



Sugar Sector Study

© The Pakistan Credit Rating Agency Limited



Table of Contents



Global Industry	Pg. No
Food & Fuel	1
Production Process	2
Production & Consumption	3
Regional Share in Production	4
Regional Share in Consumption	5
Exports & Imports	6
Sugar Prices	7
Local Industry	Pg. No
Agriculture Overview	8
Industry Snapshot	9
Sugarcane Dynamics	10
Sugarcane Prices	12
Sugar Production & Consumption	13
Sugar Industry Dynamics	14

Local Industry	Pg. No
Sugar Prices	18
Market Shares	19
Business Margins	20
Cost Structure Sugar Mills	21
Financial Risk Working Capital Management	22
Borrowings & Interest Costs	23
Sugar By-Products	24
Sugar Crop Cycle	30
Porter 5 Forces	31
SWOT Analysis	32
Tax and Regulatory Structure	33
Regulatory Framework	34
Rating Curve	35
Conclusion Outlook	36

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 employment for over 100 million people across the world.





Production Process



Production & Consumption

PACRA

- 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
Total World Sugar Supply	278.5	306.5	288.9	272.9	290.9	293.0
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
Total World Sugar Demand	232.0	254.6	235.6	224.8	242.1	247.3
World Closing Stock	46.5	51.9	53.2	48.1	48.8	45.7
*Estimated						

3

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 ~34mln 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		
<u>Asia:</u>							
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%		
Total Asia	30%	37%	39%	35%	35%		
South America:							
Brazil	22%	20%	16%	18%	23%		
Other South America	3%	3%	3%	3%	3%		
Total South America	26%	23%	19%	21%	26%		
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%		
Total World	100%	100%	100%	100%	100%		

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 5th 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)						
	MY17	MY18	MY19	MY20	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 consur	nption (kgs)
Malaysia	58.2
Brazil	48.9
New Zealand	47.0
Thailand	43.9
Peru	42.4
Top 5 - Average	48.1
Pakistan	24.9
India	18.7

Sugar Prices

- PACRA
- 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~525.7/MT in Mar'22, a rise of ~18% 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.



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 increase slightly in MY22 by ~0.7%. Thaila are expected to boost by ~150% with that and India decreasing by ~19.1% and ~2.8 respectively.
- Brazil's central areas had below-average most of the cane development period, th the start of the crushing season, leading t expected smaller sugarcane crop, and ult lower sugar production and hence, lower
- Thailand's exports are expected to rise or improved sugar quality, and increased sug production in MY22 after two years of dr conditions that dampened sugar product exports significantly.

Pakistan 0.4 1.6 1.1 0.1 0.0 0 t of Brazil Others 13.7 11.9 11.2 13.1 11.7 11 % Total 60.5 65.8 57.8 53.2 62.7 63 rains during at delayed to an imately China 4.6 4.4 4.1 3.8 5.9 5 1 donesia 4.8 4.3 5.4 4.8 5.2 4 USA 2.9 3.0 2.8 3.8 2.9 2 a delayed to an imately USA 2.1 2.3 2.3 2.5 2.3 2 Y weather ion and 1.9 2.0 2.1 2.0 2.1 2.0 2.1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 <th>expected to</th> <th>EU</th> <th>1.5</th> <th>4.3</th> <th>2.4</th> <th>1.5</th> <th>1.3</th> <th>1.3</th>	expected to	EU	1.5	4.3	2.4	1.5	1.3	1.3
t of Brazil % Others 13.7 11.9 11.2 13.1 11.7 11.7 Total 60.5 65.8 57.8 53.2 62.7 63.8 rains during at delayed to an imately rexports. n the back of garcane y weather ion and China 4.6 4.4 4.1 3.8 5.9 5.5 Algeria 2.1 2.3 2.3 4.8 5.2 4.4 Multiple MY 19 MY 20 MY21 MY Properties and delayed to an imately rexports. by weather ion and 4.6 4.4 4.1 3.8 5.9 5.5 China 4.6 4.4 4.1 3.8 5.9 5.5 Indonesia 4.6 4.3 5.4 4.8 5.2 4.4 USA 2.9 3.0 2.8 3.8 2.9 2.2 Algeria 2.1 2.7 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 <td>and's exports</td> <td>Pakistan</td> <td>0.4</td> <td>1.6</td> <td>1.1</td> <td>0.1</td> <td>0.0</td> <td>0.0</td>	and's exports	Pakistan	0.4	1.6	1.1	0.1	0.0	0.0
% Total 60.5 65.8 57.8 53.2 62.7 63.7 rains during at delayed to an imately exports. n the back of garcane y weather ion and China 4.6 4.4 4.1 3.8 5.9 5.4 Bangladesh Y weather USA 2.9 3.0 2.8 3.8 2.9 2.2 Bangladesh Y weather 2.1 2.3 2.3 2.5 2.3 2.5 Guth Korea 1.9 2.0 2.1 2.0 2.1 2.0 Guth Korea 1.8 1.9 2.0 1.9 1.9 1.9 Guth Korea 3.7.3 43.8 34.3 29.8 38.6 39.9 Guth Korea 3.7.3 43.8 57.8 53.2 62.7 63.9 Guth Korea 3.7.3 43.8 34.3 29.8 38.6 39.9 Guth Korea 37.3 43.8 57.8 53.2 62.7 63.9 Guth Korea 60.5 65.8 57.8 53.2 62.7 63.9	t of Brazil	Others	13.7	11.9	11.2	13.1	11.7	11.5
Global Sugar Imports (mIn MT)rains duringMY 10MY 20MY21MYat delayed to an imatelyChina4.64.44.13.85.95Indonesia4.84.35.44.85.24USA2.93.02.83.82.92Algeria2.12.32.32.52.32Bangladesh2.12.72.42.42.42Malaysia1.92.02.12.02.12EU2.91.62.42.21.52South Korea1.81.92.01.91.91Others37.343.834.329.838.639Total60.565.857.853.262.763	%	Total	60.5	65.8	57.8	53.2	62.7	63.1
mains during at delayed to an imately exports. n the back of garcane y weather ion andMY17MY 18MY 19MY 20MY21MY MY MY AlgeriaMY 20MY21MY MY MY AlgeriaMY 20MY21MY MY MY AlgeriaMY 19MY 20MY 20MY21MY MY MY MY AlgeriaMY 19MY 20MY 20MY 20MY 21MY MY MY MY 			Global S	ugar Impor	ts (mln MT)			
at delayed to an imately exports. n the back of garcane y weather ion andChina4.64.44.13.85.951000000000000000000000000000000000000	rains during		MY17	MY 18	MY 19	MY 20	MY21	MY22*
to an indonesia 4.8 4.3 5.4 4.8 5.2 4 imately USA 2.9 3.0 2.8 3.8 2.9 2 Algeria 2.1 2.3 2.3 2.5 2.3 2 Bangladesh 2.1 2.7 2.4 2.4 2.4 2 Malaysia 1.9 2.0 2.1 2.0 2.1 2 EU 2.9 1.6 2.4 2.2 1.5 2 South Korea 1.8 1.9 2.0 1.9 1.9 1 Others 37.3 43.8 34.3 29.8 38.6 39 dia, China, USA & Pakistan MY "Oct-Sep" *Estimated	at delayed	China	4.6	4.4	4.1	3.8	5.9	5.0
Imately resports. h the back of garcane y weather ion andUSA2.93.02.83.82.92.4Algeria2.12.32.32.52.32.5Bangladesh2.12.72.42.42.42.4Malaysia1.92.02.12.02.12.0EU2.91.62.42.21.52.4South Korea1.81.92.01.91.91.4Others37.343.834.329.838.639Total60.565.857.853.262.763dia, China, USA & Pakistan MY "Oct-Sep"*EstimatedSource: USDA, S&P Global, Business RecorderSource: USDA, S&P Global, Business Recorder	to an	Indonesia	4.8	4.3	5.4	4.8	5.2	4.8
Algeria 2.1 2.3 2.3 2.5 2.3 2.5 angladesh 2.1 2.7 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4	imately	USA	2.9	3.0	2.8	3.8	2.9	2.8
Bangladesh 2.1 2.7 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4 2.4	exports	Algeria	2.1	2.3	2.3	2.5	2.3	2.4
Malaysia 1.9 2.0 2.1 2.0 2.1 2.0 garcane 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 dia, China, USA & Pakistan MY "Oct-Sep" *Estimated Source: USDA, S&P Global, Business Recorder	the back of	Bangladesh	2.1	2.7	2.4	2.4	2.4	2.4
garcane EU 2.9 1.6 2.4 2.2 1.5 2.5 y weather South Korea 1.8 1.9 2.0 1.9 1.9 1.5 2.5 others 37.3 43.8 34.3 29.8 38.6 39 dia, China, USA & Pakistan MY "Oct-Sep" *Estimated Source: USDA, S&P Global, Business Recorder		Malaysia	1.9	2.0	2.1	2.0	2.1	2.2
South Korea 1.8 1.9 2.0 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 1.9 <th< td=""><td>garcane</td><td>EU</td><td>2.9</td><td>1.6</td><td>2.4</td><td>2.2</td><td>1.5</td><td>2.0</td></th<>	garcane	EU	2.9	1.6	2.4	2.2	1.5	2.0
Others 37.3 43.8 34.3 29.8 38.6 39.8 Total 60.5 65.8 57.8 53.2 62.7 63.8 dia, China, USA & Pakistan MY "Oct-Sep" *Estimated	y weather	South Korea	1.8	1.9	2.0	1.9	1.9	1.9
Total60.565.857.853.262.763dia, China, USA & Pakistan MY "Oct-Sep"*EstimatedSource: USDA, S&P Global, Business Recorder	ion and	Others	37.3	43.8	34.3	29.8	38.6	39.7
dia, China, USA & Pakistan MY "Oct-Sep" *Estimated Source: USDA, S&P Global, Business Recorder		Total	60.5	65.8	57.8	53.2	62.7	63.1
	dia, China, USA & Pa	ikistan MY "Oct-Sep" *Estimated			Source: US	DA, S&P Global,	Business Record	der

MY17

28.5

7.0

2.1

4.0

1.3

2.0

Global Sugar Exports (mln MT)

MY19

19.6

10.6

4.7

3.7

2.3

2.1

MY20

19.3

6.7

5.8

3.6

1.3

1.9

MY21

32.2

4.0

7.2

3.4

1.2

1.7

MY18

28.2

10.9

2.2

3.6

1.1

1.9



MY22*

26.0

10.0

7.0

3.6

1.9

1.8

Brazil

India

Thailand

Australia

Guatemala

Mexico



Agriculture | Overview

Sugar

- 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 ~81mln MT (FY20: ~66mln MT). Others crops include pulses, oilseeds, vegetables and cotton ginning.



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 ~5.6mln MT of sugar in MY21 (~4.9mln 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 ~7.3mln MT (including opening stocks) in MY21 as compared to ~6.9mln MT (including opening stocks) in MY20. Consumption levels averaged around ~5.8mln MTs in MY21, resulting in closing stocks of ~1.5mln 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 ~1.5mln 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		
Sugarcane				
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	80.9		
Yield (MT/Hec)	63.8	69.5		
Sugar				
Opening Stock (mln MT)	1.9	1.3		
Production (mln MT)	4.9	5.6		
Total Imports (mln MT)	0.1	0.4		
Consumption (mln MT)	5.3	5.8		
Total Exports (mln MT)	0.2	0.0		
Closing Stock (mln MT)	1.3	1.5		
Market structure	Fragmented			
Association	Pakistan Sugar Mills Association			

Sugarcane Dynamics

PACRA

- 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 ~20.6% increase in production in MY21 is attributed to increase in yield (MT/hectare) which rose by ~8.9% in the year. It was mainly due to favorable weather conditions, better management, and timely availability of quality inputs.
- 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 ~67mln MT from ~83mln 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 (mln Hec)	23.0	23.5	23.5	23.5	23.5	
Pakistan Cultivated Area (mln Hec)	22.2	22.2	22.2	22.2	22.1	
Sugarcane Production (mln MT)	75.4	83.3	67.1	67.1	80.9	
Area Under Sugarcane as a Percentage of Total Cultivated Land	5.5%	6.1%	5.0%	4.7%	5.3%	
Area Under Sugarcane (mln Hec)	1.2	1.3	1.1	1.0	1.2	
Yield MT/HEC	62.0	62.1	60.9	63.8	69.5	



Source: PSMA,PBS

11

Sugar | Domestic Overview

Sugarcane Dynamics | Province wise

- Pakistan has two planting seasons for Sugar Crop: (1) Spring (Feb-Mar) and (2) Autumn (Sep-Nov). Spring crop is mostly harvested 8-10 months later. Autumn planting allows growth for up to 16 months. 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 a 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	80.9
Sugarcane Crushed (mln MT)	71.2	65.7	49.8	48.7	58.6
Sugarcane Utilization	94%	79%	74%	73%	72%



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



PACRA

250

225

202

200

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 and KPK Government have set sugarcane price at PKR~225/40KG (up by ~12.5% YoY) for the crushing season of MY22. Sindh government has also made the decision to raise the prices to PKR~250/40KG (up by ~23.8% YoY).
- Even after this substantial increase in support prices of sugarcane by the Provincial Governments, the industry is procuring sugarcane at much higher prices which range between PKR~260-325/40KG as growers are not willing to supply sugarcane at notified support prices.
- Overall sugarcane crop value has increased at a CAGR of ~1.8% 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~406bln in MY21 majorly due to the rise in production level of sugarcane.

Sugarcane Minimum Prices (at factory gate)-PKR/40KGMY17MY18MY19MY20MY21MY22Punjab180180190200225

180

180

192

190

180

180



Sindh

KPK

180

180

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.
- Total supply of sugar in Pakistan stood at ~5.9mln 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.
- According to USDA's forecast, Pakistan's sugar supply will clock around ~6.8mln MT (production + imports) in MY22, an increase of ~7% YoY, while domestic consumption would increase to ~5.9mln MT, increasing by ~3% YoY leaving ~2.3mln MT of closing stock of country's sugar.



Sugar Production and Consumption (mln MT)						
	MY17	MY18	MY19	MY20	MY21	MY22*
Opening Stock	1.0	2.6	2.6	1.9	1.3	1.5
Domestic Production	7.0	6.6	5.3	4.9	5.6	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	1.5	2.3
Import & Export figures are from PBS, all other figures are from PSMA until MY21. MY22 estimations are from USDA.						

Recovery Rates

- In terms of sugar recovery rates, Sindh tops the provinces with a recovery rate of ~10.0% as Thatta region is ideal for sugarcane production due to its humid environment and higher water retention rate.
- Average sugar recovery rate was ~9.6% in MY21, which is slightly lower than its regional competitor India with a recovery rate of ~10.0%.







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.



*Estimated



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, whereas the international price is PKR~93.5/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 local retail market to PKR~90-100/kg, going forward.





Market share | Top players

	Production share – Top 20 players – MY21						
	Company	Cane Crushed (MT)	Sugar Production (MT)	Recovery Rate	Market Share		
1	JDW (Combined)	5,570,956	556,141	10.0%	10%		
2	Tandlianwala (Combined)	3,566,282	316,666	8.9%	6%		
3	Hamza	2,350,279	230,103	9.8%	4%		
4	Hunza (Combined)	1,975,502	172,949	8.8%	3%		
5	RYK	1,887,016	187,953	10.0%	3%		
6	Etihad	1,855,426	185,764	10.0%	3%		
7	Sheikhoo	1,711,921	166,422	9.7%	3%		
8	AKT (JK/Golf)	1,538,213	149,652	9.7%	3%		
9	Madina	1,523,663	145,650	9.6%	3%		
10	Chashma (Combined)	1,468,504	145,987	9.9%	3%		
11	Ramzan	1,439,024	126,970	8.8%	2%		
12	Two Star	1,437,749	128,060	8.9%	2%		
13	Layyah	1,353,537	133,469	9.9%	2%		
14	Deharki	1,270,151	125,757	9.9%	2%		
15	Fatima	1,257,201	120,155	9.6%	2%		
16	Alliance	1,162,231	114,990	9.9%	2%		
17	Indus	1,116,920	112,315	10.1%	2%		
18	Safina	1,021,063	96,667	9.5%	2%		
19	Ashraf	1,019,209	93,465	9.2%	2%		
20	Al moiz	917,020	95,277	10.4%	2%		
	Others	23,161,972	2,226,837	9.6%	40%		
	Total	58,603,839	5,631,249	9.61%	100%		

Business Risk | Margins

- Pakistan's sugar market size increased to PKR~501bln in MY21 (PKR~355bln 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 ~5.8-6mln 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 almost intact at ~16.7% in MY21 (~17.0% in MY20) despite growing revenues due to increase in MSP (by ~5%) and rising freight and handling charges. Operating margins decreased to ~8.1% in MY21 (~8.7% in MY20).
- Overall, net profit margins of the Industry increased to ~4.3% in MY21 (~1.3% in MY20) due to lower mark-up rates.





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	Compone nt 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%

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 ~55 days for the period MY21 (~35 days in MY20). Restrictions on export by government contributed to increase in inventory levels during the period.
- Trade receivable days decreased to ~6 days in MY21 (~14 days in MY20) whereas Trade payable days increased to ~30 days in MY21 (~20 days in MY20).





Financial Risk | Borrowing & Interest Costs

- Sugar Industry's borrowing book clocked in at PKR~375,537mln as at End-Feb'22 (PKR~366,213mln as at End-Feb'21) up ~2.5% on YoY basis. The increase came on the back of short term borrowings that increased by ~5.9% YoY and stood at PKR~225,481mln as at End-Feb'22 (PKR~212,869mln as at End-Feb'21).
- The largest component in total borrowings is the short term borrowing that accounts for ~60% of the total borrowing, followed by long term borrowing (~31%). 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. However, it stood at ~1.9% in 1HFY22.







23



BY Products – Process Flow



BY Products – Ethanol

- PACRA
- 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 ~15bln gallons of ethanol in MY21 which represents ~55% of global output. In comparison, Brazil's share of total world production dipped to ~28% in MY21.

	Global Eth	anol Production	Share in Global Ethanol Production – MY21			
	MY17	MY18	MY19	MY20	MY21	60.0% 54.9%
USA	15,936	16,091	15,778	13,941	15,000	50.0%
Brazil	6,760	8,080	8,790	8,080	7,500	
European Union	1,320	1,360	1,380	1,260	1,300	40.0%
China	850	810	1,010	930	860	30.0%21.5%
India	210	420	470	510	820	
Canada	460	460	500	430	440	20.0%
Thailand	380	390	430	390	390	10.0%
Argentina	290	290	290	210	260	3.1% 3.0% 1.6% 1.4% 1.0% 2.79
Rest of World	664	729	682	659	740	USA Brazil European China India Canada Thailand Argentina Rest
Total	26,870	28,630	29,330	26,410	27,310	-10.0%

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.
- 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			
Molasses Production	3.1	3.0	2.2	2.2	2.1			
Sugarcane Converted to Molasses	4.3%	4.5%	4.5%	4.6%	3.7%			
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			
Molasses Converted to Ethanol	26.9%	28.7%	27.5%	26.5%	28.1%			
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~1.3/litre. However, there is substantial difference in these prices among countries.



PACRA

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			

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 rate for press mud is ~2.6% of the sugarcane crushed.

	Ba	gasse and N	lua Proa	uction (n	nin IVI I)	
to		MY17	MY18	MY19	MY20	
	Bagasse	2.1	1.9	1.5	1.4	
The s to	Recovery rate	2.9%	2.9%	2.8%	2.9%	
the	Mud	2.1	2.0	1.5	1.5	
ery						

3.0%

3.0%

Recovery rate



MY21

1.4

2.5%

1.5

2.6%

3.0%

2.9%



Sugar Sector Cycle Nutshell



- Farmers in Pakistan have very limited power. Their cash cycle is mainly influenced by large sugar mills.
- Even in the current scenario of price spurs and high profitability margins, many farmers are paid much less than the minimum price levels set by the government.
- Payments of farmers are long deferred by some of the strong sugar mills.

Porters 5 Forces Model



SWOT Analysis







Tax and Regulatory Structure

PCT Code	Description	Custom Duty		Additional Custom Duty		Regulatory Duty		Total	
		FY21	FY22	FY21	FY22	FY21	FY22	FY21	FY22
17.01	Cane or beet sugar and chemically pure sucrose, in solid form.	11-20%	11-20%	4%	4%	40%	40%	11-64%	11-24%
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.



Rating Curve

PACRA

- 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~8,960mln, wherein PACRA rated universe constitutes about ~16% of the total.



Sugar | Conclusion

PACRA

Outlook: Stable

- The overall Industry is eyeing an output level greater than that of MY21 season. Sugarcane production is expected to increase up to ~2.6% 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.
- 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 for MY21 were ~1.5mln 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 Stated 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

Research	Saniya Tauseef	Momina Rehman
Team	Asst. Manager	Associate Analyst
	saniya.tauseef@pacra.com	momina.rehman@pacra.com
	Contact Number: +92 42 3586	9 504

DISCLAIMER

PACRA has used due care in preparation of this document. Our information has been obtained from sources we consider to be reliable but its accuracy or completeness is not guaranteed. The information in this document may be copied or otherwise reproduced, in whole or in part, provided the source is duly acknowledged. The presentation should not be relied upon as professional advice.