



# Sugar

## Sector Study

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## Food & Fuel

According to International Sugar Organization (ISO) ““Sugar” means sugar in any of its recognized commercial forms derived from sugar cane or sugar beet, including edible and fancy molasses, syrups and any other form of liquid sugar, but does not include final molasses or low-grade types of non-centrifugal sugar produced by primitive methods.”

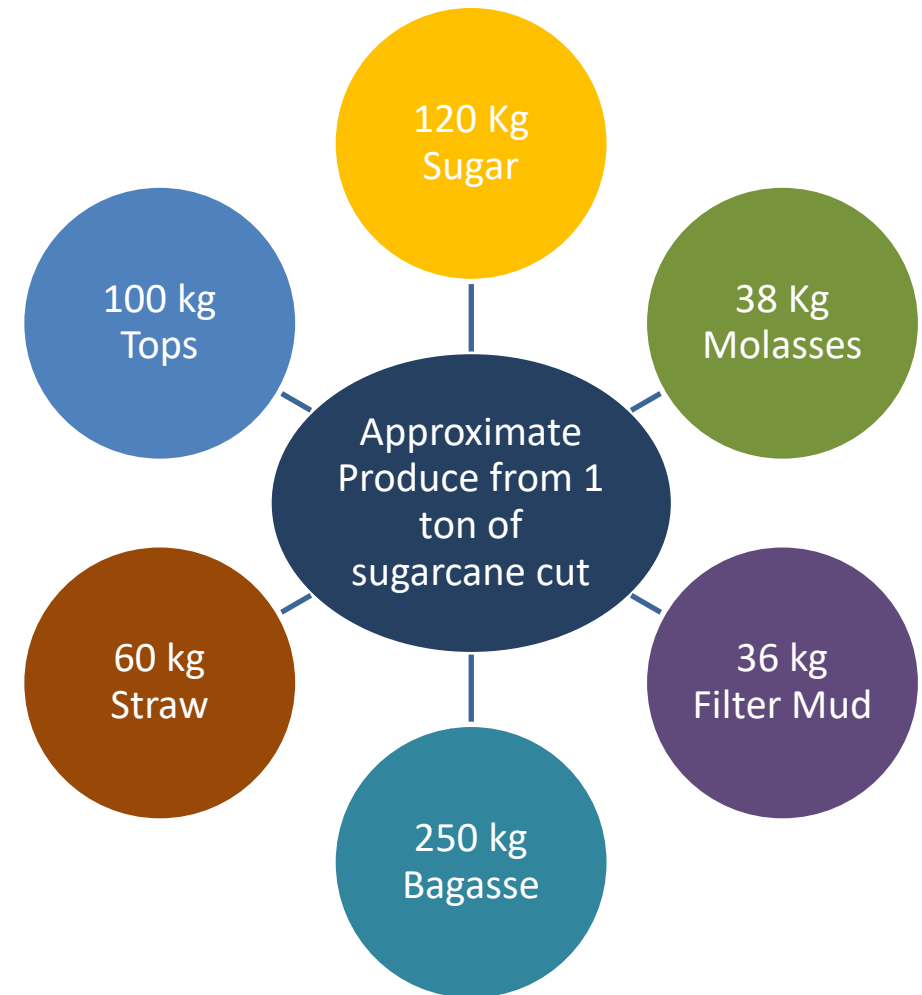
Sugarcane is a crop primarily grown in tropical countries.

It serves as a source of food and is a key biofuel feedstock (ethanol).

Sugarcane supplies ~86% of the globe’s sugar (the remaining coming from beet).

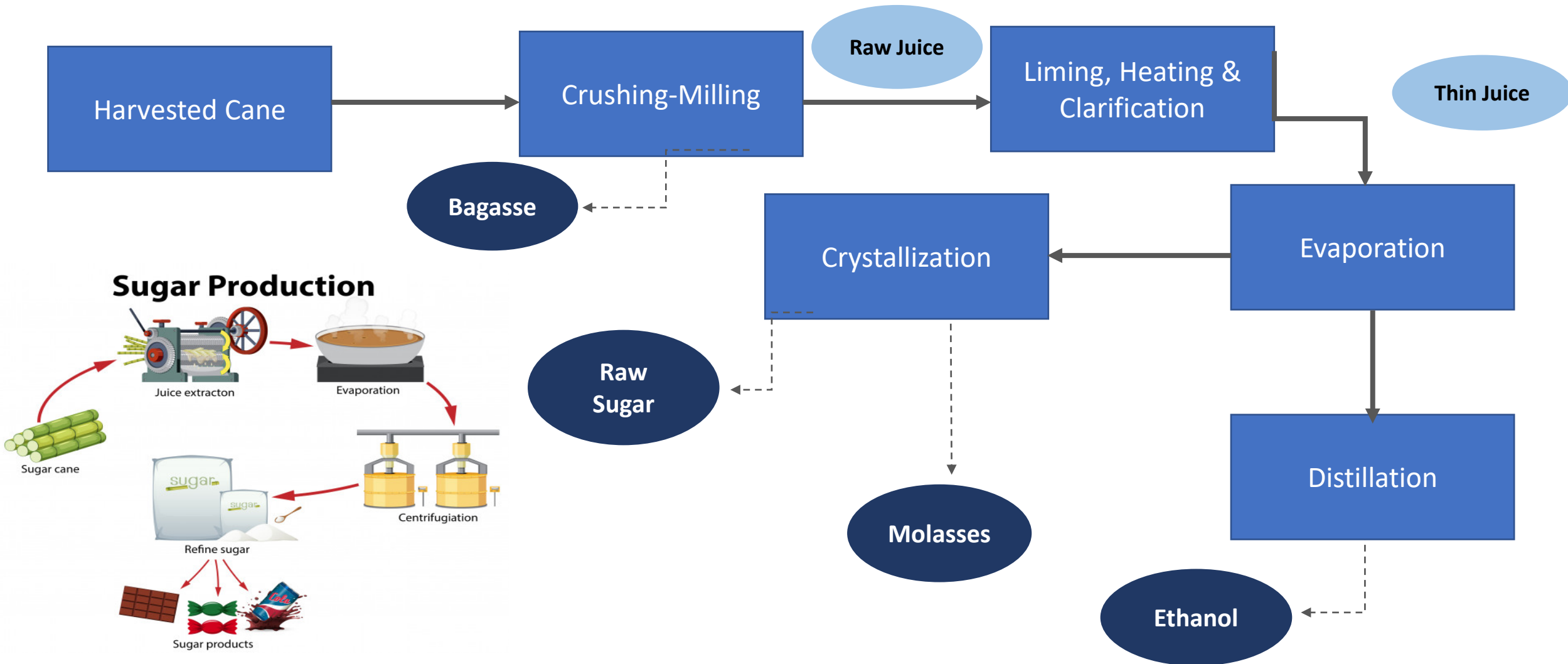
~75% of the sugarcane produced globally is consumed by the food manufacturing sector and households; the balance is used in biofuel production.

Sugarcane cultivation and processing currently provide employments for 100 million people across the world.





## Production Process





# Sugar | Global Overview

## Production & Consumption

- Global Sugar production clocked in at ~180mln MT in MY21, rising ~8% from a dipped production of ~166mln MT in MY20 due to the outbreak of COVID-19 pandemic. Meanwhile global consumption levels also decreased to ~172mln MT in MY20 due to closure of restaurants. Both production and consumption levels were restored in MY21.
- Historically, world production grew by a CAGR of ~0.7% during MY17 to MY21, with the production falling to its lowest level of ~166mln MT during MY20.
- Approximately ~35% of the total sugar produced is traded worldwide, while ~65% is consumed in the country of production.
- Estimates reveal that for MY22, global sugar supply will clock around ~293mln MT (production + imports), a meagre increase of ~1% YoY, while global consumption would increase to ~184mln MT, increasing by ~3% YoY leaving ~46mln MT of closing stock of world sugar.

| World Sugar Position (mln MT)   |              |              |              |              |              |              |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
|                                 | MY17         | MY18         | MY19         | MY20         | MY21         | MY22*        |
| World Opening Stock             | 44.0         | 46.5         | 51.9         | 53.2         | 48.1         | 48.8         |
| World Production                | 174.0        | 194.2        | 179.2        | 166.5        | 180.1        | 181.1        |
| World Imports                   | 60.5         | 65.8         | 57.8         | 53.2         | 62.7         | 63.1         |
| <b>Total World Sugar Supply</b> | <b>278.5</b> | <b>306.5</b> | <b>288.9</b> | <b>272.9</b> | <b>290.9</b> | <b>293.0</b> |
| Less:                           |              |              |              |              |              |              |
| World Exports                   | 60.5         | 65.8         | 57.8         | 53.2         | 62.7         | 63.1         |
| World Consumption               | 171.5        | 188.8        | 177.9        | 171.6        | 179.4        | 184.2        |
| <b>Total World Sugar Demand</b> | <b>232.0</b> | <b>254.6</b> | <b>235.6</b> | <b>224.8</b> | <b>242.1</b> | <b>247.3</b> |
| <b>World Closing Stock</b>      | <b>46.5</b>  | <b>51.9</b>  | <b>53.2</b>  | <b>48.1</b>  | <b>48.8</b>  | <b>45.7</b>  |

\*Estimated

## Regional share in Production

- In terms of Regions, Asia is the largest producer of sugar with a share of ~35.0% in MY21 (~35.0% in MY20), followed by South America with a share of ~26.3% in MY21 (~21.4% in MY20).
- On country level, India takes the highest share of ~19% in Asia, while Brazil takes the highest share in South American region as well as on the globe with a contribution of ~23% to world sugar production in MY21.
- India's share has witnessed a rising trend since MY17 from ~13% to ~19% in MY21. The share dwindled to ~17% in MY20 but restored its place back again in MY21. India's production level declined by ~16% in MY20 as the entire value chain of the country's sugar crop was disrupted. The levels showed recovery in MY21, with total production clocking in at ~34mIn MT, however still below the MY19 levels.
- Together, Brazil and India accounted for ~42% of the global sugar production in MY21, representing concentration at the global level.

| Sugar Production Share in % |             |             |             |             |             |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|
| Period                      | MY17        | MY18        | MY19        | MY20        | MY21        |
| <b>Asia:</b>                |             |             |             |             |             |
| India                       | 13%         | 18%         | 19%         | 17%         | 19%         |
| China                       | 5%          | 5%          | 6%          | 6%          | 6%          |
| Thailand                    | 6%          | 8%          | 8%          | 5%          | 4%          |
| Pakistan                    | 4%          | 4%          | 3%          | 3%          | 3%          |
| Other Asia                  | 3%          | 3%          | 3%          | 3%          | 3%          |
| <b>Total Asia</b>           | <b>30%</b>  | <b>37%</b>  | <b>39%</b>  | <b>35%</b>  | <b>35%</b>  |
| <b>South America:</b>       |             |             |             |             |             |
| Brazil                      | 22%         | 20%         | 16%         | 18%         | 23%         |
| Other South America         | 3%          | 3%          | 3%          | 3%          | 3%          |
| <b>Total South America</b>  | <b>26%</b>  | <b>23%</b>  | <b>19%</b>  | <b>21%</b>  | <b>26%</b>  |
| North America               | 8%          | 8%          | 8%          | 8%          | 8%          |
| Central America             | 2%          | 2%          | 2%          | 2%          | 2%          |
| Europe                      | 12%         | 11%         | 10%         | 11%         | 9%          |
| Russia                      | 4%          | 3%          | 3%          | 5%          | 3%          |
| Oceania                     | 3%          | 2%          | 3%          | 3%          | 2%          |
| Other Regions               | 15%         | 14%         | 14%         | 15%         | 14%         |
| <b>Total World</b>          | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> | <b>100%</b> |

## Regional share in Consumption

- Top 5 sugar consuming countries accounted for ~47.5% of total global consumption in MY21 (~46.2% in MY20).
- India is the largest sugar consuming country with a share of ~16.4% in MY21 (~14.0% in MY20). India also witnessed the highest growth YoY in its total consumption (local plus exports) by ~17.1% due to eased lockdowns.
- Despite being the largest producer of sugar, Brazil ranks the 5<sup>th</sup> in terms of sugar consumption. This is reflective of the fact the Brazil is the largest exporter of sugar globally.
- With regards to the average per capita consumption, Malaysia tops the list, both in Asia and globally with average consumption of ~58kgs per capita. The global average per capita consumption stands at ~48kgs. Pakistan and India are well below average global levels with per capita consumption levels of ~25Kgs and ~19Kgs respectively.

| Top 5 Sugar Consuming Countries (mln MT) |       |       |       |       |       |
|--|-------|-------|-------|-------|-------|
|  | MY 17 | MY 18 | MY 19 | MY 20 | MY21  |
| India                                    | 25.6  | 26.6  | 27.5  | 23.9  | 28.0  |
| EU                                       | 18.7  | 18.7  | 18.7  | 18.1  | 16.7  |
| China                                    | 15.6  | 15.7  | 15.7  | 15.2  | 15.5  |
| USA                                      | 11.1  | 11.4  | 11.4  | 10.9  | 11.0  |
| Brazil                                   | 10.6  | 10.6  | 10.6  | 10.7  | 10.2  |
| Total - Top 5                            | 81.6  | 83.0  | 83.9  | 78.8  | 81.3  |
| Others                                   | 89.9  | 105.8 | 94.0  | 92.8  | 98.1  |
| Total World Consumption                  | 171.5 | 188.8 | 177.9 | 171.6 | 179.4 |

| Average per capita consumption (kgs) |             |
|--------------------------------------|-------------|
| Malaysia                             | 58.2        |
| Brazil                               | 48.9        |
| New Zealand                          | 47.0        |
| Thailand                             | 43.9        |
| Peru                                 | 42.4        |
| <b>Top 5 - Average</b>               | <b>48.1</b> |
| Pakistan                             | 24.9        |
| India                                | 18.7        |

# Sugar | Global Overview

## World Trade Share

- Brazil, the largest producer, is also the highest sugar exporting country with a share of ~51.3% in MY21 (~36.3% in MY20), followed by India with a share of ~11.5% in MY21 (10.9% in MY20).
- China and Indonesia are the largest importers of sugar with a share of ~10.6% in MY21 (~7.2% in MY20) and ~9.4% in MY21 (~9.0% in MY20), respectively.
- Based on USDA's forecast, World Trade is expected to increase slightly in MY22 by ~0.7%. Thailand's exports are expected to boost by ~150% with that of Brazil and India decreasing by ~19.1% and ~2.8% respectively.
- Brazil's central areas had below-average rains during most of the cane development period, that delayed the start of the crushing season, leading to an expected smaller sugarcane crop, and ultimately lower sugar production and hence, lower exports.
- Thailand's exports are expected to rise on the back of improved sugar quality, and increased sugarcane production in MY22 after two years of dry weather conditions that dampened sugar production and exports significantly.

| Global Sugar Exports (mln MT) |             |             |             |             |             |             |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                               | MY17        | MY18        | MY19        | MY20        | MY21        | MY22*       |
| Brazil                        | 28.5        | 28.2        | 19.6        | 19.3        | 32.2        | 26.0        |
| Thailand                      | 7.0         | 10.9        | 10.6        | 6.7         | 4.0         | 10.0        |
| India                         | 2.1         | 2.2         | 4.7         | 5.8         | 7.2         | 7.0         |
| Australia                     | 4.0         | 3.6         | 3.7         | 3.6         | 3.4         | 3.6         |
| Mexico                        | 1.3         | 1.1         | 2.3         | 1.3         | 1.2         | 1.9         |
| Guatemala                     | 2.0         | 1.9         | 2.1         | 1.9         | 1.7         | 1.8         |
| EU                            | 1.5         | 4.3         | 2.4         | 1.5         | 1.3         | 1.3         |
| Pakistan                      | 0.4         | 1.6         | 1.1         | 0.1         | 0.0         | 0.0         |
| Others                        | 13.7        | 11.9        | 11.2        | 13.1        | 11.7        | 11.5        |
| <b>Total</b>                  | <b>60.5</b> | <b>65.8</b> | <b>57.8</b> | <b>53.2</b> | <b>62.7</b> | <b>63.1</b> |

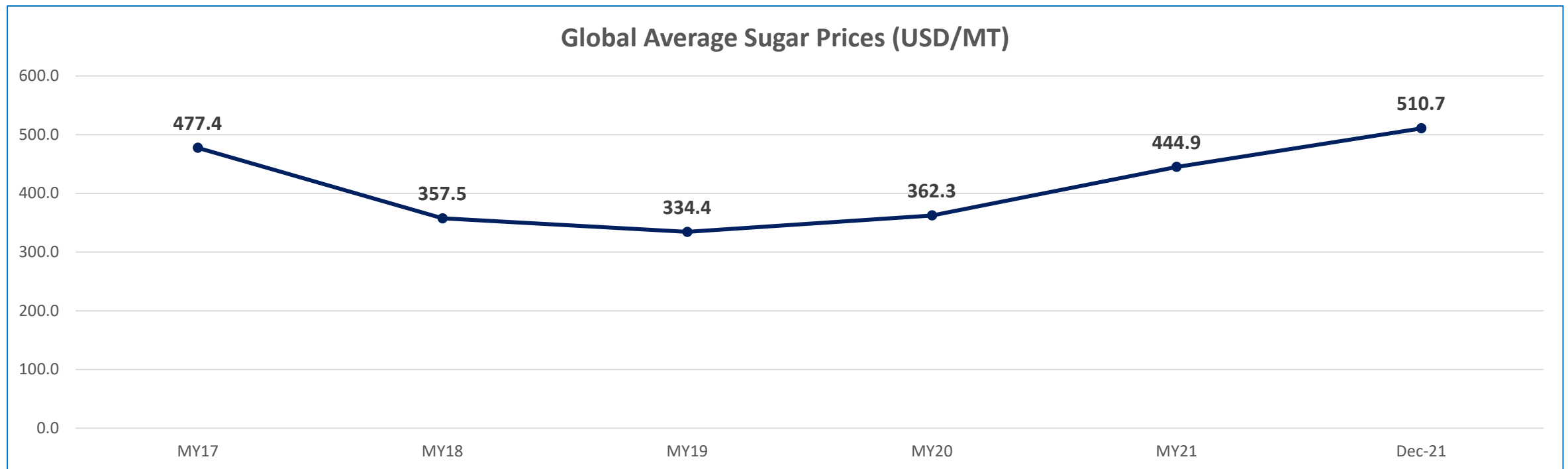
  

| Global Sugar Imports (mln MT) |             |             |             |             |             |             |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                               | MY17        | MY 18       | MY 19       | MY 20       | MY21        | MY22*       |
| China                         | 4.6         | 4.4         | 4.1         | 3.8         | 5.9         | 5.0         |
| Indonesia                     | 4.8         | 4.3         | 5.4         | 4.8         | 5.2         | 4.8         |
| USA                           | 2.9         | 3.0         | 2.8         | 3.8         | 2.9         | 2.8         |
| Algeria                       | 2.1         | 2.3         | 2.3         | 2.5         | 2.3         | 2.4         |
| Bangladesh                    | 2.1         | 2.7         | 2.4         | 2.4         | 2.4         | 2.4         |
| Malaysia                      | 1.9         | 2.0         | 2.1         | 2.0         | 2.1         | 2.2         |
| EU                            | 2.9         | 1.6         | 2.4         | 2.2         | 1.5         | 2.0         |
| South Korea                   | 1.8         | 1.9         | 2.0         | 1.9         | 1.9         | 1.9         |
| Others                        | 37.3        | 43.8        | 34.3        | 29.8        | 38.6        | 39.7        |
| <b>Total</b>                  | <b>60.5</b> | <b>65.8</b> | <b>57.8</b> | <b>53.2</b> | <b>62.7</b> | <b>63.1</b> |



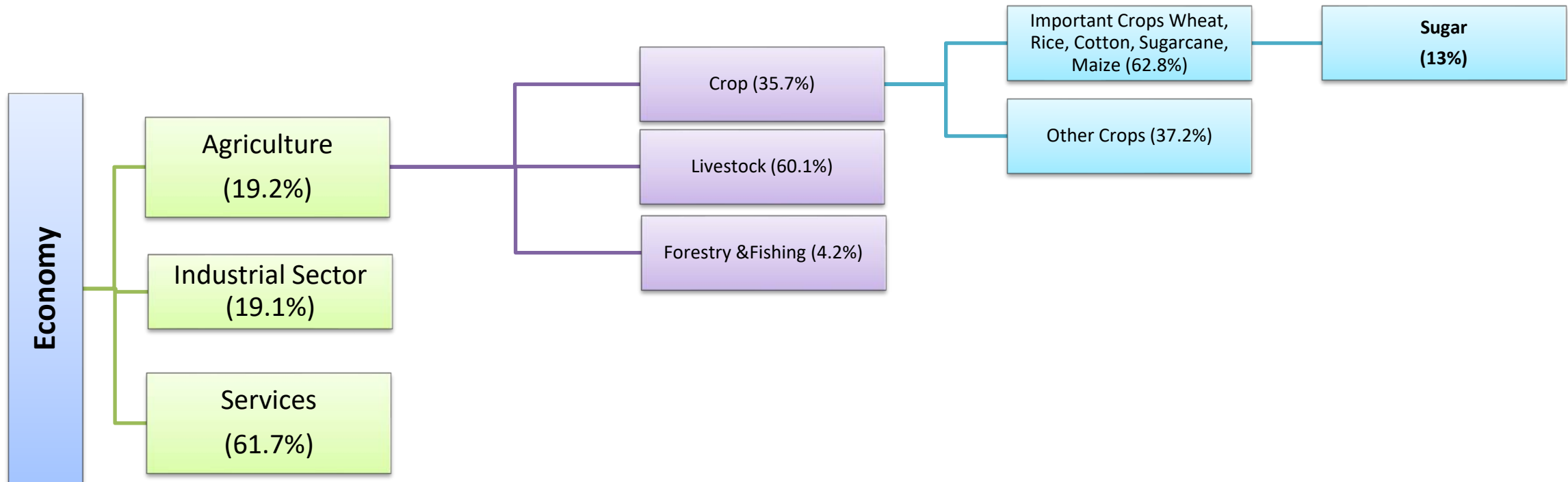
## Sugar Prices

- Historically, the global sugar prices have fluctuated in the range from USD~334/MT to USD~477/MT in the five year period from MY17 to MY21.
- Prices have been on a rising trend following MY19 and have lately upsurged to USD~511/MT in Dec'21, a rise of ~15% from MY21. This is majorly on account of the rising crude oil market and concerns over sugar production in Brazil, which is the hub of global sugar production and trade. Sugar prices soared after the sugarcane crops in the Brazil were damaged due to unusually harsh frosts.
- Following the trend, sugar prices are expected to remain at historically high levels with limited scope for meaningful increases during MY22.



## Agriculture | Overview

- Pakistan's economy is broadly classified into three segments: Agriculture, Industry and Services. During FY21, the agricultural sector declined by ~0.01%. Agricultural growth rate has been constrained by shrinking arable land, climatic changes, water shortages, and large-scale population and labor shift from rural to urban areas.
- The important crops (Wheat, Rice, Cotton, **Sugarcane** and Maize) contributed ~22.5% to value addition in agriculture sector and ~4.3% to GDP. Other crops account for ~11.7% in value addition of agriculture sector and ~2.2% in GDP. Sugarcane production increased by ~22.0% in FY21 recording at ~81mn MT (FY20: ~66mn MT). Others crops include pulses, oilseeds, vegetables and cotton ginning.



# Sugar | Domestic Overview

## Snapshot

- Sugarcane is an important agricultural and cash crop of Pakistan. It contributes ~13% to the “important crops” and ~8% to the overall crop output of the country. Sugar Industry makes up ~6% of the manufacturing sector.
- Sugarcane crop alone contributes ~0.7% to the country’s GDP (~0.6% in MY20).
- Pakistan produced ~6.0mln MT of sugar in MY21 (~5.3mln MT in MY20), a YoY growth of 13%. Sugar imports also increased from ~0.1mln MT in MY20 to ~0.4mln MT in MY21 resulting in a sugar availability of ~7.9mln MT (including opening stocks) in MY21 as compared to ~7.3mln MT (including opening stocks) in MY20. Consumption levels averaged around ~5.8mln MTs for both years resulting in closing stocks of ~1.5mln MT in MY20 rising to ~2.1mln MT in MY21.
- MY22 Estimations:** Based on USDA Report estimates, MY22 sugarcane production is estimated to grow to ~83mln MT which would culminate in sugar production of ~6.8mln MT for MY22. With an opening inventory of around 2mln MT and higher production levels, total availability for MY22 is expected to significantly rise. This would create room for export market considering that domestic consumption generally remains flat around 5.8-5.9mln MT.

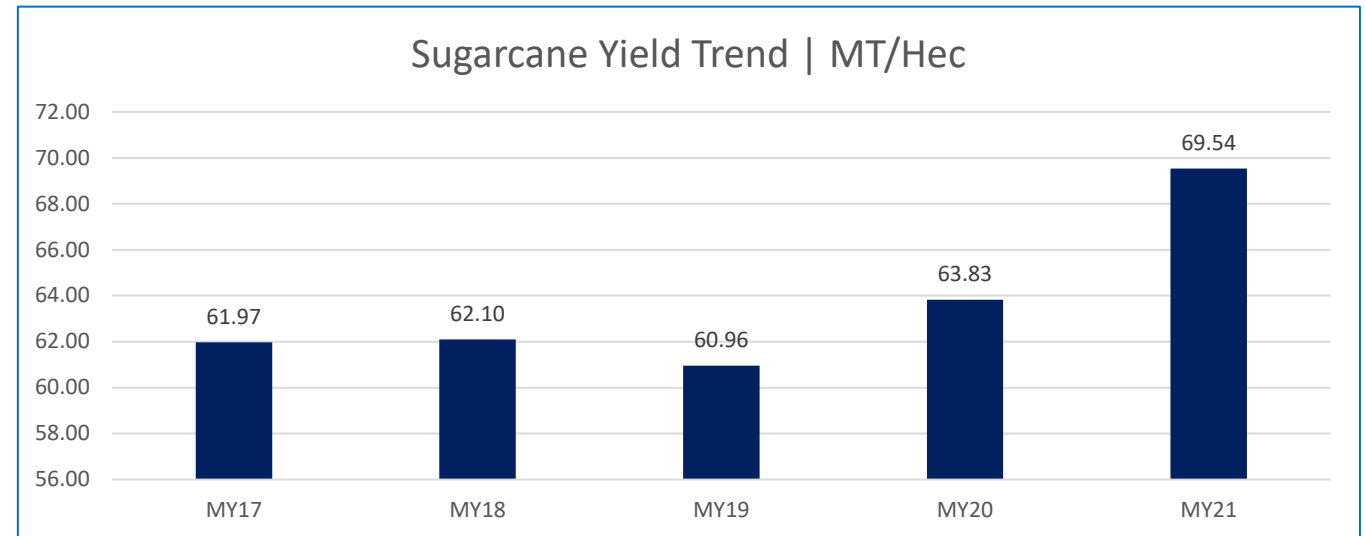
| Snapshot                         | MY20                             | MY21 |
|----------------------------------|----------------------------------|------|
| <b>Sugarcane</b>                 |                                  |      |
| Contribution to Nominal GDP      | 0.6%                             | 0.7% |
| Value Added to Agriculture       | 2.9%                             | 3.4% |
| Area Under Cultivation (mln Hec) | 1.0                              | 1.2  |
| Production (mln MT)              | 67.1                             | 75.5 |
| Yield (MT/Hec)                   | 63.8                             | 69.5 |
| <b>Sugar</b>                     |                                  |      |
| Opening Stock (mln MT)           | 1.9                              | 1.3  |
| Production (mln MT)              | 4.9                              | 6.0  |
| Total Imports (mln MT)           | 0.01                             | 0.28 |
| Consumption (mln MT)             | 5.3                              | 5.8  |
| Total Exports (mln MT)           | 0.2                              | 0.0  |
| Closing Stock (mln MT)           | 1.3                              | 1.9  |
| Market structure                 | Fragmented                       |      |
| Association                      | Pakistan Sugar Mills Association |      |

# Sugar | Domestic Overview

## Sugarcane Dynamics

- In Pakistan, sugarcane production rises and falls in a 3-year cycle, depending on how the level of government support influences farmers' planting decisions, and on crop yields. Major reason for the ~12.5% increase in production in MY21 is attributed to increase in yield (MT/hectare) which rose by ~8.9% in the year.
- During April'20, farmers of Punjab and Sindh decided to switch cotton crop with sugarcane, due to sugarcane's better productivity and resistance to climate fluctuations. Resultantly, area under cotton decreased significantly by ~17.4% in MY21. This is one of the major reasons for increase of ~12.0% in area under sugarcane, and consequently the increase in production.
- In MY19 specifically, the production levels of sugarcane declined to ~67mIn MT from ~83mIn MT in MY18, a fall of ~19%; the similar production levels were retained in MY20. Nevertheless, yield per hectare increased to ~63.8 MT/Hec in MY20 (~60.9 MT/Hec in MY19). Sugarcane is a water intensive crop; the yield mainly increased as Pakistan witnessed a rainfall that was ~41% above normal levels in MY20. Moreover, the irrigation supply in Indus Basin was also adequate.

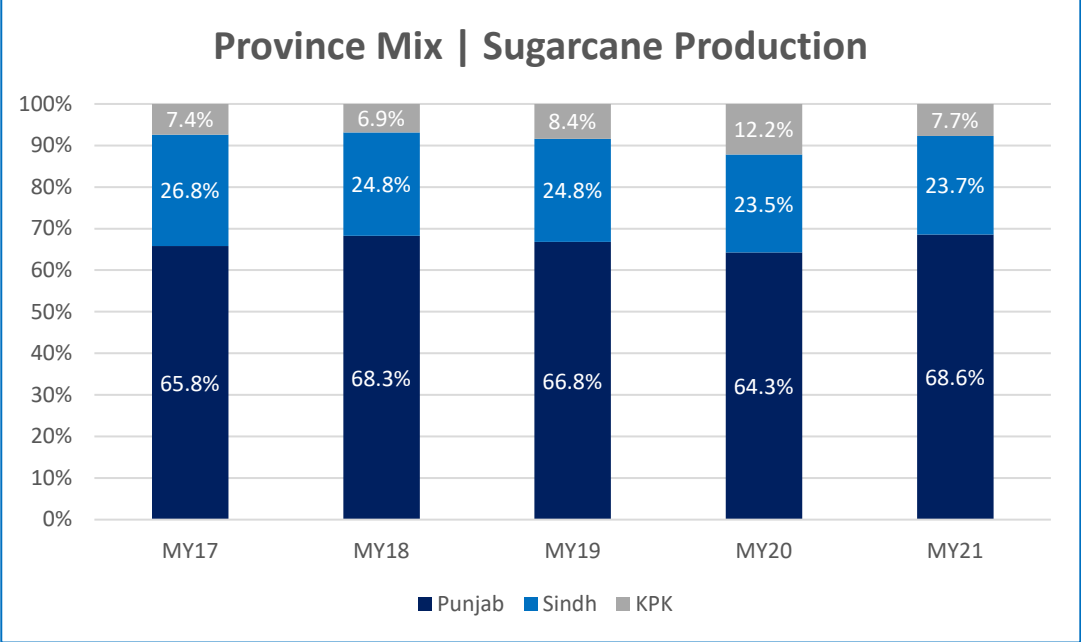
| Sugarcane Cultivation and Production                          |      |      |      |      |      |
|---|------|------|------|------|------|
|   | MY17 | MY18 | MY19 | MY20 | MY21 |
| Pakistan Cropped area (mIn Hec)                               | 23.0 | 23.5 | 23.5 | 23.5 | 23.5 |
| Pakistan Cultivated Area (mIn Hec)                            | 22.2 | 22.2 | 22.2 | 22.2 | 22.1 |
| Sugarcane Production (mIn MT)                                 | 75.4 | 83.3 | 67.1 | 67.1 | 75.5 |
| Area Under Sugarcane as a Percentage of Total Cultivated Land | 5.5% | 6.1% | 5.0% | 4.7% | 5.3% |
| Area Under Sugarcane (mIn Hec)                                | 1.2  | 1.3  | 1.1  | 1.0  | 1.2  |
| Yield   MT/HEC  | 61.9 | 62.1 | 60.9 | 63.8 | 69.5 |



# Sugar | Domestic Overview

## Sugarcane Dynamics | Province wise

- Pakistan has two planting seasons for Sugar Crop: (1) Spring (Feb-Mar) and (2) Autumn (Sep-Nov). Harvesting for each season is conducted after 8-10 months of plantation. Punjab and Sindh plants cane in both the seasons, while, in KPK, plantation is carried out in the autumn season only.
- In Pakistan, sugarcane is largely grown in the province of Punjab. Area under cultivation has increased lately due to favorable crop conditions and currently stands at ~0.78mln hectares in Punjab.
- On provincial level, Punjab has the highest production share of sugarcane with a share of ~69% in MY21 (~64% in MY20), followed by Sindh with a share of ~24% in MY21 (~24% in MY20). KPK has a small share of ~8% (~12% in MY20).
- **CRUSHING & UTILIZATION:** Sugarcane crushing and sugarcane utilization by sugar millers both decreased at a CAGR of ~4.2% over the last five years. Sugarcane crushing clocked in at its highest level of ~71mln MT in MY17 owing to timely start of the crushing season.



| Sugarcane Utilization by Factories |      |      |      |      |      |
|------------------------------------|------|------|------|------|------|
|                                    | MY17 | MY18 | MY19 | MY20 | MY21 |
| Sugarcane Produced (mln MT)        | 75.4 | 83.3 | 67.1 | 67.1 | 75.5 |
| Sugarcane Crushed (mln MT)         | 71.2 | 65.7 | 49.8 | 48.7 | 57.6 |
| Sugarcane Utilization              | 94%  | 79%  | 74%  | 73%  | 76%  |

| Sugar Mills |                    |             |
|-------------|--------------------|-------------|
| Provinces   | No. of Sugar Mills | Operational |
| Punjab      | 44                 | 89%         |
| Sindh       | 38                 | 82%         |
| KPK         | 7                  | 86%         |
| Total       | 90                 | 86%         |

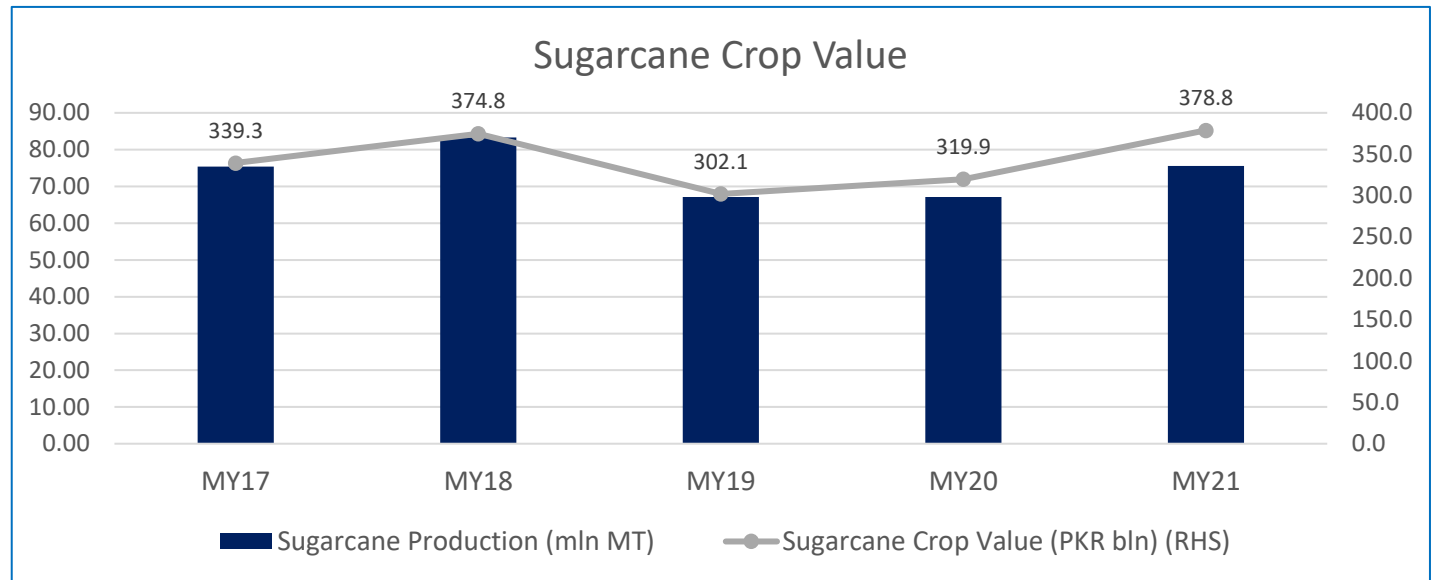


# Sugar | Domestic Overview

## Sugarcane Prices | A High Value Cash Crop

- Minimum Price levels for sugarcane are set by the respective provincial governments, considering the cost of production to farmers.
- As of Nov'21, the Punjab Government has set sugarcane price at PKR~225/40KG (up by ~12.5% YoY) for the new crushing season MY22. Sindh government has also made the decision to raise the prices to PKR~250/40KG (up by ~23.8% YoY). The decisions by KPK government is still pending as to date.
- Overall sugarcane crop value has increased at a CAGR of ~2.2% over the last five years (MY17-MY21). Due to low yields and production in MY19, sugarcane crop value declined substantially to PKR~302bln from PKR~375bln in MY18 – a fall of ~19% in line with the production fall. The crop value increased to PKR~379bln in MY21 majorly due to the rise in production level of sugarcane.

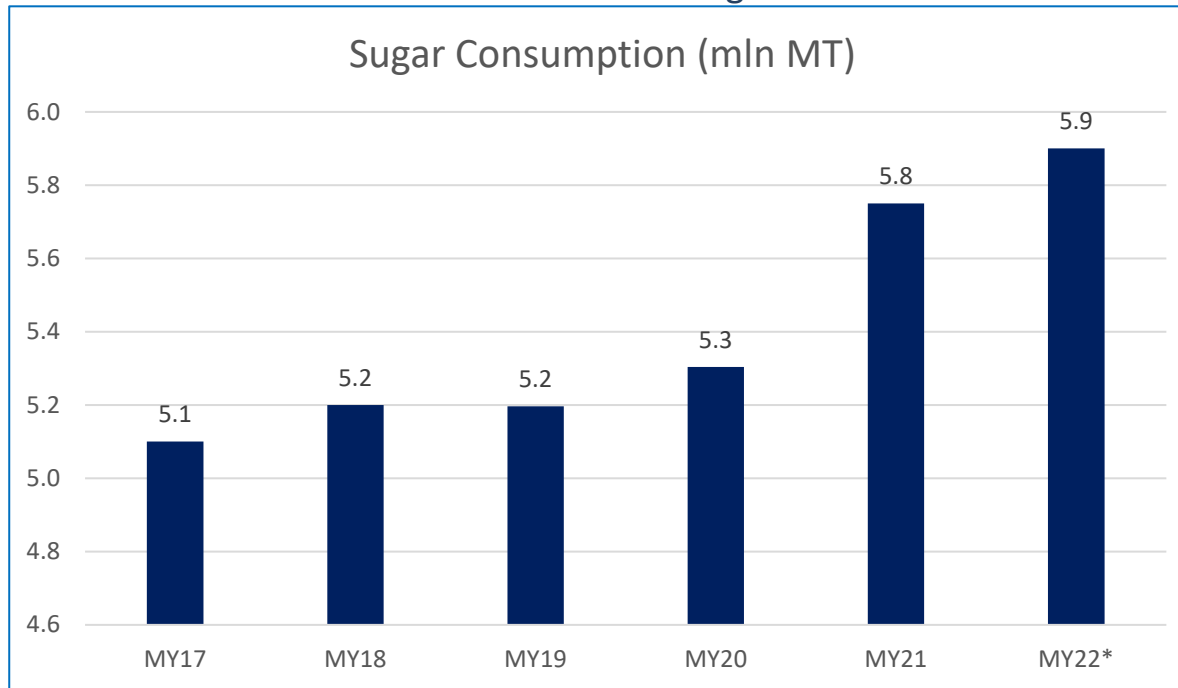
| Sugarcane Minimum Prices (at factory gate)-PKR/40KG |      |      |      |      |      |
|---|------|------|------|------|------|
|   | MY17 | MY18 | MY19 | MY20 | MY21 |
| Punjab  | 180  | 180  | 180  | 190  | 200  |
| Sindh   | 180  | 180  | 180  | 192  | 202  |
| KPK   | 180  | 180  | 180  | 190  | 200  |



# Sugar | Domestic Overview

## Sugar Production & Consumption

- Pakistan's annual sugar consumption has increased from ~5.1mln MT in MY17 to ~5.8mln MT in MY21 - a CAGR of ~2.4% from MY17 to MY21. Sugar consumption is expected to rise further to ~5.9mln MT in MY22 as per USDA's forecast.
- Bulk sugar consumers such as bakeries, candy, ice cream, and soft drink manufacturers account for ~60% of total sugar demand.



### Sugar Production and Consumption (mln MT)

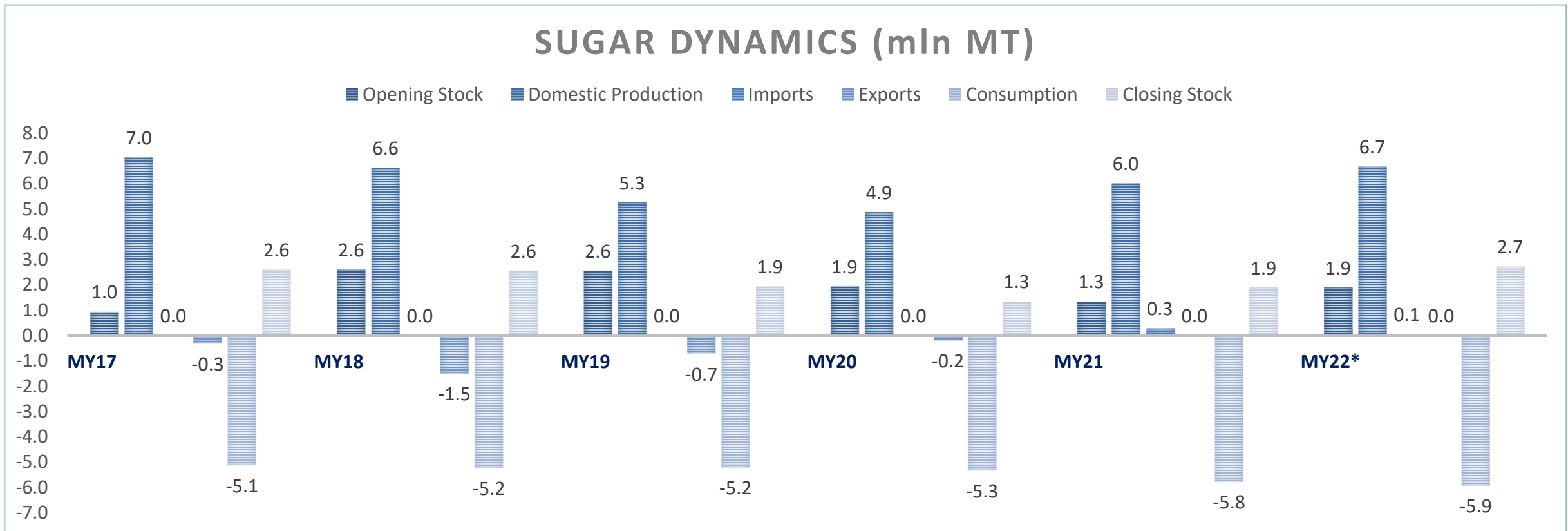
|                     | MY17  | MY18  | MY19  | MY20  | MY21  | MY22* |
|---------------------|-------|-------|-------|-------|-------|-------|
| Opening Stock       | 1.0   | 2.6   | 2.6   | 1.9   | 1.3   | 1.9   |
| Domestic Production | 7.0   | 6.6   | 5.3   | 4.9   | 6.0   | 6.7   |
| Imports             | 0.0   | 0.0   | 0.0   | 0.0   | 0.3   | 0.1   |
| Exports             | (0.3) | (1.5) | (0.7) | (0.2) | 0.0   | 0.0   |
| Consumption         | (5.1) | (5.2) | (5.2) | (5.3) | (5.8) | (5.9) |
| Closing Stock       | 2.6   | 2.6   | 1.9   | 1.3   | 1.9   | 2.7   |

*Import & Export figures are from PBS, all other figures are from PSMA until MY20. MY21 and MY22 figures are from USDA.*

# Sugar | Domestic Overview

## Sugar Industry Dynamics

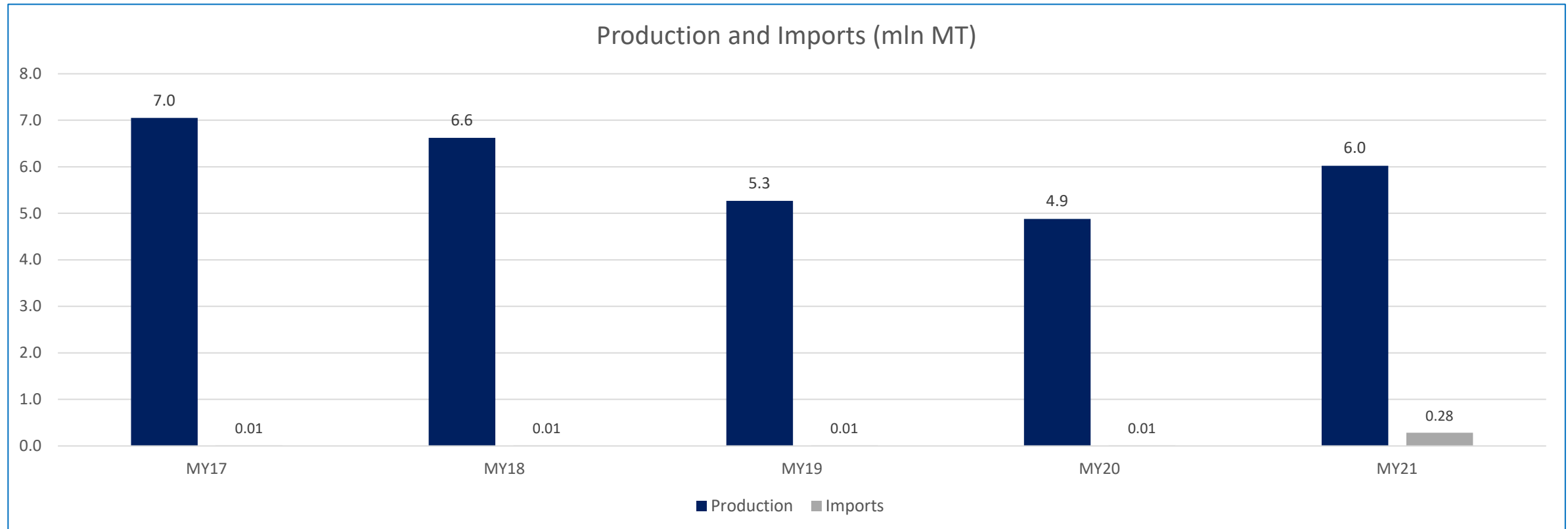
- According to USDA's forecast, Pakistan's sugar supply will clock around ~6.7mIn MT (production + imports) in MY22, an increase of ~7% YoY, while domestic consumption would increase to ~5.9mIn MT, increasing by ~3% YoY leaving ~2.7mIn MT of closing stock of country's sugar.



# Sugar | Domestic Overview

## Total Supply

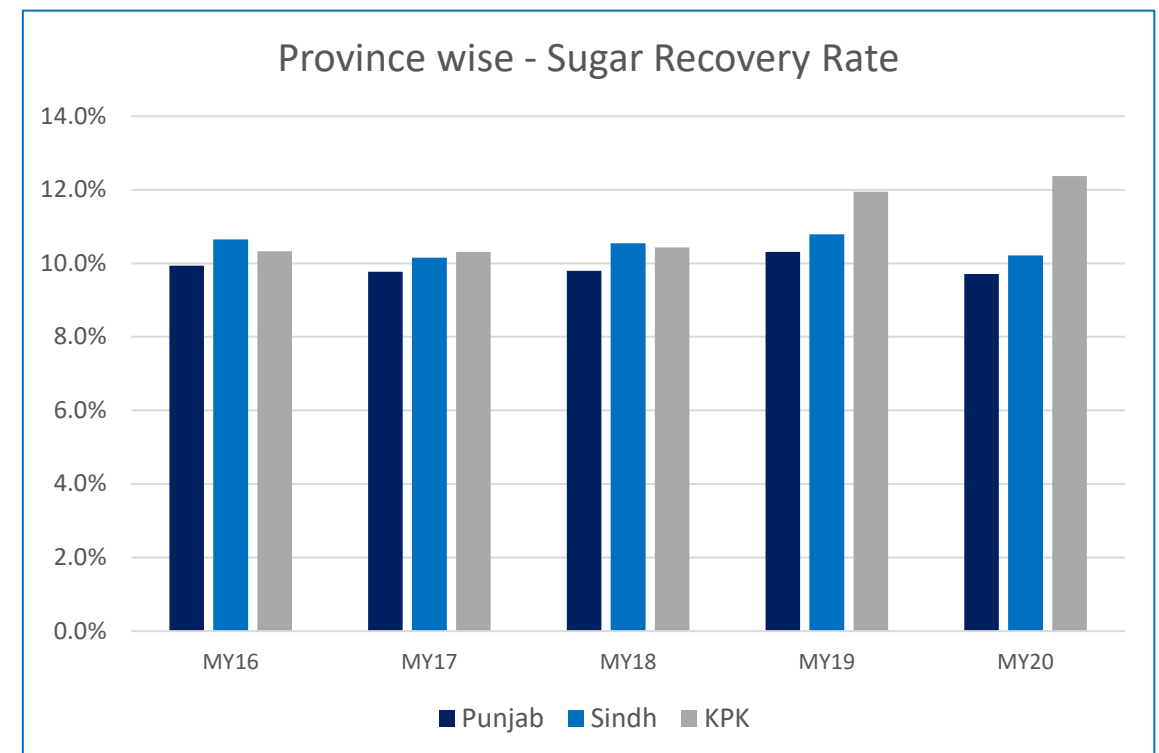
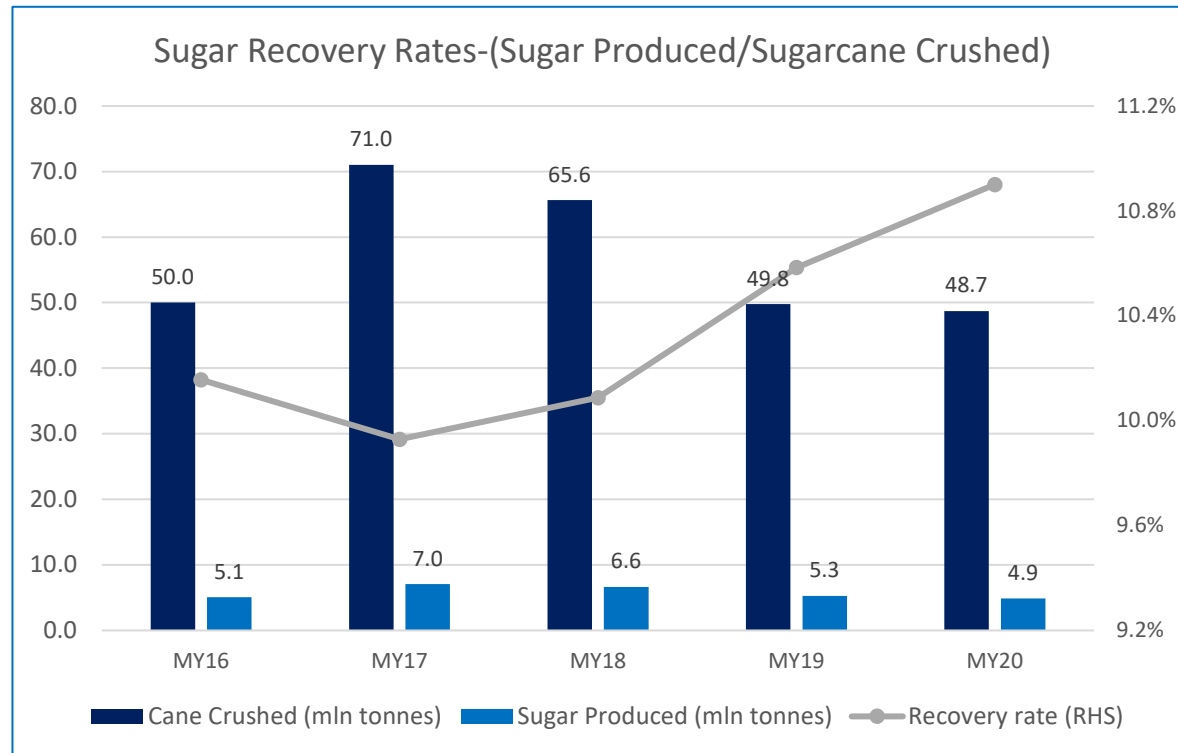
- Total supply of sugar in Pakistan stood at ~6.3mIn MT in MY21.
- Higher quantity of sugar was imported in the country during MY21 in an attempt to control price hike through increased participation and competition from international community.



# Sugar | Domestic Overview

## Recovery Rates

- In terms of sugar recovery rates, KPK tops the provinces with a recovery rate of ~12.4%. Recovery rate of Sindh (~10.2%) is greater than that of Punjab (~9.7%) as Thatta region is ideal for sugarcane production due to its humid environment and higher water retention rate.
- Overall, sugar recovery rate for Pakistan was ~10.0% in MY20, which is in-line with its regional competitor India with a recovery rate of ~10.0%.

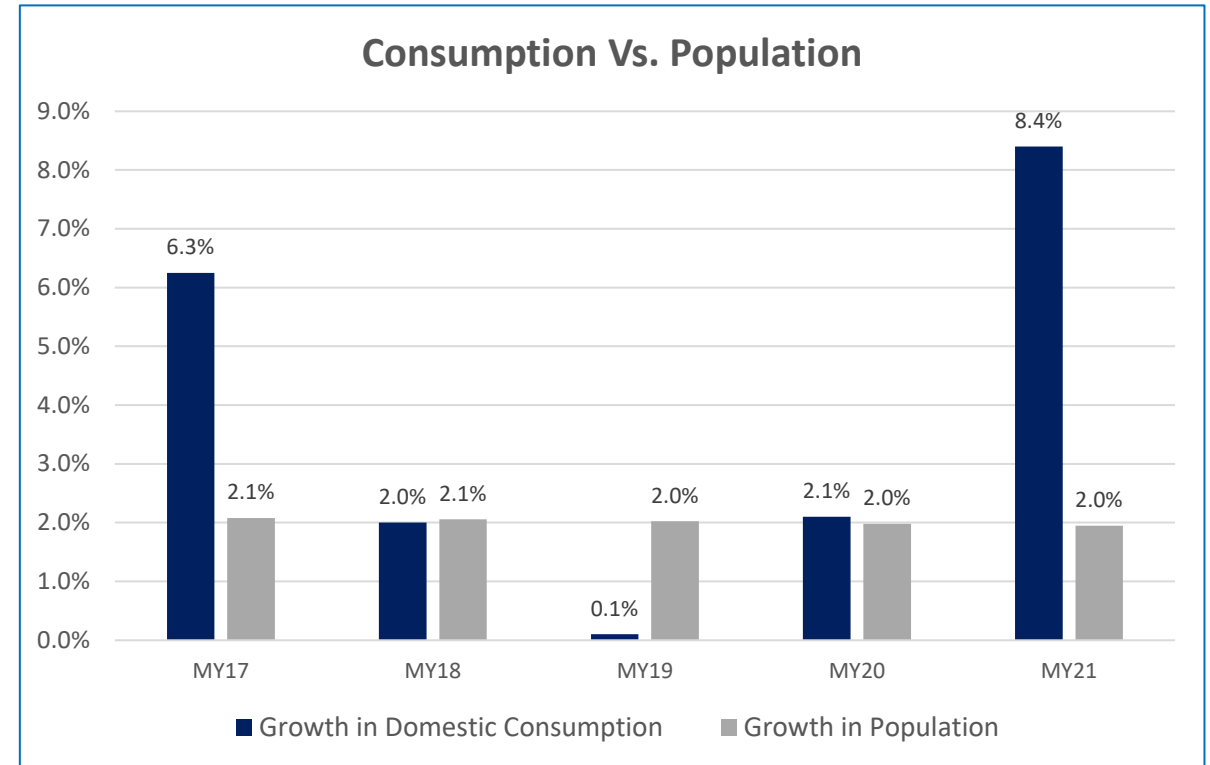
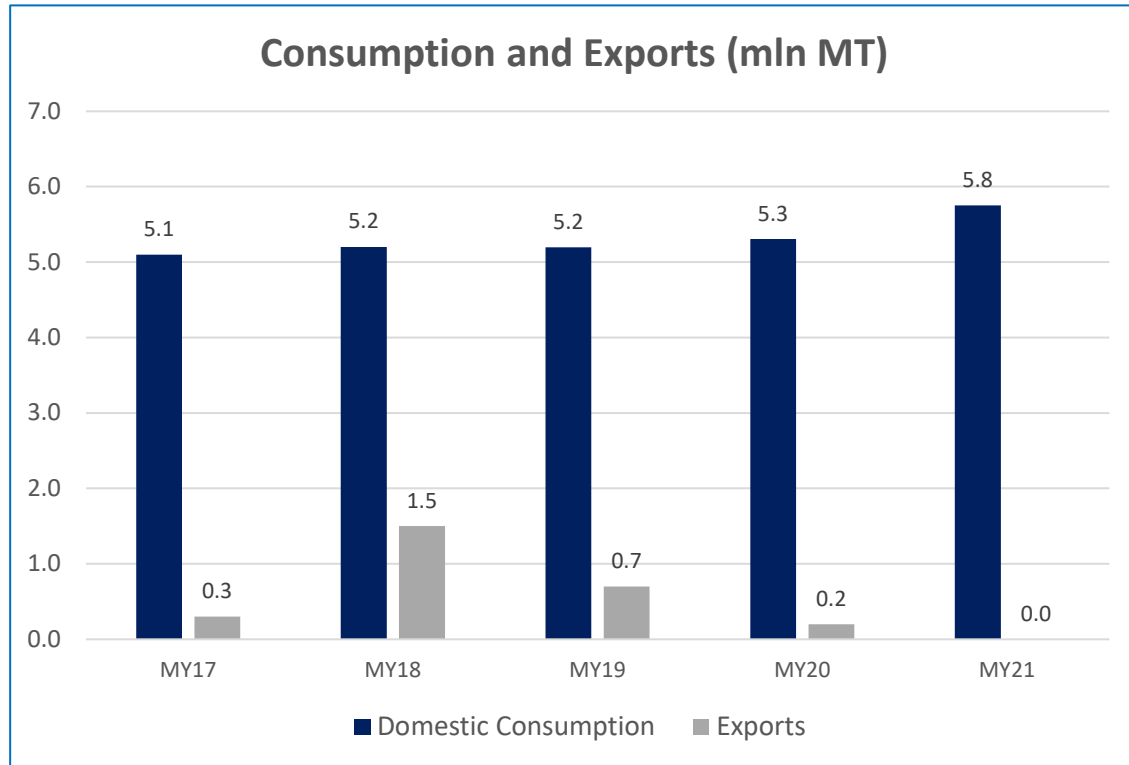




# Sugar | Domestic Overview

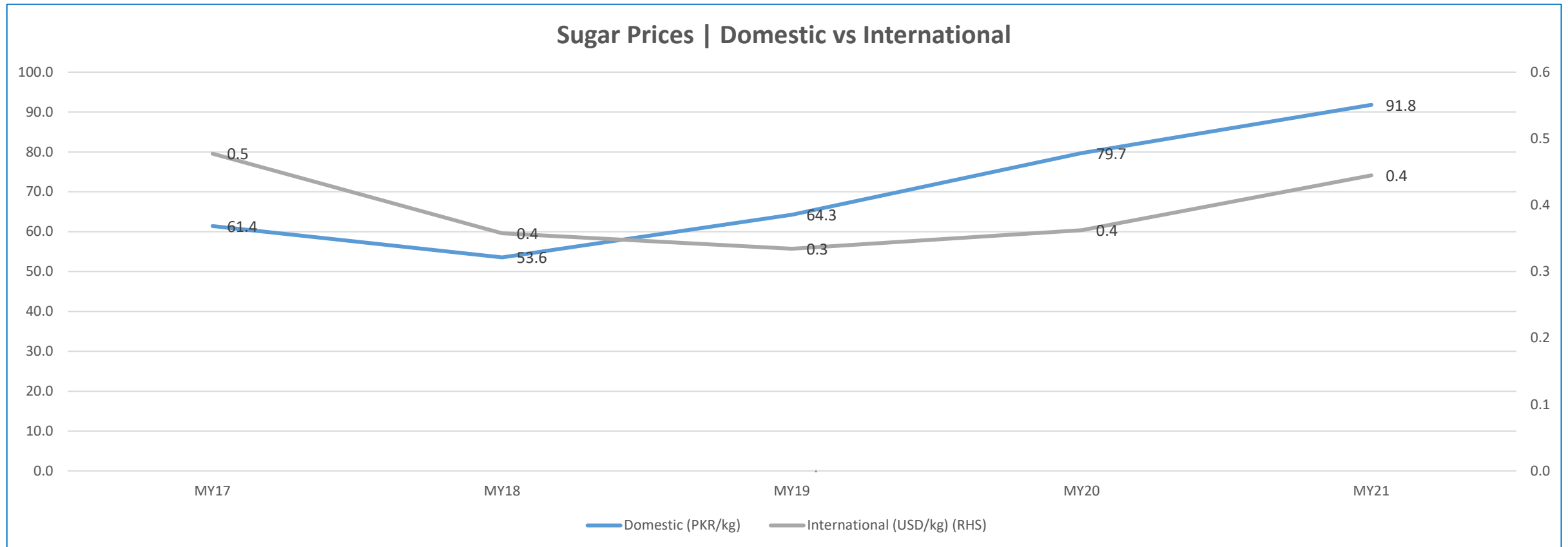
## Total Demand

- The domestic consumption of sugar in Pakistan has been on a constantly rising trend since MY17, growing at a CAGR of ~2.4% and clocking in at ~5.8mln MT in MY21. The most obvious reason for this trend is the growing population in the country, that has increased with an average rate of ~2.0% in the last five years.



## Price Trend

- The graph below shows prices of sugar in Pakistan and International market. Average price per kg was PKR~91.8/kg in MY21.
- The current average retail price of sugar in the country is around PKR~110-115/kg. It is expected that speeding up the current crushing process and the introduction of new sugar in the market will reduce the price in retail market to PKR~90-100/kg, going forward.

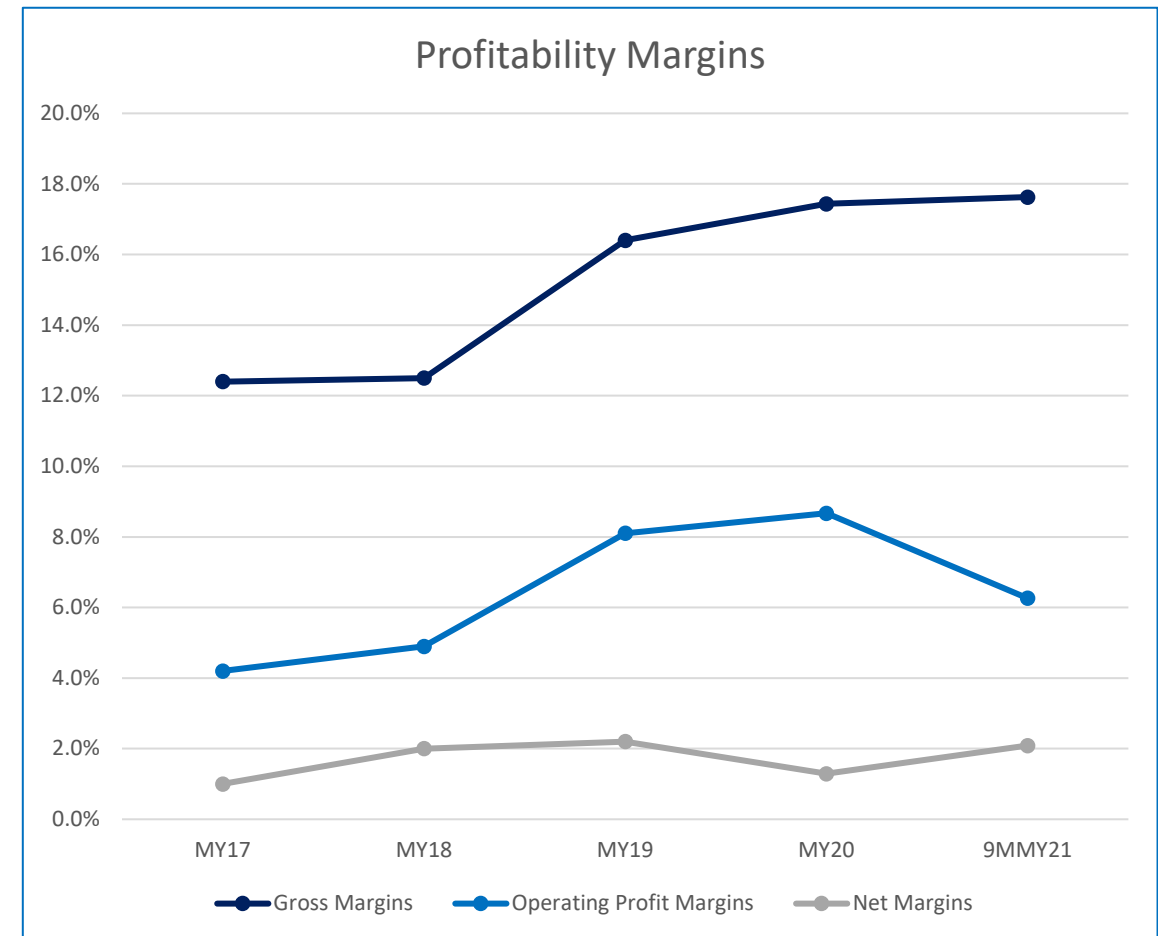


## Market share | Top players

| Production share – Top 20 players – MY20 |                         |                   |                       |               |              |
|--|-------------------------|-------------------|-----------------------|---------------|--------------|
|  | Company                 | Cane Crushed (MT) | Sugar Production (MT) | Recovery Rate | Market Share |
| 1  | JDW (Combined)          | 5,291,732         | 548,220               | 10.4%         | 10%          |
| 2  | Tandlianwala (Combined) | 2,844,336         | 265,420               | 9.3%          | 5%           |
| 3  | Hamza                   | 1,890,121         | 189,479               | 10.0%         | 4%           |
| 4  | Etihad                  | 1,794,904         | 185,211               | 10.3%         | 3%           |
| 5  | Sheikhoo                | 1,531,633         | 153,620               | 10.0%         | 3%           |
| 6  | Chashma (Combined)      | 1,432,074         | 151,283               | 10.6%         | 3%           |
| 7  | RYK                     | 1,453,034         | 149,200               | 10.3%         | 3%           |
| 8  | JK (AKT/Golf)           | 1,437,284         | 147,575               | 10.3%         | 3%           |
| 9  | Hunza (Combined)        | 1,505,378         | 138,405               | 9.2%          | 3%           |
| 10                                       | Deharki                 | 1,220,644         | 122,831               | 10.1%         | 2%           |
| 11                                       | Indus                   | 1,145,394         | 117,443               | 10.3%         | 2%           |
| 12                                       | Layyah                  | 1,135,845         | 113,693               | 10.0%         | 2%           |
| 13                                       | Fatima                  | 1,053,403         | 106,408               | 10.1%         | 2%           |
| 14                                       | Madina                  | 1,106,825         | 104,100               | 9.4%          | 2%           |
| 15                                       | Two Star                | 1,091,394         | 102,492               | 9.4%          | 2%           |
| 16                                       | Alliance                | 978,200           | 97,070                | 9.9%          | 2%           |
| 17                                       | Ramzan                  | 980,528           | 88,204                | 9.0%          | 2%           |
| 18                                       | Ashraf                  | 834,180           | 81,636                | 9.8%          | 2%           |
| 19                                       | Al moiz                 | 726,274           | 76,409                | 10.5%         | 1%           |
| 20                                       | Safina                  | 837,910           | 76,149                | 9.1%          | 1%           |
|  | Others                  | 18,426,451        | 1,866,377             | 10.1%         | 44%          |
|  | <b>Total</b>            | <b>48,717,544</b> | <b>4,881,225</b>      | <b>10.0%</b>  | <b>100%</b>  |

## Business Risk | Margins

- Pakistan's sugar market size increased to PKR~501bIn in MY21 (PKR~355bIn in MY20), up ~41% YoY majorly due to price change, and higher revenue on the back of economic recovery.
- Demand for sugar remains largely price inelastic due to sugar being one of the essential food items. The country's total sugar demand hovers in the range from ~5.8-6mIn MT per year.
- Even during the outbreak of COVID-19 pandemic, sugar demand was one of the least impacted in the country as it is a main food item. The industry was also included in the 'exception list' for continuity of operations during lockdown. It did, however, face a slight set back on the demand during complete lockdown days due to closure of restaurants.
- The Sector's gross profit margins remained intact at ~17.6% in 9MMY21 (~17.4% in MY20) despite growing revenues due to increase in MSP (by ~5%) and rising freight and handling charges. Operating margins decreased to ~6.26% in 9MMY21 (~8.67% in MY20).
- Overall, net profit margins of the Industry increased to ~2.09% in 9MMY21 (~1.29% in MY20) due to lower mark-up rates.



# Sugar | Domestic Overview

## Business Risk | Cost Structure Disparity

- The Sugar Industry is subject to variant cost structures due to different recovery ratios of cane type, technology used economies of scale, conversion cost and purchase price of sugarcane. Due to this, even mills located in the same area may have different cost structures.
- Most highly efficient mills are the ones which have maximum recovery ratio and other economies of scale due to larger capacity and better technology. The inefficient mills are the ones with obsolete technology, low recovery ratios and high conversion cost.
- In Pakistan the cost of cane varies from 65% to 96% of the cost of production of sugar for different mills, which demonstrates an excessively high share of sugarcane - often with low sucrose content.
- The Industry shows a considerable variation in terms of obtaining cane yield levels and value addition.

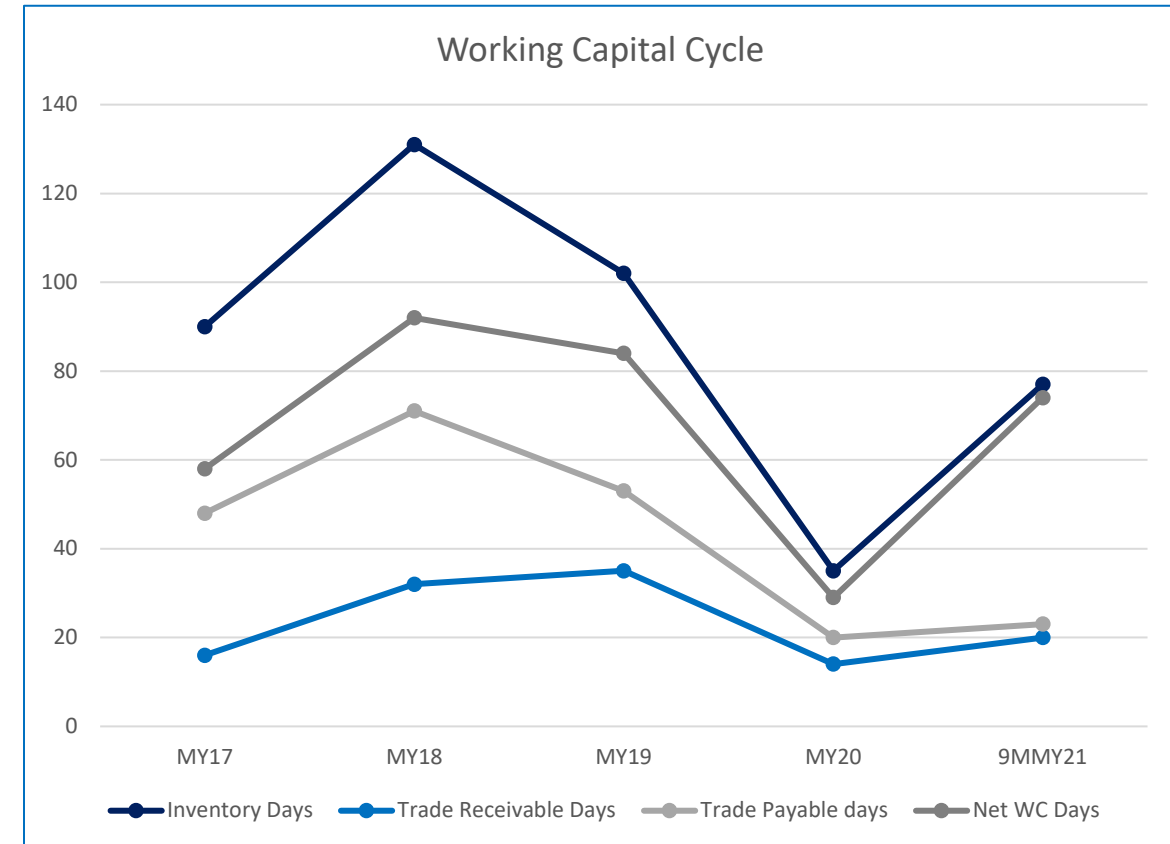
| Sr No. | Company                    | Province         | Crushing Capacity (MT) | Cost of Sugar- PKR/Kg | Cost of Cane- PKR/Kg | Component of Cane in Total Cost |
|--------|----------------------------|------------------|------------------------|-----------------------|----------------------|---------------------------------|
| 1      | JDW Sugar Mills            | Punjab and Sindh | 4,620,000              | 47.0                  | 40.1                 | 85%                             |
| 2      | Hamza Sugar Mills          | Punjab           | 2,940,000              | 49.3                  | 41.6                 | 84%                             |
| 3      | Al Moiz Industries         | Punjab and KPK   | 2,290,000              | 57.1                  | 42.2                 | 74%                             |
| 4      | Thal Industries            | Punjab           | 2,208,000              | 64.9                  | 45.1                 | 70%                             |
| 5      | Macca Sugar Mills          | Punjab           | 1,485,000              | 97.3                  | 49.8                 | 51%                             |
| 6      | Noon Sugar Mills           | Punjab           | 1,400,000              | 57.0                  | 44.0                 | 77%                             |
| 7      | Sindh Abadghar Sugar Mills | Sindh            | 1,280,000              | 54.3                  | 45.7                 | 84%                             |
| 8      | Shakaranj Sugar Mills      | Punjab           | 1,268,000              | 67.8                  | 44.4                 | 65%                             |
| 9      | Khairpur sugar mills       | Sindh            | 980,000                | 55.0                  | 46.4                 | 84%                             |
| 10     | Adam Sugar Mills           | Punjab           | 826,000                | 66.4                  | 51.6                 | 78%                             |
| 11     | Chanar Sugar Mills         | Punjab           | 768,000                | 65.0                  | 50.3                 | 77%                             |
| 12     | Pattoki Sugar Mills        | Punjab           | 68,964                 | 57.0                  | 54.8                 | 96%                             |



# Sugar | Domestic Overview

## Financial Risk | Working Capital Management

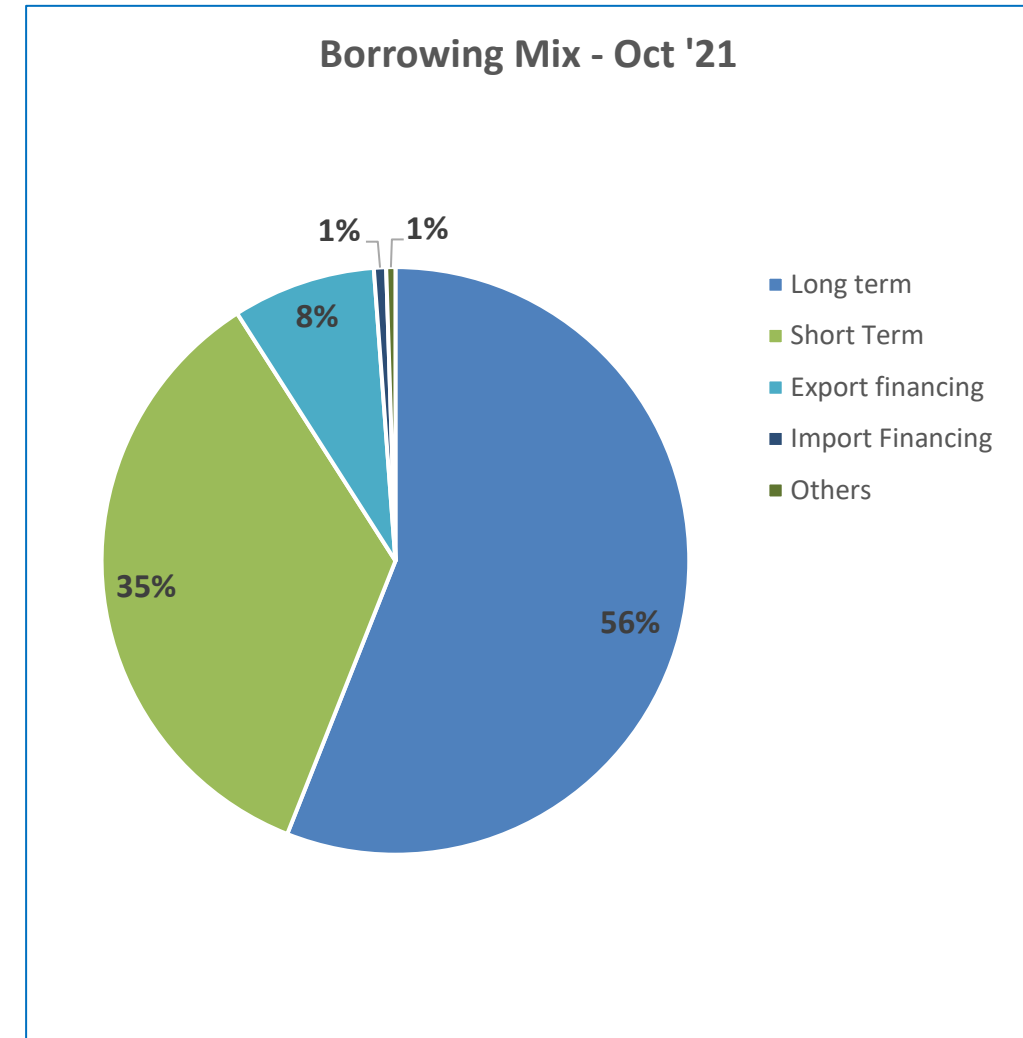
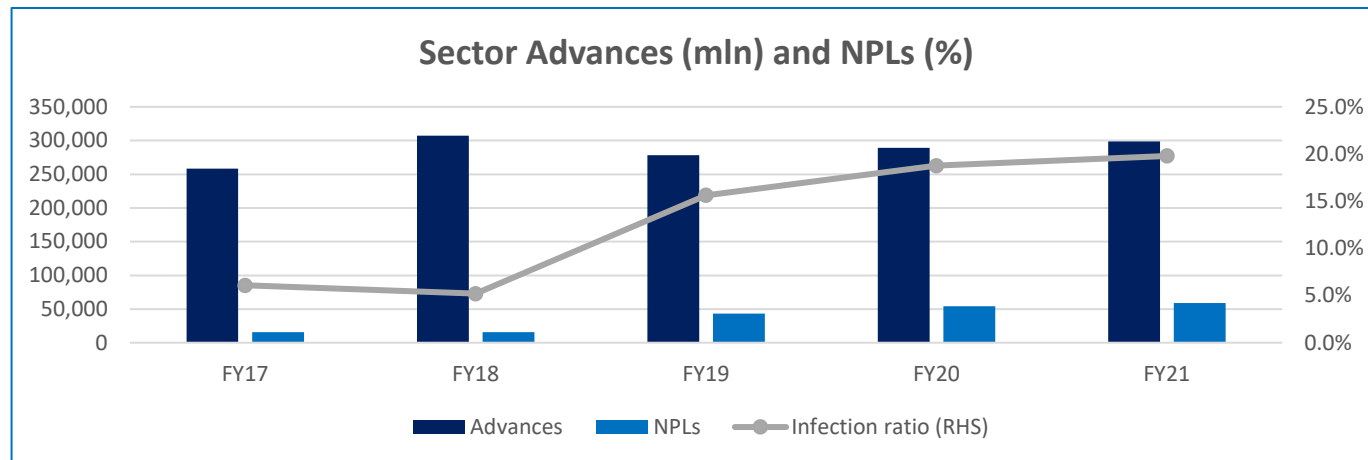
- While sugar offtake continues across the year, sugar production takes place in around ~110 days during the crushing season. This results in a cyclical inventory pattern for sugar mills. Inventory levels of sugar mills are at peak during the crushing season i.e. Dec-Feb and Apr-May. As soon as Pakistan hits summer season-June, the sales start to energize (cold drinks and beverages) and inventory levels begin to reduce.
- There is a mismatch in sugar offtake period, i.e., inelastic throughout the year and sugarcane procurement time span – that is crushing season. Timely payment requirements to sugar mills and inventory management create a financial stress on sugar mills in such periods. Net (average) working cycle condition of sugar industry has shown an inconsistent trend over the last five years. Inventory days increased to ~77 days for the period 9MMY21 (~35 days in MY20). Restrictions on export by government contributed to increase in inventory levels during the period.
- Trade receivable days have also increased to ~20 days in 9MMY21 (~14 days in MY20) owing to increased revenue. Trade payable days stood at ~23 days in 9MMY21 (~20 days in MY20).



# Sugar | Domestic Overview

## Financial Risk | Borrowing & Interest Costs

- Sugar Industry's borrowing book clocked in at PKR~205,345mln as at End-Oct'21 (PKR~197,278mln as at End-Oct'20) up ~4.1% on YoY basis. The increase came on the back of short term borrowings that increased by ~10.2% YoY and stood at PKR~71,748mln as at End-Oct'21 (PKR~65,102mln as at End-Oct'20).
- The largest component in total borrowings is the long term borrowing which clocked in at PKR~115,000mln as at End-Oct'21 (PKR~111,226mln as at End-Oct'20), and accounts for ~56% of the total borrowing.
- The Industry is highly leveraged. Borrowings to Equity clocked in at ~66% in MY21 (~67% in MY20).
- In commercial banks' private sector credit, textile and sugar sector have the highest share in NPLs, with sugar sector's infection ratio constantly increasing in the last three years, and clocking in at ~19.8% in FY21, up from ~18.8% in FY20.

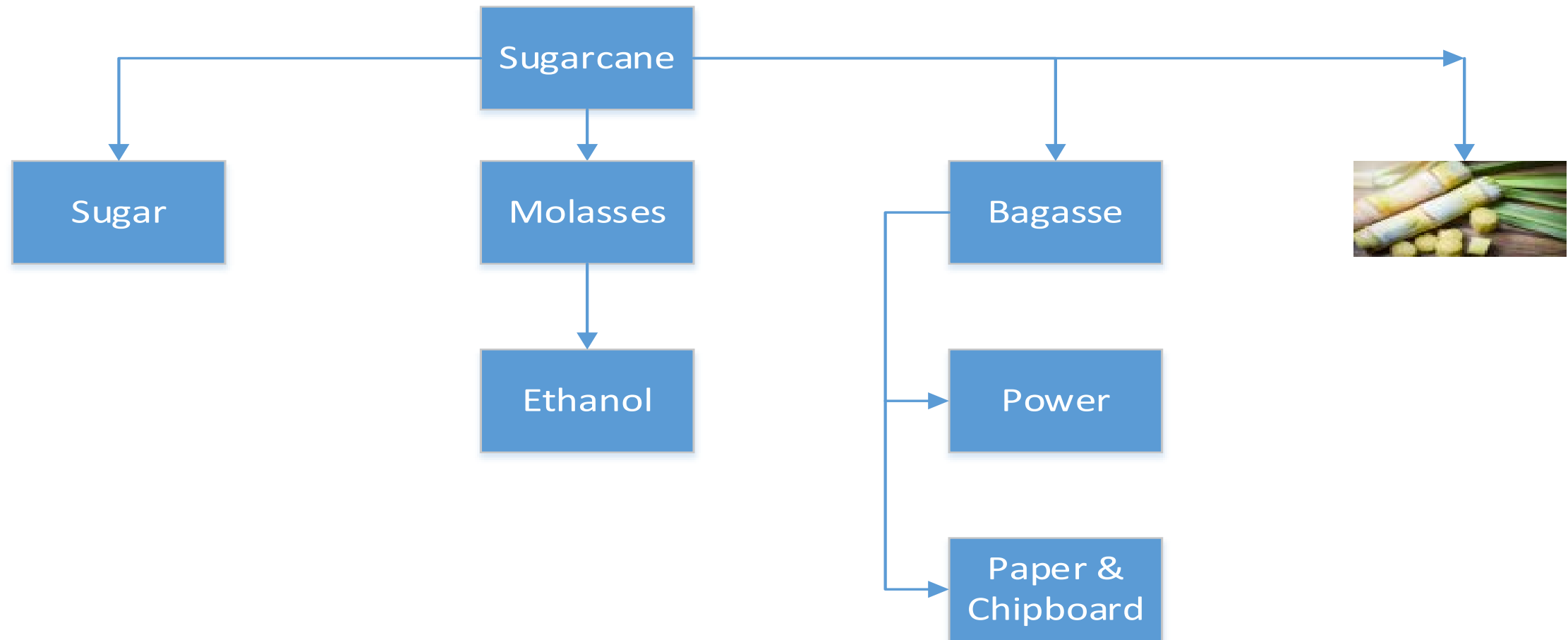


\*MY period Oct-Sep

\*Weighted Average of Top 13 Players

Source: SBP, PACRA Database

## BY Products – Process Flow

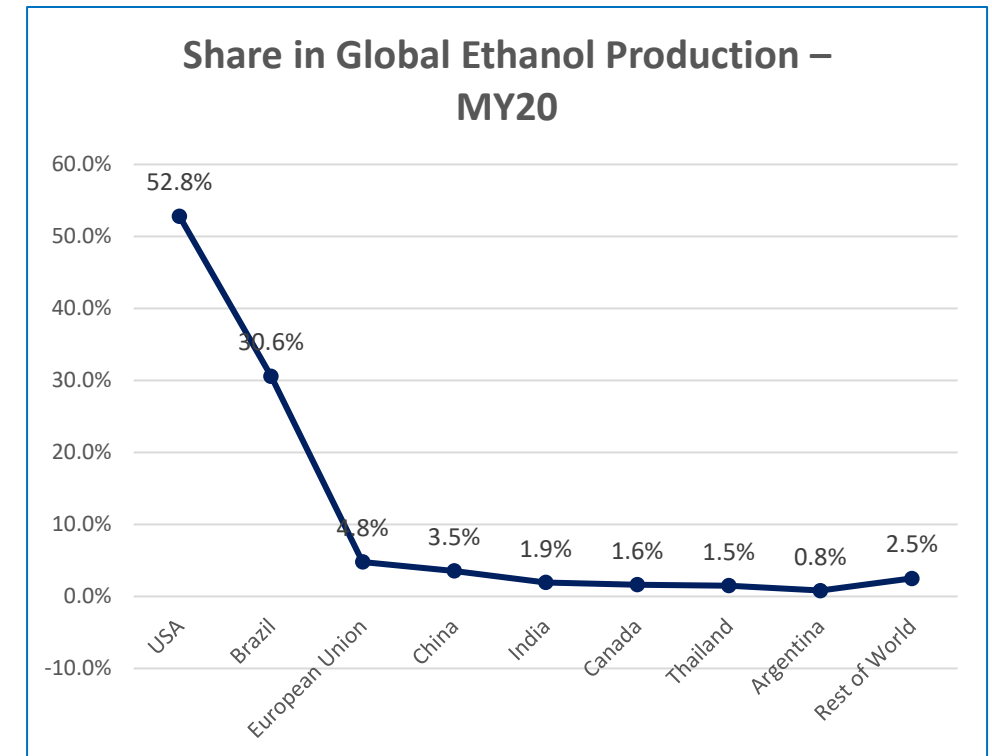


# Sugar | Domestic Overview

## BY Products – Ethanol

- USA is the world leader in the production and export of ethanol. ~10% of the ethanol produced in the country is exported, whereas ~90% is consumed locally.
- USA produced ~14bln gallons of ethanol in MY20 which represents ~53% of global output. In comparison, Brazil's share of total world production rose slightly to ~31% in MY21.

| Global Ethanol Production (mln gallons) |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|
|   | MY16          | MY17          | MY18          | MY19          | MY20          |
| USA                                     | 15,413        | 15,936        | 16,091        | 15,778        | 13,941        |
| Brazil                                  | 6,870         | 6,760         | 8,080         | 8,790         | 8,080         |
| European Union                          | 1,240         | 1,320         | 1,360         | 1,380         | 1,260         |
| China                                   | 730           | 850           | 810           | 1,010         | 930           |
| India                                   | 270           | 210           | 420           | 470           | 510           |
| Canada                                  | 450           | 460           | 460           | 500           | 430           |
| Thailand                                | 330           | 380           | 390           | 430           | 390           |
| Argentina                               | 240           | 290           | 290           | 290           | 210           |
| Rest of World                           | 627           | 664           | 729           | 682           | 659           |
| <b>Total</b>                            | <b>26,170</b> | <b>26,870</b> | <b>28,630</b> | <b>29,330</b> | <b>26,410</b> |



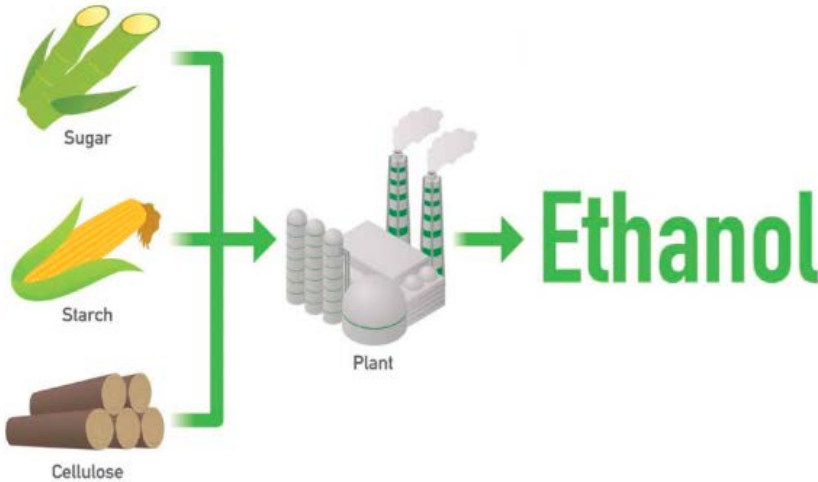
# Sugar | Domestic Overview

## BY Products – Ethanol

- Average recovery rate for molasses is ~3.7% of the sugarcane crushed, whereas average recovery rate for ethanol is ~28% of molasses.
- Pakistan has a total ethanol production capacity of ~3,075MT per day.
- Ethanol prices and margins are heavily dependent upon cane yield.
- Ethanol Industry is highly exposed to rupee fluctuation in terms of exports as ~50%-70% of ethanol produced in Pakistan is exported.

| Molasses & Ethanol Production (mln MT) |      |      |      |      |      |
|--|------|------|------|------|------|
|  | MY17 | MY18 | MY19 | MY20 | MY21 |
| Sugarcane Crushed (mln MT)             | 71.2 | 65.7 | 49.8 | 48.7 | 57.6 |
| Sugarcane Converted to Molasses        | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| Molasses Production                    | 3.1  | 3.0  | 2.2  | 2.2  | 2.1  |
| Less: Export                           | 0.1  | 0.2  | 0.1  | 0.1  | 0.1  |
| Molasses Available for Ethanol         | 3.0  | 2.8  | 2.1  | 2.2  | 2.0  |
| Ethanol Produced                       | 0.8  | 0.8  | 0.6  | 0.6  | 0.6  |
| Ethanol Exported                       | 0.4  | 0.5  | 0.3  | 0.2  | 0.2  |

### Ethanol | Key Sources

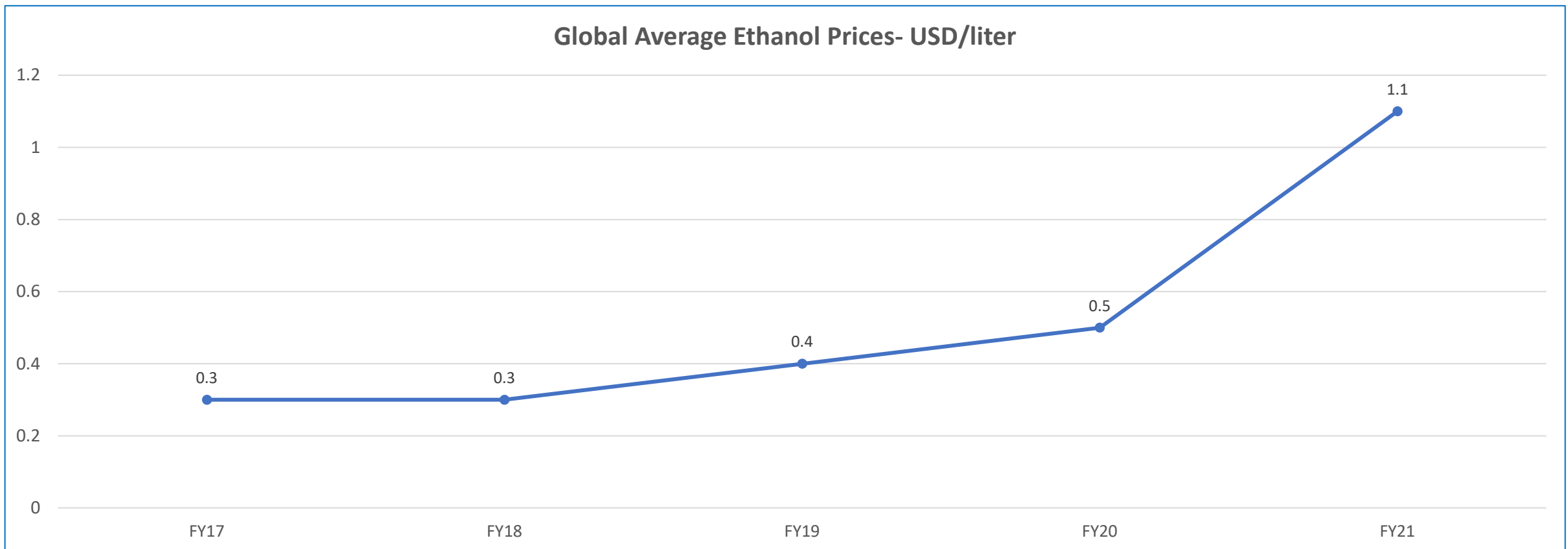


- Key Sources:
- Sugar – sugarcane, beet root, sweet sorghum
  - Starch – corn and wheat
  - Cellulose – wood, switch grass and corn stover



## By Products – Ethanol

- Ethanol prices and margins are heavily dependent upon cane yield. This segment is highly sensitive to rupee fluctuations as ~50%-70% of ethanol produced in Pakistan is exported.
- The average price of ethanol around the world is USD~1.2/litre. However, there is substantial difference in these prices among countries.



## BY-Products

### Ethanol – Top Local Industry Players

| Sr. No | Players   | Location | Listing  | Activity        | Capacity (liters/day) |
|--------|---|----------|----------|-----------------|-----------------------|
| 1      | Madinah Group of Industries                         | Punjab   | Unlisted | Sugar & Ethanol | 375,000               |
| 2      | Shakarganj Mills Limited                            | Punjab   | Listed   | Sugar & Ethanol | 350,000               |
| 3      | Tandlianwala Sugar Mills Limited                    | Punjab   | Listed   | Sugar & Ethanol | 255,000               |
| 4      | Shahmurad Sugar Mills Limited                       | Sindh    | Listed   | Sugar & Ethanol | 250,000               |
| 5      | Unicol Limited                                      | Sindh    | Unlisted | Ethanol         | 200,000               |
| 6      | Premier Industrial Chemical Manufacturing (Pvt) Ltd | Punjab   | Unlisted | Ethanol         | 175,000               |
| 7      | Al-Abbas Sugar Mills Limited                        | Sindh    | Listed   | Sugar & Ethanol | 172,500               |
| 8      | Habib Sugar Mills Limited                           | Sindh    | Listed   | Sugar & Ethanol | 142,500               |
| 9      | Colony Sugar Mills Limited                          | Punjab   | Listed   | Sugar & Ethanol | 135,000               |
| 10     | Noon Sugar Mills Limited                            | Punjab   | Listed   | Sugar & Ethanol | 130,000               |

# Sugar | Domestic Overview

## BY Products – Bagasse & Mud

### Bagasse

- Bagasse is sugarcane fiber pulp left after the juice has been extracted from the sugarcane stable.
- Bagasse is an excellent raw material for power generation. It provides a stable and reliable source of electricity and steam to power the sugar mills.
- Recovery rate for bagasse is ~2.5% of the sugarcane crushed.

### Press Mud

- Press mud is the residue of the filtration of sugarcane juice. The clarification process separates the juice into a clear juice that rises to the top and goes for manufacture, and a mud that collects at the bottom.
- The soil application of press mud as organic fertilizer is widely practiced in Pakistan. It may be due to the fact that it has got sufficient amount of crop nutrients and improves soil chemical properties.
- Recovery rates for press mud is ~2.6% of the sugarcane crushed.

| Bagasse and Mud Production (mln MT) |      |      |      |      |      |
|-------------------------------------|------|------|------|------|------|
|                                     | MY17 | MY18 | MY19 | MY20 | MY21 |
| Bagasse                             | 2.1  | 1.9  | 1.5  | 1.4  | 1.4  |
| Recovery rate                       | 2.9% | 2.9% | 2.8% | 2.9% | 2.5% |
| Mud                                 | 2.1  | 2.0  | 1.5  | 1.5  | 1.5  |
| Recovery rate                       | 3.0% | 3.0% | 3.0% | 2.9% | 2.6% |



# Sugar | Domestic Overview

## Sugar Sector Cycle Nutshell



# Sugar | Domestic Overview

## Porters 5 Forces Model

### POTENTIAL NEW ENTRY



- Medium level of threat
- No governments restrictions on entry
- Cost of entry relatively low
- Many inefficient mills operating in market

### BUYERS



- Low power
- Consumers will purchase, no matter what the price levels are
- Possibilities and history of producer cartels



### SUBSTITUTES

- Low threat of substitutes (artificial sugar)
- Basic Necessity

### SUPPLIERS



- Large number of suppliers (farmers) - Limited power
- Farmers are protected through minimum price policy of government
- Farmers tend to easily switch between crops if they do not find favorable terms

### COMPETITIVE RIVALRY



- High Rivalry
- ~90 Players
- No differentiation on price basis
- Differentiated on the basis of quality, availability and delivery



## SWOT Analysis

- Availability of land and raw material
- Low cost skilled and unskilled labor
- Suitable weather for crop yield
- Profitable crop due to government incentives
- Large domestic market with increasing demand
- Influence on government policies
- Simple to operate plants
- High crushing capacity

- Growing population and food consumption
- Value added by- products
- Export market potential due to produced surpluses.
- High potential to increase yield and recovery ratios
- Pakistan GDP recovery and reduced finance costs leading to opportunities for investment
- Development of value chains
- Reduced corporate tax rates



- Lack of research and development initiative and outdated technology with farmers
- Lack of proper knowledge and training to farmers
- Water management problems and small holding of land by farmers
- Lack of proper recycling systems
- Low Yield and recovery ratios and varying cost of sugarcane to mills
- Inefficient plants running

- Excessive regulation and control by government
- Vulnerable to political interest
- Unhealthy competition and cartels
- Changing climate patterns due to global warming
- PKR devaluation leading to declined export margins
- High level of competition
- Varying quality of seeds and cane
- Production of sugarcane decreases the productivity of land

## Tax and Regulatory Structure

| PCT Code | Description  | Custom Duty |        | Additional Custom Duty |      | Regulatory Duty |      | Total  |        |
|----------|--|-------------|--------|------------------------|------|-----------------|------|--------|--------|
|          |  | FY22        | FY21   | FY22                   | FY21 | FY22            | FY21 | FY22   | FY21   |
| 17.01    | Cane or beet sugar and chemically pure sucrose, in solid form.   | 11-20%      | 11-20% | 4%                     | 4%   | 0%              | 40%  | 11-24% | 11-64% |
| 17.03    | Molasses resulting from the extraction or refining of sugar.   | 3%          | 3%     | 2%                     | 2%   | 0%              | 0%   | 5%     | 5%     |
| 23.03    | Residues of starch manufacture and similar residues, beet- pulp, bagasse and other waste of sugar manufacture, brewing or distilling dregs and waste, whether or not in the form of pellets. | 11%         | 11%    | 2%                     | 2%   | 0%              | 0%   | 2-11%  | 2-11%  |

## Regulatory Framework

### Federal Government

- Export Policy Order, 2016
- 2020, Removal of Sales Tax on imported sugar supply by TCP

### Provincial Government

- Sugar Act 1934 – Price regulation of sugarcane
- Sugar Factory Control Act 1950- regulation of sugarcane supply and price to factories
- Punjab Sugarcane Control Order 1972- regulating and prohibiting the movement, transport, supply, distribution and use or consumption of sugarcane and trade and commerce therein.
- Punjab Foodstuff Act 1958- continuance of powers to control the supply, distribution and movement of, and trade and commerce in, foodstuffs in Punjab.
- Sindh Foodstuff (Control) Act 1958 – an enactment made in public interest to provide for the continuance of powers to control the supply, distribution and movement of, and trade and commerce in, foodstuffs in Sindh.
- Price Control and Prevention of Profiteering and Hoarding Act 1977 – an enactment to provide for price control and prevention of profiteering and hoarding.
- Punjab Registration of Godowns Act 2014 – an enactment to register godowns, provide for a comprehensive system regarding stable supply and availability of essential articles, and deal with ancillary matters.

### Competition Commission

- Control over non-competitive strategies of the producers.
- Competition Act 2010ns that regardless of whether the sugar industry is heavily regulated by the provincial governments, it is still susceptible to being monitored by the CCP. Not only can the sugar mills and other private parties be looked at by the CCP, governmental bodies, such as the Sugarcane Control Board, can also be monitored.

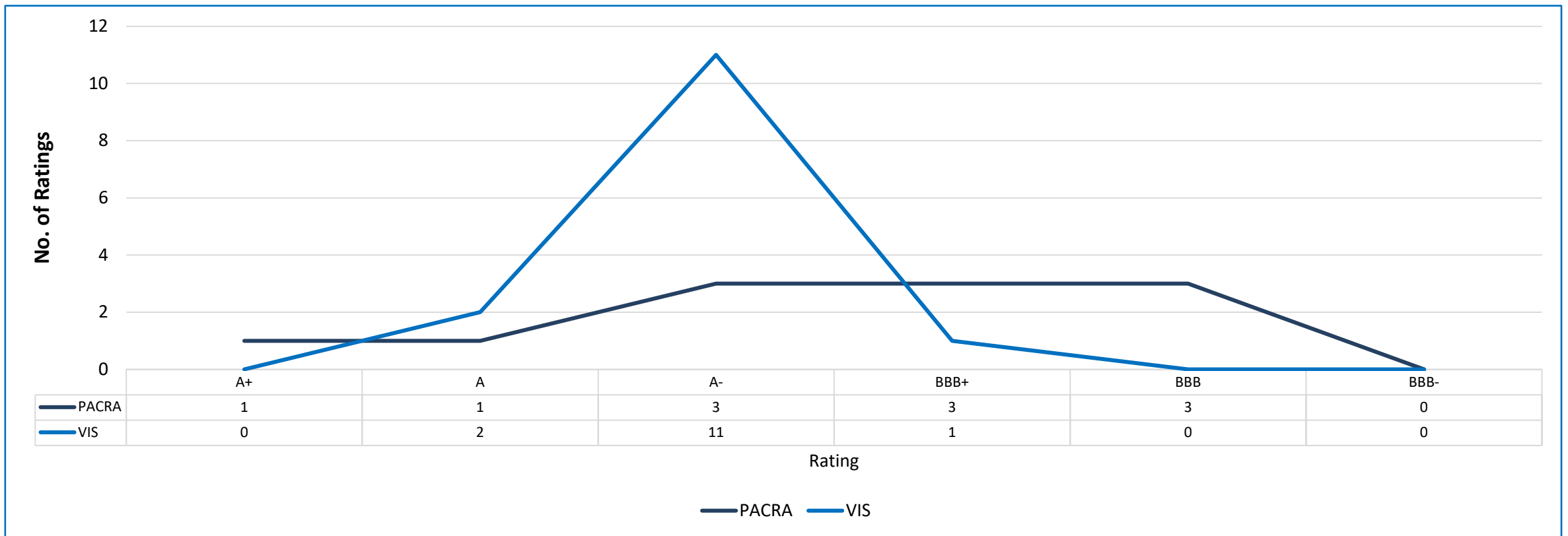




# Sugar | Domestic Overview

## Rating Curve

- PACRA rates 11 players in the sugar sector, with a rating bandwidth ranging from BBB to A+.
- Total Market Cap for the Sugar sector stands at PKR~8,960mIn, wherein PACRA rated universe constitutes about ~16% of the total.



# Sugar | Conclusion

## Outlook: Stable

- The overall Industry is eyeing an output level greater than that of MY21 season. Sugar production is expected to increase up to ~14.2% which may lead to a crop surplus. A major reason for increased production is the farmers' preference being shift from cotton crop to cane crop.
- On provincial level, it is estimated that sugarcane production will increase by 1.2% in Punjab, 10.8% in Sindh and 5.9% in KPK in MY22.
- On the pricing front, sugar prices are expected to cool off, going forward, after a period of soaring prices since 2018. Current sugar price is around PKR~110-115/Kg. The price may come down to PKR90-100/Kg. This is majorly attributed to increased production levels and sufficient availability of sugar expected in MY22.
- Data from IRSA and SUPARCO reveals that both irrigation water and rainfall levels have remained satisfactory throughout the Indus basin. However, fertilizer offtake data has not portrayed any substantial increase growth. This does not point towards a lower yield, but it signals out that the cane yield may not show any visible improvement and continue with its 10 years average of ~60MT/Hec.
- Consumption levels of sugar are expected to grow at a rate of ~2.6% over the next marketing year, similar to the previous trends. The Country's ending stocks of refined sugar as at Oct'21 were ~1.9mIn MT depicting sufficient availability to open up the next marketing year.
- One of the major risks pertaining to the sugar sector is the inconsistent pricing mechanism and policies developed ad hoc to support farmer community as well as keep retail prices in check. Stock hoarding and artificial shortage issues emerge time and again mainly due to the absence of a policy framework for setting the prices of cane crop and refined sugar. Consequently, the Government makes strategic buying decisions from the International market (through TCP) in order to keep the country sugar supply afloat.
- The 'Sugar Sector Reforms Committee report' has recommended that the "government would no longer regulate the indicative sugarcane prices and ex-factory sugar prices would be deregulated with effect from crushing season MY23". Decreased political intervention is expected to result in more competitive quality and pricing in the country.

- World Bank
- United States Department of Agriculture (USDA)
- Pakistan Bureau of Statistics (PBS)
- Business Recorder
- State Bank of Pakistan (SBP)
- Pakistan Stock Exchange (PSX)
- Pakistan Sugar Mills Association (PSMA)
- Competition Commission of Pakistan (CCP)
- Pakistan Ethanol Manufacturers Association (PEMA)
- Renewable Fuels Association (RFA)
- PACRA in-house Database

|  |   |  |
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