sugar.

Global sugar production now exceeds 174.47 million MT during 2012-13 from 98.70 million MT in 1985-86. But this growth in sugar production is cyclical and shows wide fluctuations in recent decades particularly in 2000-01, 2003-04, 2004-05 and 2008-09 (figure.1). During these years the sugar production has shown a trend of deficit followed by surpluses in subsequent years as sugar crop areas expanded on the back of higher prices. Surpluses

stem predominantly from world production exceeding consumption and export availability exceeding import demand.

The world sugar consumption is increased from 100 Million MT in 1985-86 to 163.6 Million MT in 2012-13.Similarly to global production, the global consumption is also increased steadily during last few decades. In 2013, the global production of sugar was 174.47 million MT and the global consumption was 163.60 million MT (Table.1and figure.1). Sugar Production deficits in 2008-09 and 2009-10, mainly because of a lower production in India, where sugar output is estimated to have fallen by a 45%. The drop reflects a decline in cultivated area, as many cane growers allocated land to alternative, more remunerative crops, such as maize and Soybean. Production deficits in 2008-09 and 2009-10 were followed by surpluses in 2010-11 and 2011-12 as sugar crop areas expanded on the back of higher prices.



Global sugar consumption has continued to increase despite the continuing economic difficulties in many developed countries, compounded by the period of high sugar prices and increased volatility. World consumption of

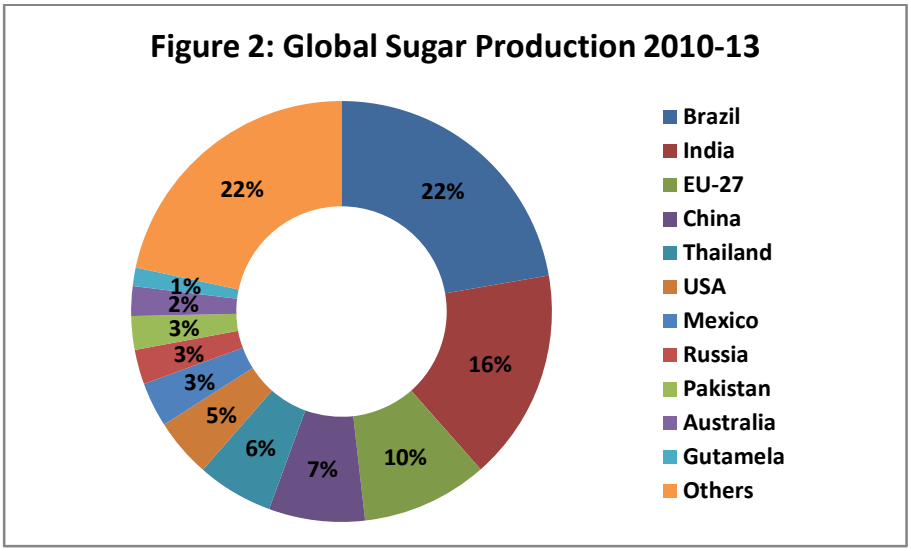
sugar has grown at an average annual rate of 1.8 per cent over the past 28 years. Sugar consumption has been declining in developed countries partly due to the availability of substitutes and concerns about obesity and health. At the same time, it has been increasing in developing countries, which now account for around 70 per cent of world sugar consumption driven by rising incomes, population growth and changes in diet. The sugar deficit regions of Asia and the Far East as well as Africa, will be responsible for most of the expansion in consumption.

4.2. World sugar production

Worldwide, 123 countries are producing sugar of which only sugar beet is grown in 43 countries and only sugarcane is grown in 71 countries while both sugarcane and sugar beet are grown in 9 countries. Brazil and India are the world's two largest sugar producers. Together, they have accounted for over half the world's sugar cane production for the past 40 years. The EU is the third-largest producer and accounts for around half the world's sugar-beet production.

The percentage shares and triannual averages in the production of sugar of world and 12 identified major sugar producing countries during different time periods has been calculated and presented in Table .2. The world sugar production was increased tremendously from 113.94 million MT to 169.45 million MT over a period of 24 years. The largest producer of sugar in the world is Brazil with an annual production of around 38 million MT in 2010-13(22.25 percent). India at the second place with production of 27 million MT(16.25 percent) of sugars and European Union (9.72 percent)standing at the third place with approximately 15.00 million MT of sugar production. Among other contributing countries to the world production are China (7.38

percent), Thailand (5.86 percent), USA (4.52 percent) and Mexico (3.43 percent). (Figure 2)



The share of world production by each of the main producing countries has been evolving over the last few years, with a particularly positive production dynamic in the Asian region (mainly Thailand and China). After a period of saturation, European production is slowing down and this trend will continue due to higher cost of producing beet sugar.

4.3. Compound growth rates in major sugar producing countries

The annual Compound growth rates in major sugar producing countries were estimated by fitting exponential type of equation during 1989-90 to 2012-13 and result are presented in Table 3. It is revealed from the table that the quantity of sugar production was a positive and significant at one percent level of significance. It clearly indicated that the quantity of sugar production have increased annually by 1.96 percent.

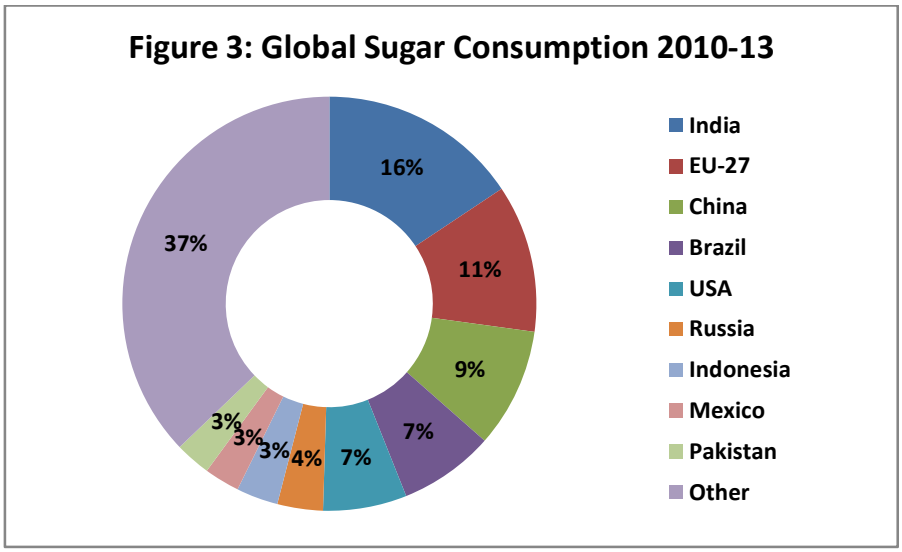
Sugar production in developed countries is growing very slowly, with estimating growth rates at less than one percent per annum. Further decline in production due t the reform of the EU sugar regime that will not only reduce EU

output, but also the availability of EU refined sugar exports to the global market. Australia is the only developed country in which sugar plays a significant – although declining- role in the national trade balance. Amongst the largest developing countries, compound growth rates are led by Brazil (7.62 per cent), India (3.22 per cent), China (3.52 percent) and Thailand (3.66 per cent). Production in China and India is mostly dedicated to domestic demand. Sugar accounts for a relatively small share of overall GDP in these countries due to diversified economies and growth in other sectors. Sugar output in Brazil, where annual compound growth rates is 7.62 percent, more than domestic consumption of sugar and ethanol combined, have resulted in surplus supply directed to global export markets(Table.3).

4.4. World sugar consumption

The percentage shares and triannual averages of world sugar consumption and 12 identified major sugar consuming countries during different time periods has been calculated and presented in Table 4.

Global sugar consumption has continued to increase from 110.16 million MT in 1989-1992 to 158.86 million MT in 2010-13. The top five countries India, EU-27, China, Brazil and the United States consume 49.47 per cent of the world's sugar, equivalent to 82.80 million MT (figure. 3). The top ten countries account for 64 percent of global sugar consumption, largely based on population balance, particularly in the case of the EU, and the United States, where sugar demand is largely saturated and mostly keeping pace with population growth rates. Sugar consumption is only one part of total sweetener consumption in the case of the United States, where more high-fructose (corn-based) sweetener is consumed annually than sugar. In 2013, World per capita consumption of sugar was 24.80 kgs, driven primarily by higher population and income growth in developing countries.



4.5. Compound growth rates in sugar consuming countries in World

The annual compound growth rates of major sugar consuming countries were estimated by fitting exponential type of equation during 1989-90 to 2012-13 and results are presented in Table 5. It is revealed from the table that the quantity of sugar consumption was a positive and significant at one percent level of significance. It evidently indicated that the quantity of sugar consumption have increased annually by 1.85 percent. In the case of developing countries, China (3.79 percent), India (3.20 percent), Brazil (2.47 percent), Indonesia (3.51 percent) and Thailand (3.16 percent) sugar consumption was a positive and significant at 1 percent level of significance. In case of developed countries like EU (1.35percent) and USA (0.92 percent) annual compound growth rate was positive and significant at 1 percent level of significance.

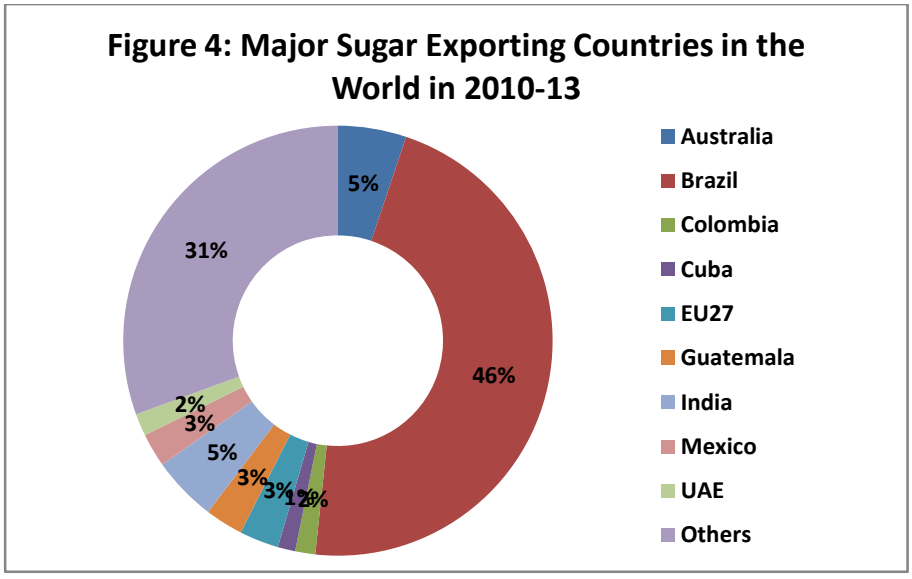
The use of sugarcane in the development of ethanol as an alternative fuel is also an important factor in the sugar supply and demand equation. Brazil is both the largest exporter of sugar and the largest producer and consumer of ethanol. Any decision that Brazil takes to expand ethanol production, for example, when a large sugar crop is forecast, can affect the balance of supply and demand in the global sugar market.

4.6. World sugar trade

International sugar trade is highly distorted due to supply uncertainties in the major sugar producing countries. The sugar export and import by various countries are discussed in detail in this section.

4.6.1. The Major sugar exporting countries

The percentage shares and triennial averages in the export of sugar of world and 12 identified major sugar exporting countries during different time periods has been calculated and presented in Table 6. The majority of sugar entering international trade is raw sugar while refined sugar share is very low. The export of sugar is increased enormously from 33.55 million MT to 56.00 million MT over the period of 24 years. Brazil, the largest producing and exporting country, which dominates world trade, has about 46.53 percent of total sugar export in 2010-2013, up from 4.38 percent in 1989-1992. Brazil is generally considered to be lowest-cost sugar producer and beneficiary of increased world sugar trade because it has the capacity to increase sugar production and exports substantially.



The other leading exporter Thailand (17.13 per cent) plays a unique role in Asia as the consistent producer of a large sugar surplus along with

Australia, to service the large sugar deficit in the region. Australia is the world's third largest exporter having share of 5.15 percent of total sugar export (figure 4). The top six exporting countries constitute almost 65 per cent of the world's total export.

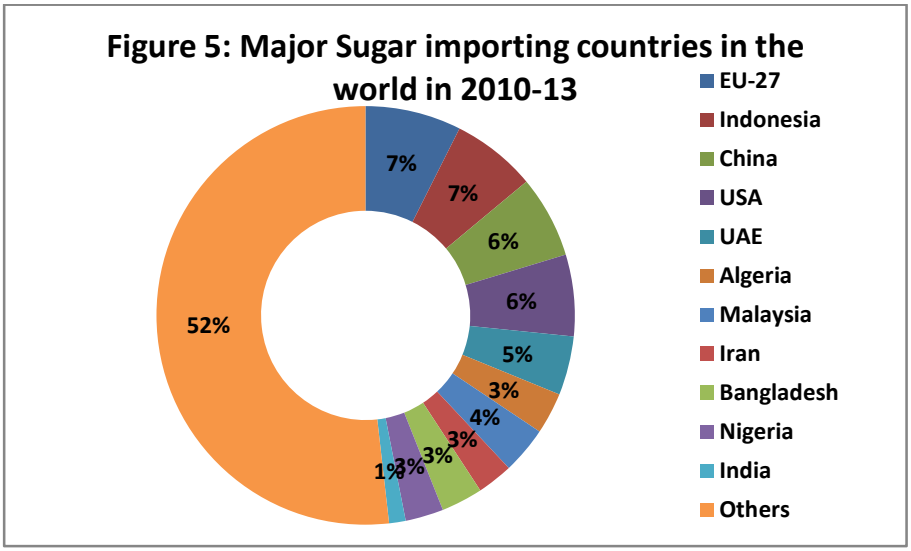
4.6.2. Compound growth rates of major sugar exporting countries in world

The compound growth rates of major sugar exporting countries have been presented in table 7. It is revealed from the table that the quantity of world sugar export was a positive and significant growth rate of 2.81 percent during 1989-1992 to 2012-13. The export of world sugar from certain countries such as Brazil, Columbia, Guatemala, and Thailand are positive and significant at 1 percent significance level. It is clearly indicated that sugar export have increased in Brazil by 14.17 percent per annum, Guatemala by 4.46 percent per annum, Columbia by 3.08 percent per annum and Thailand by 3.70 percent per annum. The sugar export in India, Mexico and UAE was significant at 5 per cent level of significance. Importantly, a sugar export in India, Mexico and UAE and have increased annually by13.96 percent, 12.20 percent and 4.17 percent respectively. The compound growth rates of export quantity of sugar in Cuba were negatively significant thereby indicating decline in sugar export.

4.6.3. The major sugar importing countries

The world import of sugar was about 30.64 Million MT in 1989-1992 and it has increased to 49.26 Million MT. Global imports of sugar remain more diversified than exports and are spread over a larger group of countries including the European Union, USA, China, Indonesia, Russian Federation, Malaysia and South Korea. Of the 168 sugar importing countries, top 10 countries accounts for 47 per cent of world import (Table 8). The leading sugar importing country is EU having share of 7.42 percent in world sugar import. Indonesia, China, USA, and UAE stand on 2nd, 3rd, 4th and 5th

place respectively (figure 5). Being so much of imports taking place throughout the world, there are different sugar import and production policies practiced by different nations to protect their domestic produce from competition.



The quantity of world sugar import was a positive and significant at one percent level of significance. It evidently indicated that the quantity of world sugar import has increased annually by 2.49 percent (Table 8). EU is the world's biggest producer of beet sugar and the principal importer of raw cane sugar for refining. Ongoing reforms to the way the EU manages sugar production and imports are having significant consequences, both for producers and processors.

India's share in the world sugar import was only 1.28 per cent of total sugar import (2010-2013). The Indian government controls sugar exports and approves export licenses only once it has been assured that there is sufficient production to meet domestic demand. When production was hit by a poor monsoon in 2009, India turned to the international market for imports and sent global prices soaring. Conversely, a bumper crop in 2011-

12 saw the government approve 3 million tones of exports that year, pushing global prices down.

4.6.4. International sugar prices

The world sugar market continues to experience considerable price volatility. Price volatility is largely the result of changes in production especially by large players such as Brazil and India but is also due to the nature of the industry. As a major sugar producer, Brazil and India are also major sugar consumers, and their export volumes are secondary to the needs of domestic processors. Growing trends in the production of sugar-based biofuel also affect the export. International sugar prices were high in 2009, 2010 and 2011 due to large global sugar deficits and adverse weather in major sugar producing countries (table 9). World sugar stocks, which has fell to their lowest level in 20 years in 2010-11 was also supported higher as well as more volatile market prices. International sugar prices are eased back in 2011-12 as production responds around the world to high prices and the global balance moves into a larger surplus that allows the start of stock rebuilding.

Brazil, as the leading sugar producer and dominant global trading nation, has attained the status of a "price setter" on the world market with international sugar prices usually correlated with its relatively low production costs. Sugar production costs in Brazil, along with those of other major exporters of Australia and Thailand, have increased in recent times with the appreciation of their currencies against the US dollar.

4.7. Area, Production and Utilization Pattern of Sugarcane in India

India ranks second after Brazil, in terms of area and sugarcane production. Both area and production of sugarcane in India fluctuate considerably from season to season. This is due to variations in climatic conditions, the

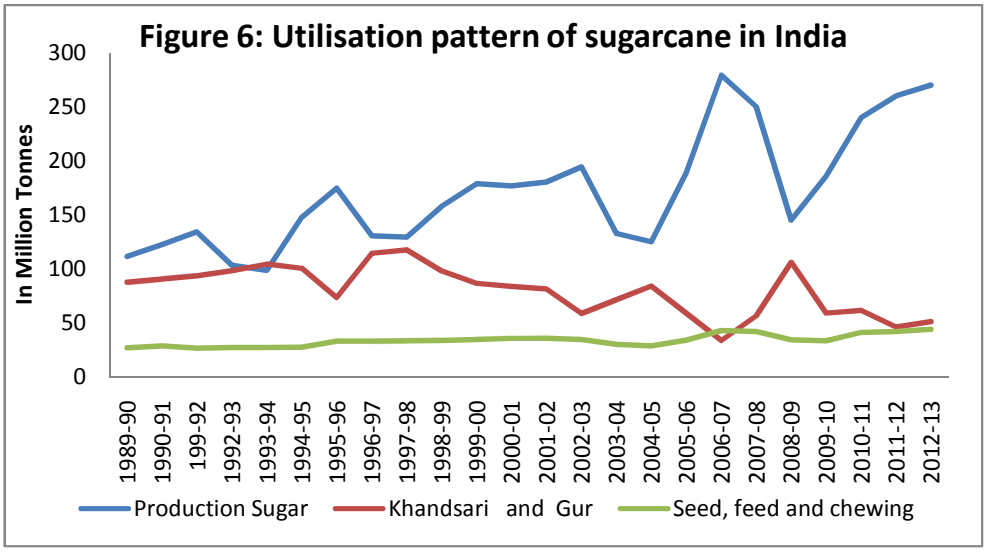
vulnerability of areas cultivated under rainfed conditions, fluctuations, in prices of gur, Khandsari and changes in returns from competing crops. The data shows that area under sugarcane and production had shown a mixed growth during 1989-1990 to 2012-13. Of the 24 years, area under sugarcane had positive growth during 10 years and decreasing growth was observed during 2003-04 to 2005-06 and 2007-08 to 2011-12 (Table 10).

As far as sugarcane production is concerned, it had decreasing growth during 2002-03 to2003-04 and 2008-09 to 2009-10 due to lower rainfall. There had been considerable variations in area under sugarcane, sugarcane production, and yield of sugarcane during 1989-90 to 2012-13. The trend analysis reveals that the fluctuations in sugarcane production are basically influenced by the movements in area coverage rather than yield levels. The average annual growth rate in the yield of sugarcane were non significant at 0.08 percent for the present period of 1989-90 to 2012-13. In such a situation, the need for increasing production of sugarcane would require more area under the crop, which may not be feasible keeping in view the required balancing approach in cropping pattern as also the requirement of needed area for food security purposes. Declining productivity of the crop gives a disappointing signal for the smooth development of the sector and it becomes a difficult proposition to achieve sustainable growth in production without increasing productivity.

Fluctuations in sugarcane prices also led to under or over production of sugarcane during this period. India likely has significant potential to expand sugarcane production by increasing both planted area and yield. While India's area planted to sugarcane, averaging about 5.25 million hectares per year of primarily irrigated land is accounted for a relatively small share of India's cropped area (about 142 million hectares) and net irrigated area

(about 60 million hectares). Thus there is vast scope for increasing the area under sugarcane.

The sugarcane is utilized for producing sugar, gur, khandsari, seed and feed and chewing. The utilization pattern of sugarcane is shown in table 10.



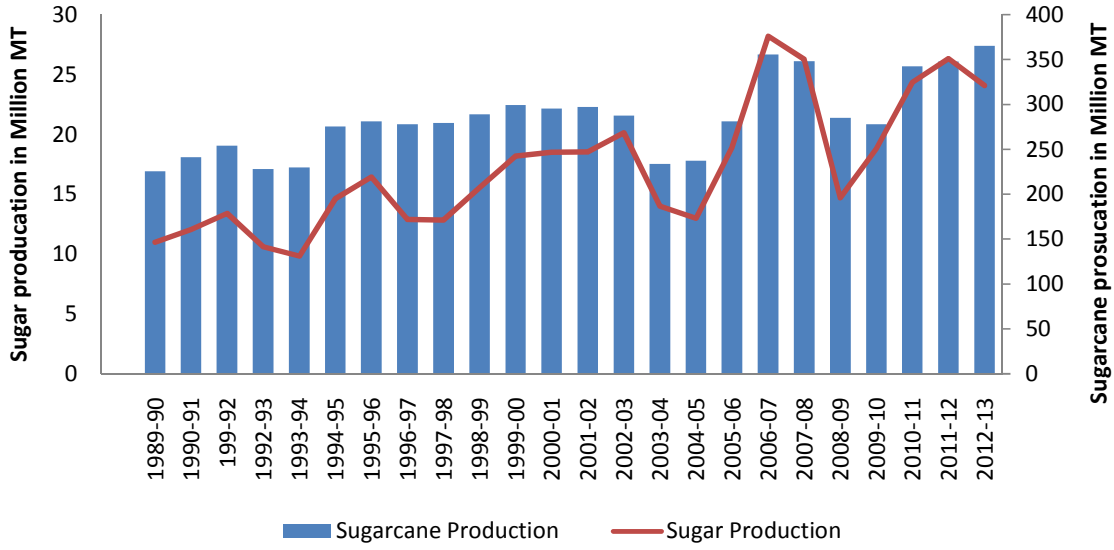
In 2012-13, sugarcane is utilized for producing sugar (73.97 percent), khandsari and gur(14.03 per cent) and for seed, feed and chewing (12 percent) (figure 6). Refined sugar from sugarcane is the dominant sweetener in India, with the two traditional sugarcane-based sweeteners, gur and khandsari, accounting for smaller shares of overall use. Khandsari has been declining in terms of production and consumption, and it now accounts for only about 3 percent of the market, but gur maintain a significant 11 percent share of the market in 2012-13. Gur production and consumption are unregulated and tend to rise in years when higher gur prices or payment arrears by sugar mills create incentives for farmers to divert sugarcane to production of gur. During 2008-09, gur and khandasri share of the market rose to about 37.12 percent when growers diverted sugarcane from the financially distressed mills, magnifying the drop in centrifugal sugar

production caused by reduced sugarcane plantings. About 60 percent of gur and khandsari production came from Uttar Pradesh and Maharashtra.

4.7.1. Sugar production and consumption in India

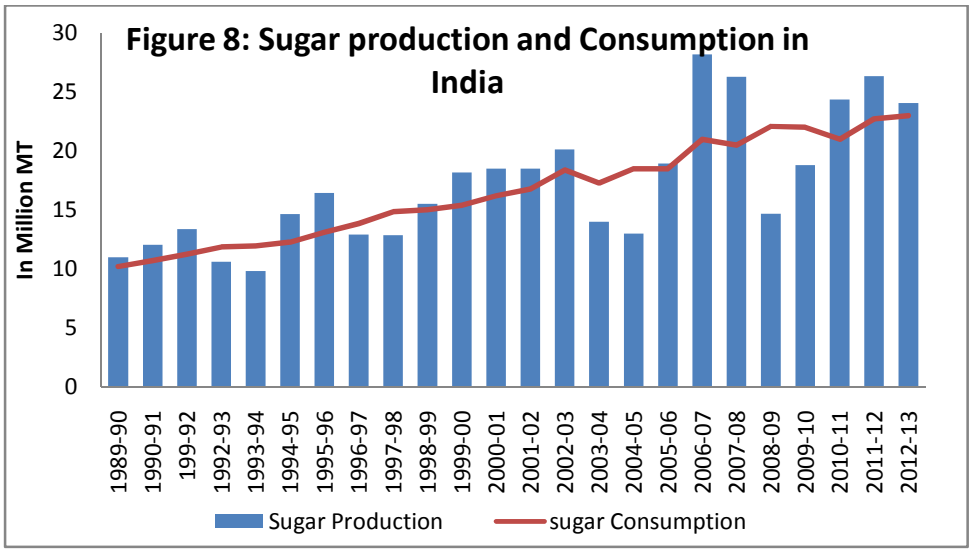
Indian sugar production now exceeds 24 million MT during 2012-13 from 11 million MT in 1989-90. But this growth in sugar production is cyclical and shows wide fluctuations in recent decades particularly in 2003-04, 2004-05 and 2008-09 (table 11). During these years the sugar production has shown a trend of deficit followed by surpluses in 2005-06 and 2009-10 as sugar crop area expanded on the back of higher prices. Surpluses stem predominantly from world production exceeding consumption and export availability exceeding import demand.

Figure7: Cyclicality in sugarcane and sugar producation in India



Sugar production in India registered a fall of 2 Million MT from 26 MT in 2011-12 to 24 MT in 2012-13, primarily due to a drop in output from the major sugarcane growing states of Maharashtra and Karnataka (Table.11 and figure.7). This fall in production has been attributed to the drought like situations which persisted in many parts of these two states during 2012-13 monsoon season. An expected larger proportion of ratoon crop will reduce

Maharashtra's sugarcane yields, and as a result, in 2012-13 average cane yield has dropped in India. Regardless of the frequent fluctuations in sugar production, domestic sugar consumption has shown a consistent growth. Indian sugar consumption is rise to 23.50 million MT in 2012-13 on improved domestic supplies and strong demand from bulk consumers (figure.8). The growth rates of sugar production, consumption and per capita sugar consumption during 1989-90 to 2012-13 has grown steadily by 4.38 percent per annum, 3.76 percent per annum and 2.05 per cent per annum respectively in India (table 11).



The production of sugar is spread across the country. Maharashtra, Uttar Pradesh, Karnataka, Tamil Nadu, Gujarat and Andhra Pradesh are the major sugar producing states in India. These six states together accounted for almost 94 per cent of the total sugar produced in India. Maharashtra and Uttar Pradesh account for almost 64.5 per cent of the total sugar produced in India. Uttar Pradesh is the highest sugarcane producing State in India having area about 22.77 Lakh ha with the production of 135.64 Million MT cane whereas Maharashtra is the second largest sugarcane growing state covering about 9.4 lakh ha area with production of 61.32 Million MT.

4.8. India's Trade in Sugar

In the past whenever India had surplus sugar, the export of this surplus adversely impacted global sugar market prices which led to price decline and thereby lowered our export price realization. In the past, India rarely got to reap the benefit of high global prices. Similarly, whenever India had to import, as it happened during the last two years, world prices shoot up and India has to pay heavy prices for import of sugar. Most interestingly the situation is different today. India is likely to have a surplus at a time when the world need it most and is prepared to pay a higher price than what is prevailing in the domestic market.

4.8.1. Export of sugar from India

India is the fourth largest exporter of sugar in the world. The export of sugar from India increased tremendously from 2.00 Thousand MT to 2794.44 Thousand MT over the period of 24 years. The reasons for increase in the sugar export were increase in domestic production (Table.12). The estimated Compounded Annual Growth Rate (CAGR) for quantity, value and unit value of sugar export from India is 21.83 per cent, 28.65 percent and 5.60 percent respectively.

4.8.2. Country wise export of sugar from India

India has the potential to export to major Indian Ocean markets, due to freight competitiveness with respect to key competitors Brazil and Thailand. The country wise export of sugar from India from the 2007-08 to 2012-13 is presented in Table.13. India is the world's largest producer of sugar and produces 15 cent of world's sugar and its share in world export was only 0.20 per cent while Brazil has share of over 23 per cent in world export. Brazil dominates the foreign market due to better quality and minimum per unit cost of production of sugar.

The large share of total exports was made to UAE (15.21 per cent), Sri Lanka (10.34 per cent) and Yemen (10.13 per cent) in 2007-08. In 2008-09, UAE became major importer with a share of (20.75 per cent) followed by Sri Lanka (10.21 per cent) and Saudi Arab (5.82per cent). During 2009-10, export of sugar has been highly concentrated towards Malaysia having the share to the tune of 17.95 per cent of total sugar export, followed Maldives (16.44per cent) and Sri Lanka (13.39 per cent). Pakistan has become major importer with a share of 26.19 per cent followed by Sri Lanka (13.03 per cent) and UAE (6.86 per cent) during 2010-11. During 2011-12, export of sugar has been highly concentrated towards Sri Lanka having the share to the tune of 16.61 per cent of total sugar export, followed UAE (12.43 per cent) and Yemen (8.53per cent). UAE was major importer with a share of 12.98 per cent followed by Sri Lanka (6.88per cent) and Malaysia (4.23 per cent) during 2012-13. Even though, Pakistan was not a major importers of sugar during 2007-08 to 2009-10, but they have occupied first place by importing largest share of Indian sugar exports during 2010-11.

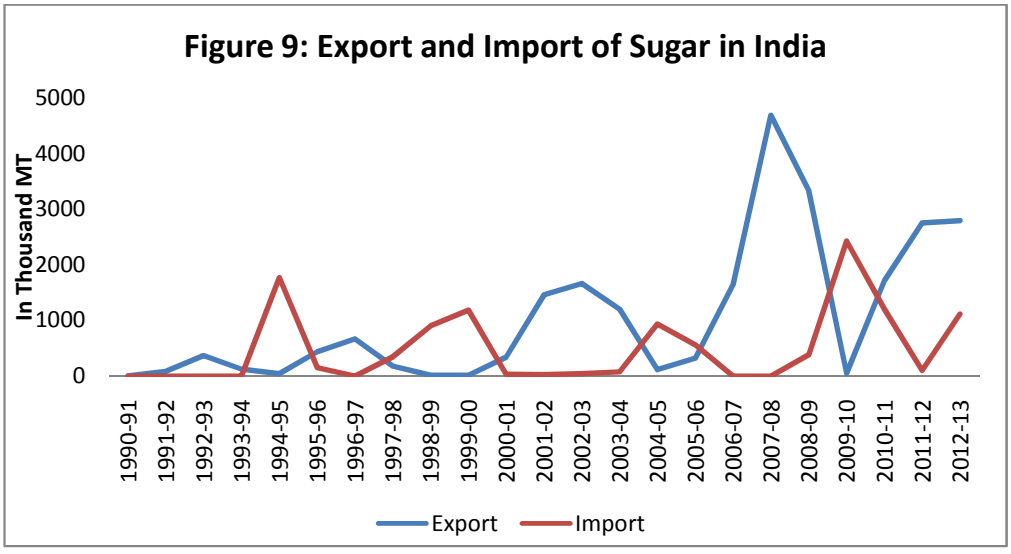
During the last ten years, India has been a net exporter of sugar despite constant government interventions in external trade of sugar with intermittent ban on exports. The main consideration of the government is to curb the rise in prices of sugar in the domestic market. Interestingly, the domestic prices have remained higher than international prices. Prior to 15th January, 1997 sugar exports were canalized then exports were de-canalized and permitted subject to obtaining Registration-cum-Allocation Certificate (RCAC) from Agricultural and Processed Food Products Export Development Authority (APEDA). Since 1st April, 2001, this requirement of RCAC was dispensed with and export of sugar is permitted after obtaining the export release order from Directorate of Sugar, Department of Food and Public Distribution. When the domestic prices of sugar surged

between January-June, 2006, exports of sugar were banned on 22nd June, 2006. Due to high production in sugar season 2007-08, the ban on export of sugar against advance licenses was relaxed on 4th January, 2007 and later for exports under OGL was permitted from 23rd January, 2007. Within a span of six months, due to the cyclicality in production of sugarcane and consequently sugar, trade policy was changed from complete ban on exports to open exports through OGL. As 2008-09 was also a good production year, the requirement of obtaining export release orders from Directorate of Sugar (except for export to EU and US) was also relaxed till 31st December, 2008. This requirement was reintroduced on 1st January, 2009 in view of the lower expected production of sugar in 2009-10. Sugar production improved in 2010-11 and due to comfortable sugar stocks in the country, exports of 1.5 Million tonnes of sugar were allowed under OGL during March-August, 2011 and 2 Million tonnes during December 2011 to February, 2012. Recently, free exports of sugar have been allowed subject to prior registration of quantity from 14th May, 2012. (Gulati *et.al*.2013)

India's export of sugar is not consistent in the past as mentioned because of the cyclical movement. Also the sugar industry undertakes exports on their own competing directly in the international market. Exports from a mill do not form part of the quota under the market quota release system. India is surrounded by sugar deficit countries in the Middle East, East Africa, Bangladesh, Pakistan and Sri Lanka. India enjoys freight advantage in exporting sugar to these countries in the post EU sugar sector reform scenario. The Indian sugar sector should make the necessary investments to capture these markets on a long term basis. Export of large quantities of sugar requires handling infrastructure in the ports.

4.9. India Import of sugar

A cyclical decline in sugar production is shifted India from net exporter to net importer during 2009-10 and contributing to the current rise in global sugar prices. The downturn in production is primarily due to a policy-induced cycle that has become increasingly pronounced. Export and import of sugar in India during 1990-91 to 2012-13 is shown in figure 9. India has net sugar exports of 4.7 Million MT in 2007-08 to net imports of 0.39 Million MT in 2008-09 and a record 2.4 Million MT in 2009-10(Table 14). Sugar production is surplus in 2010-11, as higher government price supports and open-market prices caused increase in area under sugarcane and improved incentives to deliver sugarcane to sugar mills. Therefore the surplus sugar is exported in 2011-12 and 2012-13. In the longer term, India has the capacity to boost sugarcane output, and the government and the sugar industry are considering policy measures to moderate the increasingly sharp cycles in sugar production and trade. Currently, India's competitiveness is higher in international markets, where share of white sugar imports as percentage of cumulative imports is higher. India needs to build the capability to produce raw sugar and refined sugar of international quality standards, in order to leverage the export opportunity.



4.9.2. Country wise import of sugar in India

The highest import of sugar in India was recorded from Brazil i.e. (99.48 per cent) during 2012-13(Table.15). The major sugar import markets affected by the instability of Indian supplies in nearby countries in South and Southeast Asia and the Middle East, including Bangladesh, Sri Lanka, the United Arab Emirates, Pakistan, Malaysia, Indonesia, and Yemen. Brazil, the world's largest sugar exporter, is India's major supplier during years of deficit. India imposes an ad valorem duty of 60 percent on the CIF value, plus a countervailing duty (CVD) of Rs. 850 ($19.50) per ton, on 'general' imports of raw and refined sugar (tariff code 1701). The CVD is in lieu of the local taxes and fees on the domestic sugar (central excise tax of Rs. 340 ($7.80) per ton, additional excise duty of Rs. 370 ($8.50) per ton and cess of Rs. 140 ($3.22) per ton. The imported sugar is also subject to non tariff barriers like the levy sugar obligation, the market quota release system, and other local regulations applicable to domestic sugar. The high import duties and other non tariff barriers preclude imports of refined sugar by traders. (Source: USDA FAS)

Imports of sugar were allowed under OGL with zero duty since March 1994. A basic customs duty of 5% and a countervailing duty of Rs. 850.00 per tones was imposed on imported sugar i.e. 27th April, 1998 which was gradually increased from 20% on 14th January, 1999 to 60% on 9th February, 2000 along with continuance of countervailing duty of Rs. 850/- per tonne (increased to Rs 950 per tonne on 1st March, 2008 plus 3% education cess). During January-June 2006, due to surge in sugar prices, imports of sugar were permitted without any quantitative restrictions up to 30th September, 2006. The import duty on sugar was abolished on 6th August, 2009. Government allowed import of raw sugar under Advance Authorization Scheme by sugar mills at zero duty up to 30-09-2009 and

import of raw sugar at zero duty under OGL by the sugar mills/Private Trade up to 31-03-2010 which was further extended up to 31-12-2010. Levy obligation was removed in respect of all imported raw sugar and white or refined sugar. The Government also allowed duty free import of white/refined sugar by STC/MMTC/PEC and NAFED up to 1 million tons by 01-08-2009 which was extended up to 30-11-2009. Further, duty free import of white/refined sugar under OGL has also been opened to other Central/State Government agencies and to private trade in addition to existing designated agencies. Department of Revenue has extended the period of duty free import of raw, white and refined sugar from time to time till 30th June 2012. Recently, due to surge in domestic prices an import duty of 10 percent has been imposed on raw and refined sugar w.e.f. 13th July, 2012 (Gulati *et.al*.2013).

Thus, the Government has been following broadly a consumer-oriented trade policy as imports have been allowed at zero import duty since August 2009 while exports of sugar have been tightly controlled and were subject to release orders from the Directorate of Sugar until recently. This was despite surplus production years of 2010-11 and 2011-12. This is a clear case of 'urban consumer bias' in our sugar trade policy.

Thus, the above analysis shows that competitive advantage in agri products in play with the trade policy has determined the fate of agritrade. In trade theory, restrictive export policy indicates a "pro-consumer" and "anti-farmer" bias, with export bans reflecting an "implicit taxation" of the producers and "cross-subsidization of consumers". On the other hand, high import duties reflect "anti-consumer" and "pro-producer" bias. Indian trade policy has oscillated between complete exports bans to high import duties with an overarching objective to attain domestic price stability at relatively low price levels. (Gulati *et.al* 2013)

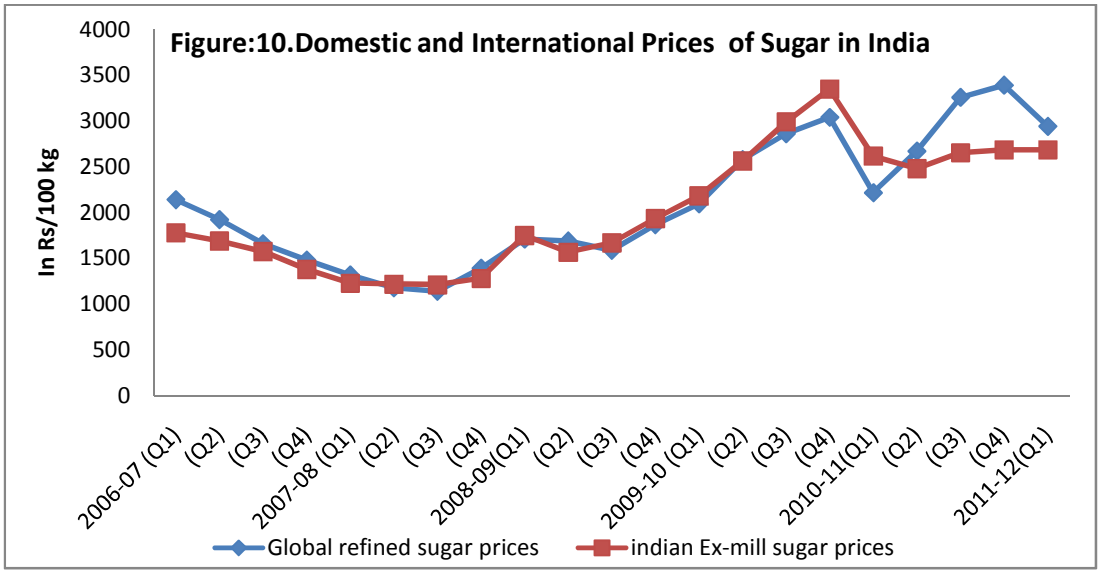
4.10. Trade Policy for Sugar

India uses export and import controls to smoothen the domestic cycles of availability of sugar, and thereby attempts to achieve greater stability in domestic prices for consumers. Policy instruments ranges from export bans, financial help to firms for export of sugar, import duties etc. These measures vary with the demand and supply situation in the domestic market. Thus, international trade is regulated through import tariffs and through non-tariff restrictions on exports including temporary bans ((C. Rangarajan 2012).

4.11. India's Sugar Trade Competitiveness

Trade competitiveness is a dynamic concept and depends upon the relative movement in international and domestic prices which in turn are determined by changes in demand and supply of commodities, technology & costs of production, and market conditions. In its simplest form, trade competitiveness can be measured by comparing domestic prices which the farmers receive for that good with its export parity reference price (for exports – derived by deducting freight, port handling, exporters' margins etc from the fob price of that commodity) and import parity reference price (for imports – derived by adding freight, port handling expenses and related costs, importers' margins etc. in the c.i.f price of the commodity). If the domestic price of any commodity is lower than the export (import) parity reference price, then the commodity is export (import) competitive. In the absence of reliable data, a preliminary attempt to measure India's competitiveness in sugar has been made by simply comparing the ex-mill prices at All-India level and international prices (Table.16 and figure.10). It is seen that domestic sugar prices have broadly followed the trend in international prices. Since 2006- 07, domestic prices have been lower or near the international prices of refined sugar. The figures in the chart

indicate that Indian sugar, in most of the years, is an efficient import substitute and in many years also export competitive. Indian pricing of sugar is not very much out of line with its global prices over a period of more than a decade.



4.12. Factors influencing the sugar market

- The world supply and demand, production and consumption are the major factors that influence the world sugar prices.
- Increasing population and growing income have a major impact on the consumption and price trends.
- The government polices determine sugar production and exports.
- Alternative sweeteners are capturing in many countries would provide a possible slow effect on the global trade.
- The government of India controls the supply of sugar in the open market through monthly sugar release notification based on market conditions. Thus the government influences the open market price to great extent.
- Increases in international crude oil prices have resulted in an increase in the demand for ethanol as an alternate source of energy.

- Diversion of sugarcane for the production of ethanol (especially in Brazil) can reduce the availability of sugar for the global trade.
- The adverse climatic conditions may hamper sugar production.

5. Conclusions

The international sugar market remains one of the most volatile of all commodity markets due to uncertainty in supply among some Asian countries, particularly India. The sugar production in India is characterized by the cyclical nature of production, where 2-3 years of surplus are followed by 2-3 years of deficit. In recent years, the cycle has been more pronounced, with larger swings in production and trade. Trade generally follows a similar trend, with imports during the deficit phase of the cycle, replaced by large exports during the surplus phase. The cyclical production is due to uncertain weather conditions, lower productivity and use of traditional method of production. The government policies also amplify the cycle through their effect on incentives along the sugar value chain, including for farmers and sugar factories.

The world sugar market has undergone significant structural changes over the past decade still it remains heavily distorted due to protectionism policy by various governments. Changes in domestic support policies and border measures, such as the imposition of export restrictions, have a major impact on trade volumes and international prices. Other uncertainties like saturated demand from developed countries also affecting the market. Changes in oil and energy prices and their implications on the share of sugarcane for ethanol production, particularly in Brazil, will also influence the market.

India is the fourth largest exporter of sugar; exporting to UAE, Sri Lanka, Yemen, Saudi Arabia, Maldives, Pakistan and Malaysia. India has the potential to export sugar to sugar deficit countries in the Middle East and East Africa. India enjoys freight advantage in exporting sugar to these

countries but the only disadvantage is that price fetched in these countries is much lower than the price fetched in Europe and North America. The Indian sugar sector needs to focus on European and North American markets on a long term basis to fetch higher prices for Indian sugar.

India is net exporter of sugar despite constant government interventions in external trade of sugar is to curb the rise in prices of sugar in the domestic market. But higher domestic sugar prices than international sugar prices suggest the significant policy changes are needed. Also, the potential for expanding sugar production in India exists and can be fully exploited if adjustments were introduced to ensure a market driven relationship between sugar and sugarcane prices. The use and valorization of sugarcane by-products, such as ethanol, electric power, and other derivatives, can cushion against low sugar prices and other market risks. Clearly, the liberalization of the sugar industry can only be undertaken within the context of broader domestic reforms, because of the linkages on both demand and supply sides that prevail in agricultural commodity markets.

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Results Tables:

Table 1: World cane and beet sugar production and consumption

(Million MT)

Years	Sugar from beet	Sugar from sugarcane	Total sugar production	World sugar consumption
1989-90	40.65	69.31	110.01	106.82
1990-91	41.87	72.56	114.47	110.02
1991-92	38.78	78.65	117.46	113.65
1992-93	39.99	73.25	113.28	113.93
1993-94	40.16	70.85	111.06	113.47
1994-95	36.98	81.04	118.06	115.57
1995-96	37.14	86.59	123.77	117.50
1996-97	37.38	86.95	124.36	120.74
1997-98	37.99	87.51	125.54	123.30
1998-99	36.84	94.02	130.89	124.53
1999-00	36.72	99.01	135.76	127.36
2000-01	36.65	94.11	130.80	130.09
2001-02	32.59	101.81	134.43	134.34
2002-03	36.95	111.60	148.59	138.03
2003-04	34.59	107.90	142.52	138.95
2004-05	37.13	103.61	140.77	141.65
2005-06	42.58	106.81	149.43	142.94
2006-07	36.48	127.98	164.49	149.37
2007-08	32.73	130.80	163.57	150.53
2008-09	30.18	113.84	144.04	153.49
2009-10	33.39	120.01	153.44	153.45
2010-11	31.94	129.98	161.95	154.24
2011-12	38.59	133.39	172.02	158.73
2012-13	35.57	138.90	174.50	163.60

Source: USDA, Foreign Agricultural Service

Table 2: Major sugar producing countries in world

(Percent)

Sr. No.	Countries	Time Periods(Triennium averages)							
		1989-92	1992-95	1995-98	1998-01	2001-04	2004-07	2007-10	2010-13
1	Brazil	7.28	9.42	11.79	13.97	16.60	19.24	21.66	22.25
2	India	12.15	11.85	12.70	14.63	13.58	14.70	14.15	16.25
3	EU-27	15.09	15.70	14.66	14.05	12.21	13.52	10.05	9.72
4	China	6.11	6.17	6.19	5.73	7.15	7.15	8.82	7.38
5	Thailand	3.66	3.85	4.41	4.08	4.86	3.72	4.76	5.86
6	USA	5.57	6.21	5.49	5.98	5.33	4.79	4.65	4.52
7	Mexico	3.22	3.71	4.00	3.82	3.70	3.87	3.52	3.43
8	Russia	2.34	2.01	1.25	1.09	1.21	1.76	2.20	2.66
9	Pakistan	1.91	2.60	2.73	2.27	2.69	2.04	2.41	2.58
10	Australia	3.10	4.08	4.36	3.68	3.60	3.54	3.14	2.30
11	Gutamela	0.88	1.04	1.24	1.21	1.28	1.41	1.52	1.41
12	Others	38.69	33.36	31.20	29.49	27.8	24.27	23.13	21.64
Total Sugar Production (Million MT)		**113.94 (100)**	**114.09 (100)**	**124.52 (100)**	**132.45 (100)**	**141.81 (100)**	**149.83 (100)**	**153.65 (100)**	**169.45 (100)**

Source: USDA, Foreign Agricultural Service

Table 3: Compound growth rates in major sugar producing countries in World

Sr.No.	Countries	Quantity	
		CGR (%)	Estimated 't' value
1	Brazil	7.62***	26.86
2	India	3.22***	5.75
3	EU-27	-0.33	-1.13
4	China	3.52***	7.60
5	Thailand	3.66***	7.45
6	USA	0.62***	3.10
7	Mexico	1.96***	7.42
8	Russia	2.92**	2.67
9	Pakistan	2.42***	4.74
10	Australia	0.34	0.71
11	Guatemala	4.32***	17.18
12	Others	-0.71***	-5.47
	World	**1.96*** **	**16.23**

*** * Significant at 1 %level of significance*

***significant at 5% level of significance*

Table 4: Major Sugar consuming countries in the world

(Percent)

Sr. No.	Countries	Time Periods							
		1989-1992	**1992-1995**	**1995-1998**	**1998-2001**	**2001-2004**	**2004-2007**	**2007-2010**	**2010-2013**
1	India	11.13	12.11	13.06	13.64	14.38	14.02	14.87	15.32
2	EU-27	12.63	12.61	11.82	11.17	10.07	12.47	11.07	11.31
3	China	6.84	6.69	7	6.69	7.76	8.39	9.41	9.15
4	Brazil	6.44	6.71	7.03	7.19	7.2	7.38	7.62	7.28
5	USA	7.29	7.37	7.31	7.18	6.39	6.3	6.32	6.41
6	Russia	5.98	4.69	4.17	4.7	4.75	4.07	3.76	3.51
7	Indonesia	2.2	2.35	2.53	2.43	2.47	2.7	2.97	3.19
8	Mexico	3.78	3.73	3.61	3.49	3.76	3.63	3.2	2.7
9	Pakistan	2.17	2.45	2.71	2.68	2.56	2.66	2.71	2.72
10	Egypt	1.35	1.4	1.51	1.55	1.65	1.73	1.76	1.78
11	Thailand	1.05	1.2	1.37	1.36	1.4	1.42	1.36	1.59
12	Other	39.16	38.69	37.88	37.91	37.61	35.24	34.95	33.05
Total Consumption (Million MT)		**110.16 (100)**	**114.32 (100)**	**120.51 (100)**	**127.32 (100)**	**137.11 (100)**	**144.65 (100)**	**152.49 (100)**	**158.86 (100)**

Source: USDA, Foreign Agricultural Service

Table 5: Compound growth rates in major sugar consuming countries in World

Sr.No.	Countries	Quantities	
		CGR (%)	**Estimated 't' value**
1	India	3.20***	26.74
2	EU-27	1.35***	5.66
3	China	3.79***	16.70
4	Brazil	2.47***	22.84
5	USA	0.92***	10.36
6	Russia	0.18	0.57
7	Indonesia	3.51***	22.83
8	Mexico	0.58**	2.20
9	Pakistan	2.54***	16.77
10	Egypt	3.32***	26.56
11	Thailand	3.16***	17.02
12	Other Countries	1.21***	17.59
	World	**1.85*** **	**45.69**

** Significant at 5 %level of significance

*** significant at 1% level of significance

Table 6: Country-wise sugar exports in the world

(Percent)

Sr.No.	Countries	Time Periods							
		1989-1992	**1992-1995**	**1995-1998**	**1998-2001**	**2001-2004**	**2004-2007**	**2007-2010**	**2010-2013**
1	Australia	8.04	12.80	12.04	9.57	8.72	8.48	7.43	5.15
2	Brazil	4.38	10.70	16.95	23.59	30.01	37.94	44.89	46.53
3	Colombia	1.12	1.91	2.29	2.45	2.64	2.14	1.45	1.50
4	Cuba	19.83	10.56	8.88	8.03	5.00	1.56	1.53	1.33
5	EU27	20.15	19.65	14.62	15.36	11.24	11.40	3.87	2.96
6	Guatemala	1.92	2.70	3.03	2.90	2.92	2.90	3.30	2.86
7	India	0.86	0.51	1.25	1.19	2.05	2.87	4.40	4.89
8	Mexico	0.65	0.27	2.42	0.85	0.34	0.78	1.93	2.54
9	UAE	0.00	0.42	1.51	2.13	2.75	3.26	2.17	1.68
10	Thailand	8.95	9.89	10.43	9.26	10.51	6.82	10.4	13.43
11	Others	34.1	30.59	26.58	24.67	23.81	21.85	18.58	17.13
Total Export (Million MT)		**33.55 (100)**	**29.85 (100)**	**36.97 (100)**	**39.22 (100)**	**45.36 (100)**	**49.17 (100)**	**48.52 (100)**	**55.95 (100)**

Source: USDA, Foreign Agricultural Service

Table 7: Compound growth rate of major sugar exporting countries

Sr.No.	Countries	Quantities	
		CGR (%)	**Estimated 't' value**
1	Australia	0.22	0.04
2	Brazil	14.17***	16.24
3	Colombia	3.08***	3.18
4	Cuba	-10.30***	-11.77
5	EU27	-2.57	-0.98
6	Guatemala	4.46***	11.55
7	India	13.96**	2.64
8	Mexico	12.20**	2.32
9	UAE	4.17**	2.41
10	Thailand	3.70***	4.96
11	Others	-0.35	-1.157
Total Export		2.81***	13.17

** Significant at 5 %level of significance

*** significant at 1 % level of significance

Table 8: Major sugar importing countries in the world

(percent)

Sr.No	Countries	Time Periods							
		1989-1992	**1992-1995**	**1995-1998**	**1998-2001**	**2001-2004**	**2004-2007**	**2007-2010**	**2010-2013**
1	EU-27	10.92	7.00	5.32	4.80	4.95	6.47	6.38	7.42
2	Indonesia	0.99	0.80	2.86	4.58	3.83	3.75	5.74	6.55
3	China	3.72	6.63	3.13	2.00	2.81	3.02	2.63	6.34
4	USA	7.66	5.56	6.85	4.00	3.71	5.14	6.01	6.31
5	UAE	0.33	0.93	1.95	2.40	3.23	3.89	4.00	4.54
6	Algeria	3.06	2.90	2.72	2.38	2.69	2.52	2.59	3.20
7	Malaysia	2.90	3.15	3.27	3.29	3.49	3.38	3.27	3.64
8	Iran	2.55	2.90	3.19	2.66	2.22	2.91	2.80	2.76
9	Bangladesh	0.16	0.25	1.73	2.11	1.90	2.25	3.07	3.22
10	Nigeria	1.56	1.56	1.72	1.96	2.38	2.67	3.04	2.94
11	India	0.06	2.38	1.00	1.32	0.50	1.63	2.78	1.28
12	Others	66.10	65.94	66.24	68.52	68.23	62.38	57.70	51.80
Total Import (Million MT)		**30.64 (100)**	**30.57 (100)**	**34.13 (100)**	**38.17 (100)**	**40.88 (100)**	**44.84 (100)**	**45.41 (100)**	**49.26 (100)**
CGR% Total world import		**2.49*** **							

*** Significant at 1 % level of significance

Source: USDA, Foreign Agricultural Service

Table 9: International sugar prices in nominal and real terms

Sr.No	Years	World sugar prices in nominal(USD/t)		World sugar prices in real (USD/t)	
		Raw sugar	White sugar	Raw sugar	White sugar
1	1990	204.04	302.31	282.6	418.71
2	1991	203.3	279.23	271.94	373.51
3	1992	211.13	273.85	275.87	357.82
4	1993	247.96	322.21	317	411.9
5	1994	305.54	396.15	382.54	495.99
6	1995	273.46	383.77	335.39	470.68
7	1996	257.32	319.27	309.69	384.25
8	1997	238.03	272.47	281.5	322.24
9	1998	155.32	216.29	181.63	252.94
10	1999	165.95	200.53	191.26	231.11
11	2000	216.09	250.32	243.76	282.37
12	2001	167.09	233.51	184.33	257.59
13	2002	176.52	221.67	191.62	240.64
14	2003	172.99	225.99	183.83	240.16
15	2004	230.62	274.99	238.32	284.17
16	2005	347.96	404.47	347.96	404.47
17	2006	257.19	328.64	249.07	318.27
18	2007	301.46	342.73	283.6	322.43
19	2008	351.45	415.98	323.56	382.97
20	2009	531.77	584.22	485.13	532.98
21	2010	595.25	650.36	537.59	587.37
22	2011	509.46	614.24	454.68	548.19
23	2012	365.42	464.14	323.1	410.38
24	2013	383.22	472.39	333.6	411.23

Source : FAO database

Table 10: Area, Production and Utilization Pattern of Sugarcane in India

Years	Sugarcane area (Million ha)	Production sugarcane* (Million Tonnes)	Sugarcane used for (Million Tonnes)		
			Production Sugar*	Khandsari and Gur**	Seed, feed and chewing***
1989-90	3.44	225.57	111.12(49.27)	87.60(38.84)	26.79(11.84)
1990-91	3.69	241.05	122.34(50.75)	90.17(37.40)	28.55(11.84)
199-92	3.84	254.00	133.95(52.74)	93.42(36.78)	26.63(10.48)
1992-93	3.57	228.00	103.01(45.18)	97.93(42.95)	27.10(11.88)
1993-94	3.42	229.66	98.33(42.82)	104.22(45.38)	27.11(11.80)
1994-95	3.87	275.54	147.64(53.58)	100.25(36.38)	27.47(9.97)
1995-96	4.15	281.10	174.73(62.16)	73.37(26.10)	33.00(11.74)
1996-97	4.17	277.56	130.38(46.97)	114.17(41.13)	33.01(11.89)
1997-98	3.93	279.54	129.14(46.20)	117.22(41.93)	33.18(11.87)
1998-99	4.06	288.72	157.57(54.57)	97.67(33.84)	33.47(11.59)
1999-00	4.22	299.32	178.49(59.63)	86.45(28.88)	34.38(11.49)
2000-01	4.32	295.60	176.65(59.76)	83.48(28.24)	35.47(12.00)
2001-02	4.41	297.21	180.32(60.67)	81.23(27.33)	35.67(11.99)
2002-03	4.52	287.38	194.33(67.62)	58.57(20.38)	34.49(12.00)
2003-04	3.94	233.86	132.51(56.66)	71.35(30.51)	30.00(12.83)
2004-05	3.66	237.09	124.77(52.63)	83.87(35.37)	28.45(12.00)
2005-06	4.20	281.17	188.67(67.10)	58.75(20.90)	33.74(12.00)
2006-07	5.15	355.52	279.24(78.55)	33.60(9.45)	42.66(12.00)
2007-08	5.06	348.19	249.90(71.77)	56.50(16.23)	41.78(12.00)
2008-09	4.40	285.00	145.00(50.88)	105.8(37.12)	34.20(12.00)
2009-10	4.20	277.80	185.54(60.79)	58.91(21.21)	33.33(12.00)
2010-11	4.94	342.38	240.00(70.10)	61.30(17.90)	41.08(12.00)
2011-12	5.09	357.67	260.00(74.74)	46.12(13.26)	41.74(12.00)
2012-13	5.25	365.00	270.00(73.97)	51.20(14.03)	43.80(12.00)
CGR %	1.46***	1.54***			

(Figures shows in bracket are the Percentage of sugarcane production utilized)

Note: Figures for 2011/12 and 2012/13 are FAS estimates.

Source*: Directorate of Economic and Statistics, Ministry of Agriculture

**: Indian Sugar Mills Association except 2011/12 and 2012/13

***: FAS/New Delhi estimate

Table 11:Sugar production and consumption in India

Years	Total Sugar Production (Lakh Tonne)	Total sugar Consumption (Lakh Tonne)	Percapita consumption of sugar (kg per annum)
1989-90	109.88	102.15	12.50
1990-91	120.46	107.14	12.70
199-92	134.04	112.70	13.00
1992-93	106.09	118.75	13.70
1993-94	98.33	119.60	12.40
1994-95	146.43	122.70	13.10
1995-96	164.51	131.26	14.20
1996-97	129.05	138.66	14.40
1997-98	128.55	148.39	14.50
1998-99	155.41	150.35	14.40
1999-00	182.00	154.19	15.40
2000-01	185.11	162.01	15.70
2001-02	185.29	167.81	16.10
2002-03	201.40	183.84	17.30
2003-04	139.95	172.85	16.00
2004-05	130.00	185.00	16.90
2005-06	189.59	185.00	17.10
2006-07	282.00	210.00	18.00
2007-08	263.00	205.00	19.30
2008-09	147.00	220.80	19.90
2009-10	188.00	220.00	17.90
2010-11	243.50	210.00	17.50
2011-12	263.43	227.25	18.30
2012-13	240.80	**230.00**	**0.00**
CGR%	**3.48*** **	**3.76*** **	**2.05*** **

*** Significant at 1 % level of significance

Source: Hand Book of Sugar Statistics, Indian Sugar Mills Association, Ministry of Consumer Affairs

Table 12: Export of sugar from India

Sr.No.	Financial year (April to March)	Quantity ('000 tonnes)	Value (Rs. Crores)	Unit Value (Rs.)
2	1990-91	2.00	0.91	4.55
3	1991-92	82.00	55.80	6.80
4	1992-93	365.00	316.73	8.68
5	1993-94	119.00	111.33	9.36
6	1994-95	39.35	48.88	12.42
7	1995-96	434.32	597.34	13.75
8	1996-97	667.27	860.80	12.90
9	1997-98	173.28	244.44	14.11
10	1998-99	12.74	17.36	13.63
11	1999-00	12.99	18.14	13.96
12	2000-01	338.69	430.98	12.72
13	2001-02	1456.45	1728.29	11.87
14	2002-03	1662.37	1769.49	10.64
15	2003-04	1200.60	1216.59	10.13
16	2004-05	108.69	149.53	13.76
17	2005-06	321.20	569.11	17.72
18	2006-07	1643.40	3127.47	19.03
19	2007-08	4684.55	5412.16	11.55
20	2008-09	3332.00	4448.74	13.35
21	2009-10	44.05	110.23	25.03
22	2010-11	1714.37	5419.11	31.61
23	2011-12	2747.35	8779.07	31.95
24	2012-13	2794.44	8576.60	30.69
	CGR%	**21.83****	**28.65*****	**5.60*****

*** Significant at 1 % level of significance

Source: DGCI&S, Kolkata

Table 13: Country wise export of sugar from India

Country Name	2007-08		2008-09		2009-10		2010-11		2011-12		2012-13	
	% share	Unit Value (Rs.)	% share	Unit Value (Rs.)	% share	Unit Value (Rs.)	% share	Unit Value (Rs.)	% share	Unit Value (Rs.)	% share	Unit Value (Rs.)
Saudi Arab	2.00	11.39	5.82	13.56	3.38	23.76	1.75	33.80	2.88	32.62	2.59	30.70
Sri Lanka	10.34	11.56	10.21	14.73	13.39	26.96	13.03	32.32	16.61	31.49	6.88	29.53
U AE	15.21	10.87	20.75	12.62	5.20	27.62	6.86	31.80	12.43	31.00	12.98	29.31
Belgium	0.00	13.33	0.00	10.00	1.21	38.56	0.10	38.94	0.78	45.87	0.48	40.55
Kenya	1.85	11.44	2.40	13.95	1.30	21.03	0.23	32.70	3.33	35.23	0.70	31.93
Kuwait	0.40	12.41	0.42	13.46	1.26	14.77	0.51	32.49	0.28	31.73	0.55	31.17
Malaysia	4.68	10.71	4.52	12.00	17.95	26.12	6.07	30.59	4.41	29.93	4.23	29.69
U S A	0.28	15.64	0.08	21.64	5.43	26.87	0.21	30.19	0.78	33.49	0.96	34.96
Maldives	0.15	11.67	0.25	15.42	16.44	25.10	0.37	32.26	0.32	34.12	0.17	36.31
Oman	0.52	11.55	0.45	14.57	1.80	18.56	0.59	30.22	1.38	32.15	0.77	32.63
Canada	0.05	15.88	0.04	17.20	3.16	26.22	0.74	30.37	0.11	30.82	0.12	37.96
Bhutan	0.02	15.09	0.07	14.69	8.73	15.43	0.21	19.89	0.08	22.80	0.07	25.30
Australia	0.01	14.01	0.02	13.06	1.31	17.52	0.05	18.73	0.06	22.91	0.03	35.25
Germany	0.19	11.70	0.04	27.77	1.53	30.90	0.03	65.60	0.05	42.76	0.06	54.36
U K	0.02	17.71	0.04	25.02	4.30	27.90	0.09	33.23	0.05	28.30	0.05	41.85
Yemen	10.13	12.18	3.25	13.51	0.50	35.43	3.20	32.76	8.53	31.52	2.70	30.30
Pakistan	5.45	11.36	0.96	15.26	5.82	20.51	29.16	30.20	1.01	30.61	0.00	00.00
Greece	0.16	17.13	0.03	13.96	0.70	30.35	0.08	34.29	0.08	31.72	0.05	30.36
others counties	48.54	11.88	50.65	13.33	6.58	24.67	36.73	31.12	46.82	31.79	66.62	30.21
Total Export (Lakh MT)	**46.41 (100)**	**11.64 (100)**	**33.32 (100)**	**13.35 (100)**	**0.45 (100)**	**24.12 (100)**	**17.14 (100)**	**32.46 (100)**	**27.47 (100)**	**32.14 (100)**	**27.94(100)**	**30.93 (100)**

Source: APEDA 2013

Table 14: Import of sugar by India

Sr. No.	Financial year (April to March)	Quantity (Lakh tonnes)	Value (Rs. Crores)	Unit Value (Rs.)
2	1990-91	0.00	0.00	0.00
3	1991-92	0.00	0.00	0.00
4	1992-93	0.00	0.00	0.00
5	1993-94	0.00	0.00	0.00
6	1994-95	17.65	2245.85	12.72
7	1995-96	1.51	215.89	14.33
8	1996-97	0.02	3.18	14.92
9	1997-98	3.47	470.25	13.56
10	1998-99	9.00	1111.22	12.34
11	1999-00	11.81	1110.8	9.40
12	2000-01	0.30	31.11	10.23
13	2001-02	0.27	32.6	12.27
14	2002-03	0.41	32.83	7.92
15	2003-04	0.74	62.7	8.43
16	2004-05	9.33	976.18	10.47
17	2005-06	5.59	651.59	11.66
18	2006-07	0.01	3.49	33.17
19	2007-08	0.005	2.24	45.16
20	2008-09	3.86	583.11	15.10
21	2009-10	24.24	5961.24	24.59
22	2010-11	11.98	2,789.54	23.28
23	2011-12	1.00	313.81	31.47
24	2012-13	11.14	3,071.70	27.57

Source: DGCI&S, Kolkata

Table 15: Country wise import of sugar in India

Sr. No.	Country Name	2010-11		2011-12		2012-13	
		Quantity (Lakh MT)	% share	Quantity (Lakh MT)	% share	Quantity (Lakh MT)	% share
1	Brazil	9.65	80.53	0.99	98.52	11.08	99.48
2	Pakistan	0.00	0.00	0.00	0.00	0.05	0.44
3	United States	0.00	0.01	0.00	0.25	0.00	0.02
4	Japan	0.00	0.00	0.00	0.02	0.00	0.00
5	Germany	0.01	0.11	0.00	0.09	0.00	0.01
6	UK	0.01	0.06	0.00	0.08	0.00	0.01
7	Canada	0.00	0.01	0.00	0.10	0.00	0.01
8	China	0.04	0.32	0.00	0.46	0.00	0.01
9	France	0.01	0.11	0.00	0.02	0.00	0.01
10	UAE	0.31	2.60	0.00	0.05	0.00	0.03
11	Singapore	0.00	0.00	0.00	0.00	0.00	0.00
12	Austria	0.04	0.33	0.00	0.00	0.00	0.00
13	Saudi Arabia	0.00	0.00	0.00	0.00	0.00	0.00
14	South Africa	0.03	0.28	0.00	0.01	0.00	0.00
15	Bangladesh	0.00	0.00	0.00	0.00	0.00	0.00
16	Australia	0.00	0.00	0.00	0.00	0.00	0.00
17	Indonesia	0.00	0.00	0.00	0.01	0.00	0.00
18	Malaysia	0.15	1.23	0.00	0.00	0.00	0.00
19	others counties	1.73	14.44	0.00	0.10	0.00	0.01
Total import		**11.98**	**100.00**	**1.00**	**100.00**	**11.14**	**100.00**

Source: APEDA 2013

Table 16: Domestic and International Prices of sugar: Comparison of Global Refined Sugar Prices and Domestic Ex-mill Sugar Prices in India

(Rs/quintal)

Years(Quarter)	Global refined sugar prices	Indian Ex-mill sugar prices
2006-07 (Q1)	2141.58	1779.00
(Q2)	1922.93	1690.00
(Q3)	1659.18	1575.00
(Q4)	1481.55	1381.00
2007-08 (Q1)	1318.44	1228.00
(Q2)	1177.52	1219.00
(Q3)	1140.91	1212.00
(Q4)	1392.04	1280.00
2008-09(Q1)	1710.00	1750.00
(Q2)	1689.06	1567.00
(Q3)	1588.89	1670.00
(Q4)	1868.70	1936.00
2009-10 (Q1)	2096.05	2182.00
(Q2)	2580.39	2564.00
(Q3)	2862.27	2992.00
(Q4)	3042.00	3350.00
2010-11(Q1)	2217.81	2617.00
(Q2)	2671.85	2481.00
(Q3)	3259.65	2655.00
(Q4)	3393.29	2686.00
2011-12(Q1)	2942.68	2686.00

Note:
1. Domestic Ex-mill prices have been taken from Directorate of Sugar, Department of Food & Public Distribution and refer to crystal sugar.
2. International prices of refined white sugar are as traded at the London Futures Exchange (LIFFE)
Source: CACP report 2012