Pakistan Marble Industry Challenges: Opportunities for China in Pakistan

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Abstract

The phrase world has now become a global village is rightly indicative of the fruitful effects and outcomes for entrepreneurs as far as their growth and profit margin are concerned. This study will analyze the marble industry of Pakistan with respect to China. What are the export potentials of Pakistani industry in China? Do we supply marble according to their need? Is our marble best in quality? Will our export increase in future to China? Is this industry has potentials in contributing to our economy and GDP to a larger extent? This variety of inquiry will be undertaken in this study. However, we believe that there are huge gaps between demand and supply of marble to China and these gaps badly affect our export and economy as well. It is true that our exports of marble to China are not according to our reserves i.e. 160 million tons and our export of marble to China is only $ 55 million. This is 3.6% of their total imports of marble. While conducting a forecasting analysis, it has been proven that the export of marble is increasing in past and also shows a growing trend in upcoming future. Some structured interviews have also been taken which demonstrate that our primary and secondary data are equivalent. We export most of our marble to China but still we cannot supply according to the demand because of various factors. In marble industry export, China is the major buyer and it gives a great boost to our economy. The export orders are receive mostly from China and 63% people strongly agree that exports of marble from Pakistan to China are not as much as it should have been but if we can sort out problems like tribal fights, lack of technological infrastructure, semi trained workers and simultaneously government policies need to be streamlined as they can facilitates entrepreneurs and hence export can be increased to a larger extent.

Keywords: Export, marble, Pakistan's export potential, China, forecasting.

1. Introduction

1.1 Background of the Study

Natural stone market in the US has developed in times due to tripled consumption during 1994-03. The US is the world's second most important natural stone consumer, after China. The quantity of imports to the USA during 2003 climb by approximately 21% in marble industry while the average trade value of both stone and granite dropped by an extra 10%. This is attributed to cheaper stones that are now imported from third world countries. The local production of natural stone has also increased in the USA, especially in the last three years. Whereas only 1.2 million ton of rough slabs were quarried ten years ago, this reached 2.25 million ton in 2003, almost twice as much. As a result of growing imports for block goods as well (94,000 ton in 1994 and 441,000 ton in 2003), the goods manufactured in USA have also mount from 11, 00,000 ton to 25, 00,000 ton. Around 30% of every single marble which is completely manufactured

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in the USA is developed on their possess quarries. Italy, Germany, France, Belgium, Spain, Portugal, the Netherlands, Turkey, Switzerland, United States, Lebanon, Taiwan, Japan, South Korea, Malaysia and China have strong industrial base for the processing of dimensional stone.

In the case of Pakistan, most of the processing units in the country are prepared with local man-made cutting machines with slight or no calibration, high electricity expenditure and eminent class manufacture. Goods of these items have discrepancy in the tiles width as high as 1 to 2 mm and are shape at the ends whereas international principles agree to distinct in width up to 0.5mm for tiles and the edges properly cut. Goods may also be delayed or yet blocked by the miners due to diverse rationale that contain low construction for the reason that non scientific dig up, inability of rating, meager infrastructure due to which containers cannot drag heavy tons on roads in the district. In addition, all the above reveal grounds, there is no understanding of maintenance supply at the dispensation component or at mines mostly due to financial restraints.

1.2 Problem Statement

"Pakistan's marble industry has so far not achieved its desired potential of exports to China".

1.3 Objectives of the Study

- To analyze the potential of export of marble from Pakistan to China by using their export and import data.
- To determine the overall growth potential in marble industry of Pakistan to China.
- To explore the potential of Pakistani marble for Chinese marble industry.
- To find out the obstacles to export marble from Pakistan to China.

1.4. Significance of Study

This research will give us comprehensive overview about the potential in marble industry. It is also beneficial for entrepreneurs who are currently competing in this business or who are willing to establish their own businesses. On the other hand, it will also benefit our overseas Chinese traders who import marbles from Pakistan.

1.5. Limitations

Hence from Pakistan, export of marble is allowing in many countries but researcher only restricts the study to China because of limited time and resources. Information is another limitation because some information is very confidential because usually entrepreneurs do not share that much information with everyone.

1.6 Scope of the Study

The main purpose of this study is to fill the significant gaps in existing knowledge about the marble industry of Pakistan and China. Hence, it is an analytical model and covers all the important aspects related to the matter. This study gives a clear vision of marble industry about China and Pakistan. How they associated with their suppliers and buyers? How much efficient is the supply and demand of marble from mine to the customers' doorstep?

1.7 Areas of Further Study

There are other angles from which this study can be conducted.

- Marble market potential can also be explored besides China such as Taiwan, South Korea because there are many countries other than China in which Pakistani marble is exported to.
- There are approximately 43 type of stones export from Pakistan to different countries. This study can also be utilized for the export of any other stone.
- We can also conduct this study in the context of supply chain problems, like how the marble is exported, shipped and so forth.

2. Research

2.1 Research Design

Research is design to get as much information as possible within limited time. The study is quantitative in nature because it requires extensive secondary and primary work. Data have also been gathered through observation and interviews, exports facts and figures because of quantitative studies have to be undertaken. The data of export have tested through "unit root test" and "1^{st} log difference" and the data of questionnaires have been tested by "T-test" which shows the significance of data and descriptive statistics have provided to analyze the current situation in which mean and standard deviation are included. Furthermore, other data have gathered from various sources to get enough information that supports the research objectives. The basis of analysis in the study is individuals and organizations because data is collected from buyers, sellers and agents and each has to be treated separately and each individual's point of view is focused in the study. In some cases, organizations are to be taken as unit of analysis because we are interested to see what the level of implication of the technology is in the marble industry.

2.2 Research Methodology Selected

Since research is quantitative, an extensive trend and forecasting analysis will be done which shows the future projection of marble industry. A quantitative analysis has also been done which shows the current potential in this industry. On the other hand, 25 structured interviews with questionnaire and web site visits are used as a research methodology. FGD's with the entrepreneurs was done to identify the swot analysis of this industry. In this study to see whether buyers and sellers are currently flourishing and making striking profits are visited and conducted for more information.

2.3 Research Instrument

The data for research is conducted through primary and secondary sources.

For primary data collection we have used:

- Structured Interviews
- Questionnaires

For secondary data collection we have used:

- Internet
- Professional journals and magazines
- Articles
- Reports provided by different government institutions

3. History

Historically, marbles have been extracted from Harappa in India close to Indus River, whereas different marbles were found by mining close to Mohan Jo daro. Marbles were also used by Romans and paradigms of marble have been dug in Egypt. They made up of clay, stone or glass or "Glass alley". Marble is a crystalline, compressed array of metamorphosed lime stone; consist mainly of calcite and dolomite or mixture of mutual mineral deposits. Marble has been excavated and cut for centuries. However, proper manufacturing commenced in the 20th century. In 1960s, large scale marble excavation was initiated in Europe. Marble production has averaged yearly growth rate of 13% since 1970's. As far as Pakistan is concerned, the industry developed in the 1960s and there was no concept of quality at that time. Moreover, equipments were made in Pakistan at Gujranwala and Lahore. According to Mats Abrahamsson (1993) in the middle of 1970s, a small number of supplies were imported from Italy but they were outdated and acquire no quality deliberation.

3.1 Market Potential

The global marble business was prized at $2.5 billion in 2006, accompanied the construction regarding 19.6 million tons. Italy is one of the market leaders in sandstone and marble division. It exports above 38% of finished goods and import 18% of the world business. Pakistan manufacture 1.37 m tons per annum, aimed more than 10% export (0.03% of world business in 2008). China is actually close to the foremost mining locations in Pakistan and is the largest importer of unprocessed and complete marble and tiles (almost twice that of USA) in the world (SBI, 2010).

3.2 World Scenario

Generally speaking, the marble industry is rising speedily. At the commencement of 1990s, manufacturing has climbed yearly by an average of 7.3% and global business has enlarged by an avarage of 8.7%. Internationally, marble stone excavation for the moment is anticipated at 150 million tons gross annually. Yearly manufacturing subsequent to removal of waste and cutting reach to 820 million square meters. According to Pakistan Stone Development Company (PASDEC, 2010) the entire manufactured worth is predicted at $ 40 billion.

3.3 Pakistani Scenario

OPPORTUNITY RATIONALE

Pakistan has massive mineral possessions as well as marble. Sandstone is tattered equally for structure rationale and development, while onyx is a partially-translucent and usually tattered by developing production. Accessibility to strong quality marble treasury in Pakistan with immense magnitude and the claim of these stones in the

overseas marketplace (i.e. European Union countries, Central Asian countries etc.) make this division truly massive in proportion. Recognition of PASDEC for growth marble and granite division designate government's curiosity in this division and is an optimistic/ positive signal for the shareholder in this business.

4. Contribution towards National GDP

S. No	Type of Minerals	Average Daily Employ-ment	Employment Cost	Gross Value of Production	Intermediate Cost	Census Value Added	Contribution to GPD	As of % Cont.per GPD	Rank
1	Barytes	504	23,520	191,758	17,983	173,775	147,040	0.001	10
2	Bauxite	26	1,415	306	12	294	149	0.000	31
3	Bentonite	302	4,380	9,334	806	8,528	6,749	0.000	26
4	Chalk	148	12,530	91,526	3,952	87,574	84,476	0.001	14
5	China Clay	151	4,501	18,591	5,112	13,479	13,254	0.000	22
6	Chromite	582	25,329	70,690	1,205	69,485	64,423	0.000	15
7	Coal	24,159	1,577,496	4,171,155	517,748	3,653,407	3,513,736	0.022	3
8	Crude Oil	10,951	1,560,422	47,244,170	1,530,424	45,713,746	44,775,896	0.275	2
9	Copper Ore	1,195	148,583	2,934,312	232,984	2,701,328	2,647,705	0.016	4
10	Dolomite	997	35,514	154,763	27,626	127,137	123,359	0.001	11
11	Feld Spar	157	15,415	31,345	2,612	28,733	24,406	0.000	20
12	Fire Clay	189	16,284	25,565	243	25,322	24,536	0.000	19
13	Fuller Earth	507	1,935	6,118	206	5,912	5,872	0.000	28
14	Granite	84	5,104	38,788	1,427	37,361	36,619	0.000	17
15	Gypsum	1,425	64,577	351,758	11,190	340,568	334,322	0.002	8
16	Lake Salt	174	7,340	7,628	360	7,268	6,733	0.000	
	/Sea Salt								
17	Laterite	970	12,709	25,170	2,077	23,093	20,954	0.000	21
18	Lime Stone	9,316	590,269	1,212,668	266,747	945,921	891,666	0.005	6
19	Magnesite	28	2,072	6,041	1,498	4,543	4,396	0.000	29
20	Marble	7,827	315,552	1,371,811	48,042	1,323,769	1,245,988	0.008	5
21	Natural Gas	18,195	3,900,506	111,260,979	2,305,990	108,954,989	107,668,220	0.662	1
22	Ocher	64	2,628	473	81	392	365	0.000	30
23	Phosphate	278	13,684	13,374	1,446	11,928	8,118	0.000	24
24	Quartz	47	1,432	8,490	538	7,952	7,716	0.000	25
25	Rock Salt	4,227	203,457	509,295	54,980	454,315	433,720	0.003	7
26	Shale Clay	1,440	10,841	15,418	3,694	11,724	9,432	0.000	23
27	Silica Sand	2,700	91,156	367,664	31,327	336,337	321,279	0.002	9
28	Slate Stone	210	10,112	104,132	7,652	96,480	95,042	0.001	13
29	Soap Stone	515	21,735	50,716	11,826	38,890	31,026	0.000	18
30	Sulphur	316	14,835	126,786	5,974	120,812	120,294	0.001	12
31	Supernite	45	3,984	50,904	2,014	48,890	48,604	0.000	16
	TOTAL	87,729	8,699,317	170,471,728	5,097,776	165,373,952	162,716,095	1.000	

Source: Sindh Board of Investment

Marble contribute 0.008% to GDP and rank 5th among all the minerals. This shows that this industry has a great potential in Pakistan and this share can rise in future and in coming years, marble industry can rank 2nd among all minerals .

4.1 Selection of the Model through AIC & BIC Criterion

Various ARMA models are being applied through E-views. As per "Akaike Information Criterion (AIC) and the Schwarz Information Criterion (SIC)" selection criterion ARMA (2, 2) has the minimum AIC & SCI values out of the possible ARMA Models Therefore, the best fit model is ARMA (2, 2).

Dependent Variable: Y
Method: Least Squares
Date: 11/17/11 Time: 23:20
Sample (adjusted): 2003M10 2011M09
Included observations: 96 after adjustments
Failure to improve SSR after 14 iterations
Backcast: 2003M08 2003M09

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002124	0.000169	12.54984	0.0000
AR(1)	-0.086485	0.141228	-0.612380	0.5418
AR(2)	0.433202	0.096798	4.475299	0.0000
MA(1)	-0.175848	0.115069	-1.528190	0.1299
MA(2)	-0.819501	0.095546	-8.576996	0.0000

R-squared	0.233075	Mean dependent var	0.002292
Adjusted R-squared	0.199364	S.D. dependent var	0.017316
S.E. of regression	0.015494	Akaike info criterion	-5.446038
Sum squared resid	0.021846	Schwarz criterion	-5.312478
Log likelihood	266.4098	F-statistic	6.913914
Durbin-Watson stat	2.089966	Prob(F-statistic)	0.000066

Inverted AR Roots	.62	-.70
Inverted MA Roots	1.00	-.82

Thé Best Model:

$$Y = \alpha + \emptyset_1 Y_{t-1} + \emptyset_2 Y_{t-2} + \theta_1 U_{t-1} + \theta_2 U_{t-2} + \mu$$

Estimated Coefficients:

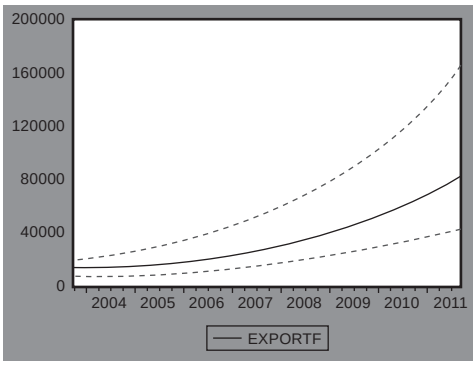
$$Y = 0.00212 - 0.0865 Y_{t-1} + 0.4332 Y_{t-2} - 0.1758 U_{t-1} - 0.819540 U_{t-2}$$

Model Statistics:

Adjusted R-Square: 0.23307
Prob (F- Statistic): 0.000000

4.2 In Sample Forecasting

Forecasting is an important tool to check the validity of the models. Now with the help of this model we do find in sample forecasting the anticipated mock-up estimate past statistics on export of marble from Pakistan to China. The forecast shows an upward



Forecast: EXPORTF
Actual: EXPORT
Forecast sample: 2003M07 201 1M09
Adjusted sample: 2003M10 2011M09
Included observations: 96

Root Mean Squared Error	36408.47
Mean Absolute Error	27427.56
Mean Abs. Percent Error	40.87502
Theil Inequality Coefficient	0.314434
Bias Proportion	0.565511
Variance Proportion	0.332647
Covariance Proportion	0.101842

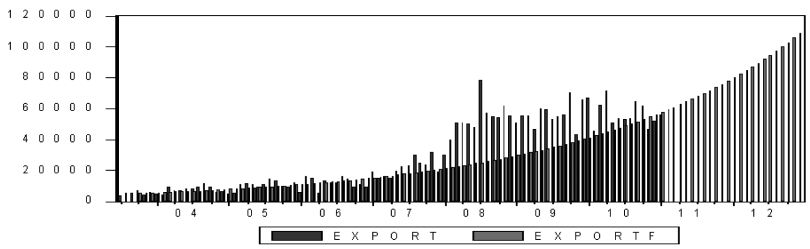
trend; hence the model has ability to single out the cyclic blueprints to control the performance of the sequence. The MAE (Mean absolute Error) and RMSE (Root mean squared error) are also minimum, showing best result of forecast.

4.3 Out Sample Forecasting

As MAE (Mean absolute error) and RMSE (Root Mean Squared Error) are minimum in sample forecasting and the forecasting is in close proximity to the actual, it always shows an upward trend with respect to forecast therefore we further proceed and did out sample forecasting. The out sample forecasting is done from February 2011 to December 2012. The forecasted values for period are given in the following table:

Values in Thousand $

Time Period	Forecasted Export
October-11	73,749.44
November-11	75,809.85
December-11	77,927.82
January-12	80,104.97
February-12	82,342.94
March-12	84,643.44
April-12	87,008.21
May-12	89,439.04
June-12	91,937.79
July-12	94,506.34
August-12	97,146.66
September-12	99,860.74



4.4 Predictions for Future Trend for Marble Export from Pakistan to China

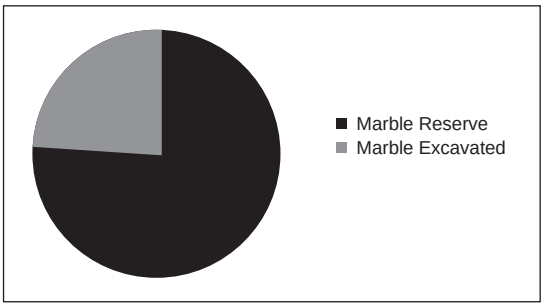
Series: HISTOGRAM	
Sample 2003M07 2012 M12	
Observations 111	
Mean	34264.89
Meadian	23829.51
Maximum	108466.5
Minimum	5103.100
Std. Dev.	28382.41
Skewness	1.001737
Kurtosis	2.902228
Jarque-Bera	18.60854
Probability	0.000091

Hence the mean values of upcoming 23 months was $ 342,645,000 million and maximum export of marble to China reached its peak on $ 108,467,000 million and minimum it does not go down beyond $ 5,103,000 million. Hence, Kurtosis is 2.90 below 3.00 which is good and probability is 0.000091 which is also below 0.05. Jarque Bera is 18.60 and above 13.00, which show that this model is best fit.

4.5 Potentials for the industry according to demand and supply analysis

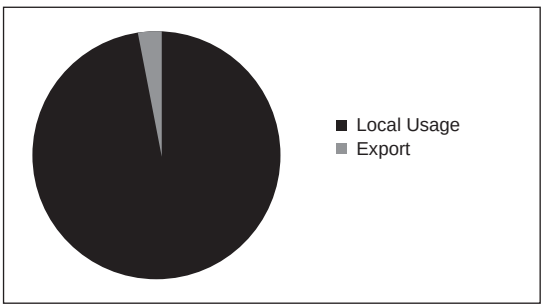
Pakistan is a rich country as far as its mineral reserves are concerned. They are large, highest in quality and very demandable all over the world. The case is specially so for marble. Pakistan is not only rich in marble but the quality and the demand of other countries are also tremendous. China is one of the leading countries that import marble from Pakistan. Currently, we have 160 million tons reserves of marble in different regions of Pakistan and excavated marble is manifold. But according to latest information, it is 32% of the reserves which was approximately 51 million tons.

Reserves and Excavated

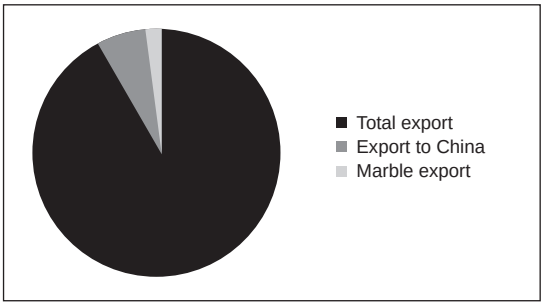


Hence, we manufactured 1.37 million tons per annum out of which 97% was consumed locally and 3 % was exported, which is much less as compared to the quality, reserves and demand of Pakistani marble in world market.

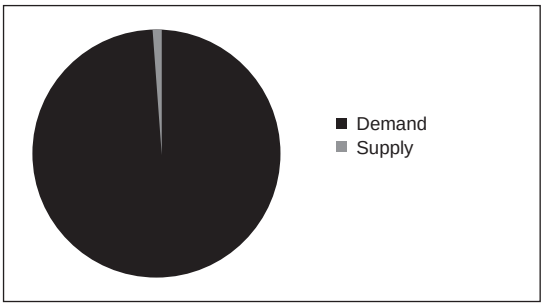
Comparison of Local usage and Export



As per September 2011, total export from Pakistan to the entire world is $2,040,841,000, out of which $141,748,000 was to China. Marble export to China is $55,976,000 and hence China's share was 39.48% in Pakistani marble industry which is quiet immense.



Whereas, China's total imports are $1,545,000,000, imported marble amounts to 8.19 million tons. However, due to quality of Pakistani marble and high-quality trade relationships, China's needs 5% to 10% of its imports of marble from Pakistan, which is $1, 454, 00,000. Currently, Pakistan exports $55,976,000 which is currently 3.6% of their total imports of marble whereas China needs much more and we cannot supply because of issues like tribal fights, untrained workers, lack of technology, poor raw material supply, wastage ratio and complicated procurement and so forth. If we remove all these factors, then our exports of marble to China can unquestionably increase by 1.5% to 2.0%.



4.6 Analysis of Questionnaire

1. How much average marble you export per month?

1000-2000 Tons 2000-4000 Tons 4000-6000 Tons 6000 and above

One-Sample Statistics

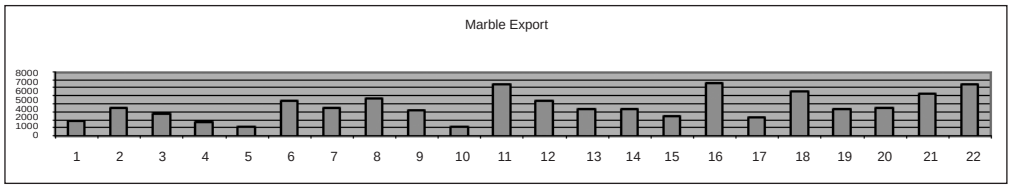
	N	Mean	Std. Deviation	Std. Error Mean
Marble export	22	3736.14	1644.121	350.528

Hence, according to the primary data, with the observations of 22, the mean export of marble from the 22 suppliers is 3736.14 tons with a standard deviation of 1644.121 and SEM is 350.528. It means that majority of suppliers are export marble within 2000 to 4000 tons.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Marble export	10.659	21	.000	3736.136	3007.17	4465.10

With 21 degree of freedom, our probability is .000 which is less than 0.05 proves that our data is significant and values do not lie in critical region. This actually indicates that our statistics are authentic.



2. How much average marble you export to China per month?

500-1000 Tons 1000-2000 Tons 2000-3000 Tons 3000 and above

Desciptive Statistics

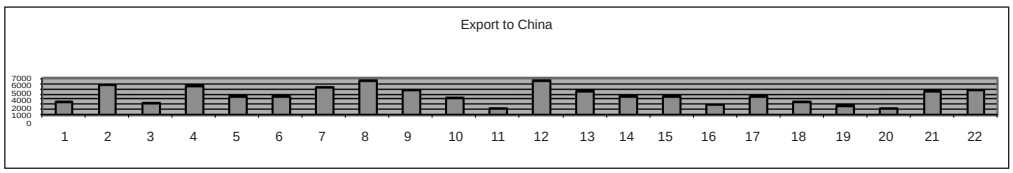
	N	Minimum	Maximum	Std. Deviation
Export to China	22	1200	6500	1592.646
valid N (listwise)	22			

Marble export to China is quite close as per the total export minimum amount is 1200 and maximum amount is 6500. Whereas, mean is 3734.32 tons with a standard deviation of 1592.646 means that China export lie in fourth quadrant that is 3000 and above.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Export to China	10.968	21	.000	3724.318	308.18	4430.46

With 21 DOF, probability is .000 which is less than 0.05 and is therefore significant; values may not lie in critical region and T-Table of 10.968. This proves that our statistics are significant.



If we can see the bar chart of China's export. It is quite close to the total export which means that in export of marble our major buyer is China.

3. How many orders did you over all receive in a month?

10-20 orders 20-35 orders 35-65 orders 75 and above

Desciptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Orders received	22	12	89	39.77	19.751
valid N (listwise)	22				

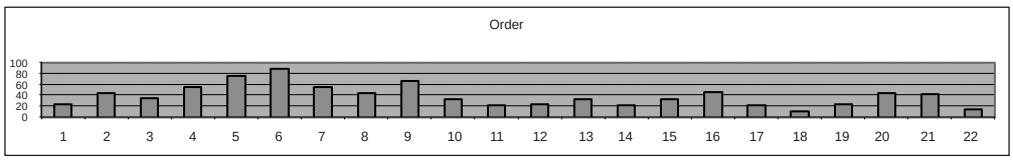
As orders are received from all over the world with a range of 12 minimum and 89 maximum, the mean is 39.77 with a standard deviation of 19.751.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Orders received	9.445	21	.000	39.773	31.02	48.53

With 21 DOF, the probability is .000 and is less than 0.05 which means that our values are significant and may not lie in critical region. Hence, 31.02 is the lower limit and 48.53 is the upper limit which connotes that our mean would lie between these two values.

Bar chart shows the average orders 22 suppliers received in a month. Here we can see that some supplier got big orders whilst others are on the low side.



4. How many orders are received from China in a month?

10-15 orders 20-25 orders 30-40 orders 45 and above

Desciptive Statistics

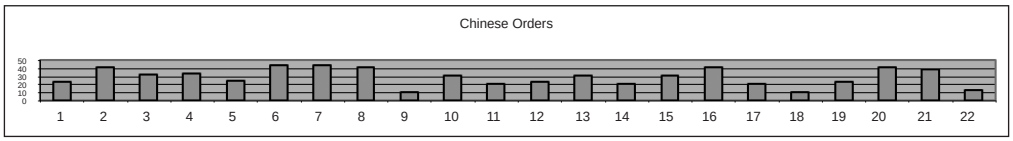
	N	Minimum	Maximum	Mean	Std. Deviation
Orders from China	22	10	44	29.00	10.690
valid N (listwise)	22				

Orders received from China are at least 10 and maximum 44 with a mean of 29.00 near to the mean to total orders received and standard deviation lies at 10.690.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Orders from china	12.724	21	.000	29.000	24.26	33.74

Hence, on 21 DOF the probability test shows .000 which is less than 0.05 and proves that our values are significant and may not lie in critical region. On the other hand, our orders are mainly from China but we can also receive orders from other countries as well. Mean value lies between 24.26 and 33.74.



5. How many orders are fulfill completely without any delay?

5-10 orders 12-15 orders 17-25 orders 25 orders

Desciptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Orders full fill without delay	22	5	31	17.73	7.648
valid N (listwise)	22				

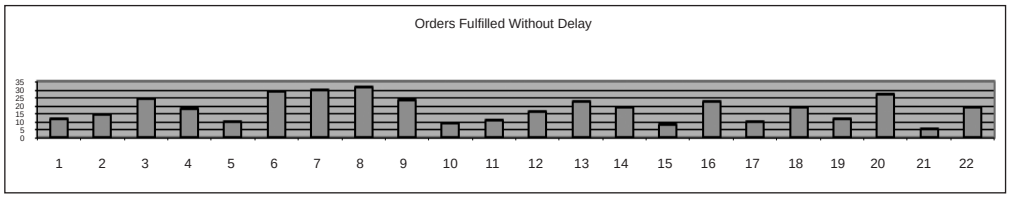
Minimum 5 orders are served on time without any delays and maximum 31 orders are there but when it comes to maximize, it would happen once in a blue moon because the mean of our total orders is 39.77. If we compare this with 17.73, then ratio of fulfilling the orders on time is relatively low.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Orders fullfill without delay	10.872	21	.000	17.727	14.34	21.12

Hence, .000 is probability which proves the values are significant and may not lie in critical region. Mean difference is 17.27 which always lies between 14.34 and 21.12 which is comparatively squat if we compare it with a mean of total orders received.

Bar Chart shows that majority lies below the line but some of the suppliers showed good figures which are above 25 but mainstream lies below 20.



6. How many orders would you directly refuse and why?

10-20 orders 20-30 orders 30-40 orders 40 and above

Desciptive Statistics

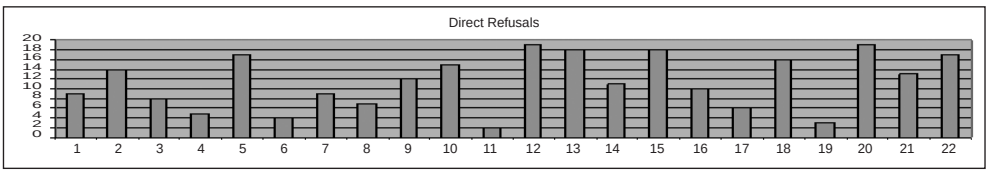
	N	Minimum	Maximum	Mean	Std. Deviation
direct nefusals	22	2	19	11.45	5.510
valid N (listwise)	22				

As far as refusals are concerned, minimum 2 and maximum 19 in a month with a standard deviation of 5.510 and these are low but still 19 refusals has its own worth and mean is 11.45 orders refused by 22 suppliers in a month. Most of the orders refused are from local market. There are no refusals in export orders but it happens very rarely that export order is refused.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
direct refusals	9.752	21	.000	11.455	9.01	13.90

Hence, .000 shows that values are significant and may not lay in critical region over a DOF of 21 the mean value will remains among 9.01 to 13.90.



Bar Chart clearly shows that orders are not much refused as they are below 20. Although they are from local market but still affect the GDP. If proper measures are there then we can fulfill these orders as well.

7. How many times it would happen in a month that you can deliver the goods according to the customer need?

5-10 times 10-15 Time 15-20 times 20 and above

Desciptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Deliver acc.to Cus.	22	6	33	18.91	7.444
Need valid N (listwise)	22				

Out of 22 observations, a minimum of 6 and a maximum of 33 times, our customers were very well satisfied from us with an standard deviation of 7.44 and mean of 18.91 which is not up to the mark if we compare it with the mean of total orders which is 39.77and thus it is not good quality figure.

One-Sample Test

	Test Value=0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Deliver acc.to Cus.Need	11.914	21	.000	18.909	15.61	22.21

Hence, .000 shows that our data is significant and values may not lie in critical region with a mean difference of 18.90 and it always lies among 15.61 to 22.21.

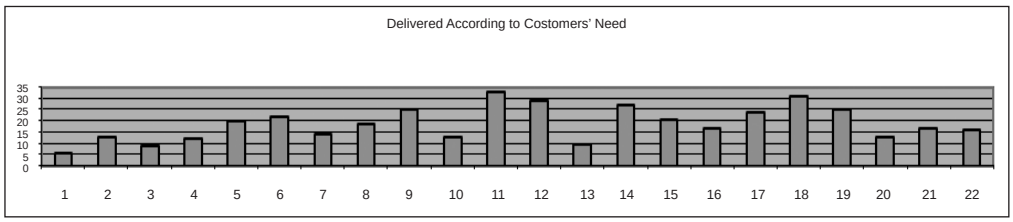


Chart shows how we satisfy our customer if we can see 11,12,14 and 18 supplier they are above 25 otherwise, most of them are below 25 but still 33 is maximum and if we can solve the constraints then our customers are more satisfied with us.

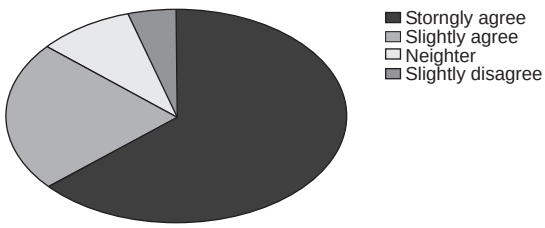
8. Currently, our export is not reaching the satisfaction level as per our marble reserves?

Strongly Agree Slightly Agree Neither Slightly Disagree Strongly Disagree

Statistics

EXPORT STAISFACTION

N	Valid	22
	Missing	0
Mean		1.55
Std. Deviation		.858
Minimum		1
Maximum		4



Export Staisfaction

		Frequency	Per cent	Valid Percent	Cumulative Percent
Valid	Strongly agree	14	63.6	63.6	63.6
	Slightly agree	5	22.7	22.7	86.4
	Neighter	2	9.1	9.1	95.5
	Slightly disagree	1	4.5	4.5	100.0
	Total	22	100.0	100.0	

Out of 22 suppliers, 63.6% suppliers strongly agreed that our exports are not as much as our reserves. Whereas, 22.7 % slightly agreed and 9.1% suppliers do not comment on that question and 4.5% slightly disagree from the export. They usually point out that there is a great potential for export of marble from Pakistan to China but unfortunately we did not avail this area because of few removable hurdles.

5. Findings

Marble export from Pakistan to China shows a positive trend towards progress and tremendously contributing to GDP, whereas, there are some other findings:

- China is largest importer of Pakistani marble with a massive 39.4% share in our marble industry. It shows that there is a lot of potential and need to be focused because there is immense scope in Chinese industry. Currently, we have only 3.6% share in Chinese marble industry which shows the scope of marble export to China as our reserves of marble are 160 million tons and we export only 78000 tons approximately.

- The mean of total export of marble from Pakistan to all over world is 3736.14 tons; where as, the marble we export to China is very close to that mean and is 3724.31 tons. This supports our secondary data that most of the marble from Pakistan is exported to China.

- The mean of the total orders we received is 39.77, whereas the mean of total orders we receive from China is 29.00 which is near to the total mean and it proves that most of the orders also came from China but we have other orders as well from different countries like UK, USA, Vietnam etc.

- After having done trend analysis, it is obvious that export of marble from Pakistan to China will show an increasing trend and in future, the export will undeniably increase because this industry has got great potential as far as exports are concerned, especially to China.

- Hence, China demands more but supply cannot meet according to the demand because of multiple constraints like tribal fights, high wastage ratio etc. We can meet the demand of China and contribute more towards economy and GDP after removing these constraints. Currently, in marble industry, Pakistan only manages to grab 3.6% of Chinese total imports.

- In upcoming 2 years from now, export of marble can increase with an average of $34,265,000 with a median of $23,830,000 and maximum up to $108,466,000 and minimum upto $ 5,103,000 with a standard deviation of $28,382,000. The probability is 0.00091 which is lesser than 0.05 which means that the potential lies in the marble industry.

- According to primary data, there were 63% people from the marble industry who agreed that there is a problem in export and we cannot export the marble as per our reserves because of different constraints in which top three are tribal fights, difficult procurement and high wastage ratio. 22% slightly agreed, 4.5% slightly disagreed and 9% still not comment on that question but due to primary and secondary analysis, it has been proven that we can not export marble to China as per our reserves and as per their demand.

5.1 Conclusion

China is the largest importer of Pakistani marble and thus greatly contribute to our industry which is 39.48%. However, we have only captured 3.6% of Chinese total imports of marble. The total marble imports of China are $ 1.5 billion which is 8.19 million tons approximately. Whereas, our total exports of marble to China are $ 55 million which is 70,000 tons approximately. As far as the worth of Pakistani marble and our trade relationships with China are concerned, we can export much more to them but there are different constraints involved which affect our exports and among different hurdles top three are tribal fights, complicated procurement and high wastage ratio. Because of tribal fights, bribery, complicated procurement, the supply of marble on time is affected to customer whereas, high wastage ratio occurs because of unskilled labor and that weakens our image in front of the buyers. Now, if these constraints are eliminated or decreased to some extent, we can raise our exports by 2% or more to China.

Currently, we are exporting approximately 40% to China and after eliminating those constraints our share increase to 42% approximately, which is around $ 1.1 million and our export reaches to $57 million, whereas the GDP will also increase by 1.2 % instead of 1%. At the moment, marble contribute $1,245,988 in our GDP. After removing constraints marble contribution can increase by $1,557, 485, which means an increase of $ 311,497. In simple words, we are exporting $55 million marble to China with the above mention constraints. If these hurdles are eliminated, our export will rise by $ 1.1 million and reaches $ 57 million approximately. After removing these constraints, we can achieve our long-term potential, which is $57 million.

6. Recommendations

- Government should deal with tribal elders and facilitate entrepreneurs. They can pay an annual amount to them so that they should not stop the shipments.
- If marble sector is scientifically treated, it can generate employment for up to 10,000 to 50,000 people.
- Government should provide license to firms to discover marble reserves from unexplored areas.
- Security money, which is one of the major factors that make procurement difficult, should be finished because it is unfairly large in amount.
- Government should form training sessions for labor in which they get training and know different ways of cutting marble and decrease wastage.

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