INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

DATE PALM INDUSTRY AND ITS IMPACT ON ECONOMIC GROWTH OF BALOCHISTAN, A PROVINCE OF PAKISTAN

Dr. Sabahat Subhan[1*], Masood Noor Alam[2]
[1*]Assistant Professors, National University of Modern Languages, Islamabad
[2]Student of MSc, National University of Modern Languages, Islamabad
Correspondence Author: sabahatsubhan@yahoo.com

Abstract

This research analyzed the investment opportunities of date palm industry of the Kech valley in Balochistan, a province of Pakistan. This research determined the investment opportunities and its impact on Balochistan economy. For this purpose data had been collected from the Agriculture Department of Balochistan and Bureau of Statistics from 1992 to 2011. The Ordinary Least Square technique was applied to regress the data of selected variables such as production of dates, prices of dates and area under production.The results show that there is positive relationship between dependent variable i.e. economic growth rate of Balochistan and independent variables such as prices of dates, production of dates and area under production.
JEL Classification: E22, E23.

Introduction

The economy of Balochistan has started low level in social indicators such as health, literacy and economic growth. Balochistan covers nearly half of the land mass of the Pakistan but its population is only 5% of Pakistan, the social and economic development of the province needs attention. The remoteness, farness and geographical vastness of the region might be seen as a low economic development. Geography of Balochistan is the key economic resource. The low percentage of population density shows the people of the province a potentially a large value of natural resource per head but in reality it is different. The people of the Balochistan lack the share of natural resources. Soil of Balochistan is rich in mineral resources or it can be said there are large deposits of minerals in Balochistan. The geo strategically position of Balochistan gifted Pakistan with a shorter trade route to Central Asian Republics and Strait of Hurmoz, the distance of Balochistan to Strait of Hormoz and central Asian Republics saves transportation cost between newly emerged an economic region. Cost line of Balochistan is 700 km long. It is the main route for the international trade.

Economic growth of potential sector of Balochistan and rest of Pakistan having different contrasts. But in case of Pakistan there is labor abundant with high growth of the agriculture sector as well as industrial sector. Balochistan has relatively lower in agriculture growth, manpower and industrial growth. Balochistan shares only 4% of the national GDP. If light is thrown on the development sector of Balochistan, its growth is interlinked with national GDP. The Balochistan growth strategy would want to take these differences as a point of exit.

Balochistan is situated in an important region that has geostrategic value, it is important in a way that access routes into a rich natural resource area and transportation and trade center for the region. By up liftment of ambient regions the value of this region can be increased. Gwadar and its deep seaport is the area of interest in landlocked Afghanistan and Central Asian Republics. It is the fact that after the construction of deep sea ports in Gwadar landlocked countries such as Afghanistan and Central Asian Republics took interest in this region, because trade for these countries is only possible through Gwadar port and hot water on Balochistan coast line. From Gwadar economic activities through roads and land routes to Uzbekistan, Afghanistan, Turkmenistan and far into Central Asia. To make it realistic road and railway networks are being constructed from Gwadar to Afghanistan and also Iran. Balochistan can act as strategic ways into surrounding countries like Iran and Afghanistan and a trading passport into Central Asia. Construction of a deep sea port on the coast of Mekran at Gwadar regarded to explore strategic location of Balochistan and its major economic hub of the surroundings.

Peoples Republic of China played a key role in the construction of deep sea ports in Gwadar. China can get key substitute port through Gwadar port because China's outer trade being channeled through its Western region. Gwadar is recognized as the main indicator for the whole province because it is the gateway to the hub of economic centers. Economic activities such as export and import, activities related to the port, transportation within and outside of the province are beneficial for the whole province. Development of the port is interlinked with the development of industry and agriculture sector of Balochistan. From Balochistan Iran and Pakistan gas pipeline will pass it will boost up its economic activities and it will cost 4 billion US$, the length of the gas pipeline is 300 km and after completion of gas pipeline project 1.1 to 3.4 BCFD gas will be imported this gas pipeline from Iran.

Kech before 1st July 1977, it was known as Turbat. For its geographical position this region has always been a land of romance, it was it is and it will be the hub of Makran region. Kech was and still is the hub of social, political and economic activities of

INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

Makran. The history of the region goes back to the era of Prophet Dawood, at that time people took refuge to evade lacks of food. This area was ruled by Iranian emperor king Kaus and then by Afrasiab of Turan and then by another Iranian king Kai Khusrau. There is a long list of kings and rulers who invaded Kech and did not stay for long span of time, rulers who ruled Kech are Lehrasp, Gushtap, Bahaman, Huma and Darab. When the army of Alexander, the Great passed through Makran in 325 BC, when he and his army was on the way to Macedonia from Kech was known as Gadrosia. Well known Greek historian Arrian has argued about Kech, its people and environment. He said the weather is hot, the soil is fertile and the land is good for human settlement. In 303 BC, one of Alexander's generals who lost a war with Chandra Gupta, Seleukos Niktor this region. For centuries, history and its tract lost in darkness for many years. In 643 AD, Abdullah, a Muslim commander invaded Makran, then he informed his caliph Umer about the dryness of the land. Makran was ruled by Arabs one after another. Conquerors like Delimias, Seljuks, Ghanzivids, Ghorids and Mongols invaded this land but local rulers hats, Rinds, Maliks, Buledais and Gichkis ruled the area as the foreign invaders had no interest to stay in this region for a long time.

Buledais and Gichkis, these two local rulers Era notably worth to be mentioned here. With the rise of Zikri sect the Buledars gained enormous power. They are called to be interconnected with the emperor of Maskat and were called Buledais, they were called Buledais because they were from Buleda, a valley where they were inhabited. They remained in power till 1740, the history is witness that they ruled this region for more than a century. At the end of their reign, they embraced Islam. The Gichkis who were also from Zikri by faith, other zikri's joined them. After the complete invasion of the area by the Gichkis, took the power of Kech Gawader. Mir Nasir Khan1, who was from Sunni faith started war against Zikris, it is said that Mir Nasir Khan1 motive was religious not political, so the main agenda of his invasion was to eradicate Zikris. So these invasions divided this region into two parts and the revenues were also divided between the Khan and Gichkis. Mir Nasir Khan 1 grand successor Mir Mehrab Khan employed Faqir Muhammad Bizanjo as his Naib (assistant) in Kech to impose his writ in this region. For more than forty years, assistant represented the Khan. But after that local people were employed as assistant of Khan because the assistant outside from Kech were not efficient, they were not well aware of the region, so that was the reason to employ the local people as the assistant of Khan. By the support of the people of the area, the Gichkis became Hakims (rulers) of this region.

From 1838 to 1839, first Afghan war erupted and caught the attention of the British in this region. In 1861, British major Gold Smith visited this area for the first time, and in 1863, Assistant Political Agent was appointed in Gwader. During British rule, this area was under the power of Khan of Kalat through his naibs, but British invaders had affected the affairs of this region.

In 1947, when the Indian subcontinent was divided into two states (Pakistan and India), the region of Makran annexed the Balochistan state union in the year 1949 along Kalat, Kharan and Lasbele. Makran was given the status of district in October 1955. Makran became one of its 8 districts, in 1st July 1970, when One Unit was dissolved and Balochistan got the status of province. Makran announced as a division on 1st July 1977 and it was divided into three districts namely Panjgur, Turbat (Kech) and Gwader. Name of Turbet district was changed to its old name (Kech) so the new name is Kech and Turbat town is its center.

Date fruit is recognized as one of the primate fruits found on this planet having roots in ancient time. A French-Swiss biologist Alphose Pyrame de Candolle argued that in ancient time date palm grown in river Indus in South Asia and in Senegal in western Africa. As from this land dates fruits are grown in Sudan, Mali, Iraq, Yemen, UAE, Iran, Oman, Morocco, Nigeria, Algeria and Tunisia from prehistoric time to 15th century people of Arab disperse date fruits in Spain and Southern Europe. In 18th century date fruit was introduced in the American continent.

If one throw light on the production of date fruit in the Muslim world, then it can be seen that these countries produce date fruit in large quantity in the world it is the general belief that Muslims consume date fruit , this said because in the Holy month Ramadan it is consumed in large quantity. It is worth mentioning here that in Holy Quran there are 22 places where fruit is mentioned. As it is grown largely in Muslim world dare fruit has deep associations with Islamic traditions.

This study is aim to throw light on the investment opportunities in date industry in Balochistan. Production of dates in Balochistan goes back to pre-historic times but no study have been conducted on this level. Dates are grown and produced all over the world and it is produced in the Middle East and South Asia in large quantity.

The recent food crisis and unexpected food supply in the world and their increasing demand date fruit is the best source of food and nutrition. Due to the fact that date fruit is rich in mineral nutrients and it is popular among the people because of its nutritional value. If date fruit is compared with other fruits like orange that contain 480 calories /kg, banana that contains 970 calories/kg, rice contains about 1,800 calories/kg, bread contains 2,295 calories/kg.

Over 3 million tons of date fruit are produced in the world as date palm is one of the most producers in the world.

The quantity of carbohydrates in date fruit is 70% and its water content is 15 to 30% it's a natural nourishing natural food to which man is accessible to it easily.

Date fruit is grown near East and North Africa and American continent hires date palm is grown for commercial purpose. The area where date fruits are grown from the Indus valley to the west in the Atlantic Ocean.

Balochistan dates are produced in large quantity a brief history of Balochistan and the production of dates shows its production in large quantity.

INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

In Balochistan more than 300 different types of date fruits are cultivated out of which 150 different types are cultivated in Kech. Their taste, size and verities have commercial value.

For the cultivation of dates hot temperature, sufficient water and humidity is necessary. Production of date fruit of Balochistan contributes up to 85-90% of the total production of Pakistan.

There are two ways for converting date fruit into dry dates .First one is to benefit on the world's largest date market India and the second one is to preserve dates by processing it early before the monsoon rains and take it to the market as early as possible. Absence of cold storages and processing facilities are also contributing factors in this regard.

In Kech in spite of favorable temperatures and enabling environmental conditions , there is a big threat in the form of monsoon rain with comes in harvesting season every year. The threat of monsoon rain revolves around the heads of stakeholders and farmers but fortunately this occurs every 3 to 4 years. But when this phenomenon takes place it creates many problems for farmers in term of the loss of a major portion of their crops. Rain water is regarded as the major source of decay of dates present on the palm and lying over a vast land for drying purposes. The results of such monsoon rain take back farmer at least 3 years. It leaves no choice for farmers to borrow money from financiers to compensate their losses. Having such kind of scenario date processing plants and cold storage facilities are important in this regard. This paper is conducted because so far no work has been done on the date palm industry of Kech on this level.

Ghosh *et al*. (2010) concluded that particle board made from leaves of date palm can be used as an alternate of wood/plywood at low cost. They further suggested that date palm leave particle board may be used commercially for developing door/window panels, false ceiling, book shelf and packing material for fruits.

Agoudjila *et al*. (2011) investigated the thermophysical, chemical and dielectric properties of date palm wood and concluded that wood of date palm is a good example of renewable material in the development of efficient and safe insulating materials.

Methodology

It is known that investment is very important and essential and significant resource in the economic growth of any developing and developed countries.

The model can be expressed in the following manner

$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mu_i$

Where

Y is the economic growth rate of Balochistan.

X1 = area under annual production of dates .

X2 = price of dates

X3 = production of dates.

Description of variables

Economic growth (GDP) of Balochistan remained low and its share of national GDP is also low. Since the inception of Pakistan and declaring Balochistan as a province in 1970s the share of GDP of Balochistan remained low , their reasons for low growth vary from political and social to economic reasons.

GDP is taken as the dependent variable for this study because the production of dates is large and by collecting and evaluating data that its production might affect the economic growth of Balochistan.

Area under production is taken as independent variables for this study because by increasing area for production the production also increases, data for area under production is collected by agriculture department of Balochistan and the bureau of statistics of Pakistan. It is estimated that by evaluating data for the area it might give significant results. The yield of per date palm tree can be taken as independent variable but data for yield of per date palm tree is not available because it is not easy to collect data yield of per date palm tree because of the vastness of the area.

Production is taken as an independent variable because data for production is available and it can be estimated that the results for this variable gives positive results. By increasing production of date fruit the economic growth of Balochistan can be increased, it has some factors that affect the production.

Price is taken as independent variables for this study because price also affects the economic growth, when the prices of date fruit increases then it will affect the growth rate and it can be estimated that the results for this variable gives positive results.

Data sources

The data for this study was collected from the Agriculture Department of Balochistan. After gathering the data from different sources for this study initially the data will be checked that it is stationary or non stationary in time series data by applying unit root test it will be in first differences of level it means it is greater than critical region. A unit root is a characteristic of a process that the thing which has no name through time that can create crucial problems in statistical interfering if it will be not sufficient

INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

dealt with a date. A linear stochastic process has a unit root if there is a 1 root of the process's characteristic equation in the model. This process is non-stationary and it means it is not stationary because of critical value. If the additional roots of the quality equation lie within the unit circle that will be a modulus (absolute value) less than 1 then the first difference of the process will be stationary otherwise it will be no stationary.

Stationary data: Stationary does not transform when it will shift in time or space. As a result, parameters such as the mean and variance, if they exist in the model then do not change over time or position.

Non Stationary: Currant value prejudiced by the previous value or lag value.

Augmented dicky-Fuller (ADF) test will be applied to check stationarity of data.

Multi co-linearity

According to calculated statistics there is no multi co-linearity exist between the independent variable production of dates, prices of dates and area under production.

Normality test

We applied normality test to check that either data is normality distributed or not and the results are given in following table

Skewness	0.53496
Kurtosis	2.327753
Jarque-Bera	1.263108
Probabilty	0.531765

If the probability of JB is greater than 0.05 all series are normally distributed as shown in the results.

JB probability = 1.263108 indicating series are of normally distributed and OLS can apply.

Autocorrelation

The value of Durbin-Watson is 1.918241 which shows that here is no problem of autocorrelation exist in the model. If Autocorrelation exists in the model we cannot apply OLS.

Heteroscedasticity

A test to check heteroscedasticity is applied when cross sectional data are used. In our model time series data is used so there is no need to check the heteroscedasticity to apply OLS.

Ramsey RESET test

Ramsey RESET test is applied to check the stability of the model and this study find out that there is no instability in the model.

Linear model

Regression model should be linear to apply OLS if the model is non-linear OLS cannot apply.

This study depending on following a model that is linear so we apply OLS to estimate this model.

$$Y = \beta_0 + \beta_1 area + \beta_2 pro + \beta_3 price + \mu$$

Results
Unit root test

For unit root results apply Augmented Dicky-Fuller (ADF) test in the dependent and independent variables. ADF test results are shown in the following table:

Variables	ADF statistics	
	Level	First Difference
GDP	-2.416159	-10.265173
AREA UNDER PRODUCTION	-3.392305	-4.486067
PRODUCTION	-3.329702	-9.267166
PRICE	-3.344567	-12.960862

INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

The results in the table illustrate that all the variables are stationary at a conventional level as the practical values greater than 5% critical values shown in the table. Although, all the variables of this reading are stationary at first difference, because of this it is known that all observed values of variables are less than the 5% critical values according the above table.

Ordinary least squares (OLS):

The statistics of the general method of least squares or ordinary least squares (OLS) or a linear least squares regression line calculate of the unknown parameters in the model, this reaction is observed and overview and predicted or assume by the linear approximation of the vertical distance between the response the sum of the square to a minimum.

Variables	Coefficient	S.td Error	T-statitics
C	0.084289	1.210904	-1.8370
Area	0.063073	0.024171	2.609503
Production	0.005612	0.002870	4.955511
Price	0.000341	0.863456	3.955163

Discussion

The above results shows that there is a positive relationship between economic growth rate of Balochistan and area under production of date fruit, it shows that the results are significant. When the area under production of date fruit increases then the economic growth rate (GDP) increases the results shows its calculated t-statistics is 2.609503 which is greater than 2 it means it is significant.

The calculated t-statistics results for independent variable i.e. production is 4.955511 which is greater than 2 it means it has a positive relationship with the dependent variable. When the production increased then the economic growth of Balochistan has also increased, data of past years showed an increasing trend but in 1996 and 2006 it showed decreasing trend because due to monsoon rains and floods decreased the production and it affected the economic growth rate of Balochistan.

Prices of date fruit taken as the price per ton as independent variables in the model, the calculated t-statistics value of price is 3.955163 it shows it is greater than 2. The calculated results for price shows minor impact on economic growth rate of Balochistan as it is evident from the results that the prices of date fruit fluctuates year after year due to some factors, these factors can be summarized as monsoon rains and floods , during monsoon rains a large quantity of product is damaged due to monsoon rains. When the supply is short then its demand will be higher and in the same manner the prices will increase. According to the law of supply and demand when the supply increase then the demand also decreases in the same manner prices also decreases.

R^2	0.897794
F-statistics	8.993908
Prob(F-statistics)	0.00000

The value of R^2 is (0.897794) it means that the independent variables .i.e. prices of date fruit, production of date fruit and area under production of the study have 80% impact on the dependent variable .i.e. GDP of Balochistan.

F (statistics) is 8.993908 the value is greater than 6 which means the model is fitted.

Conclusion

This study attempts to estimate investment opportunities in date palm industry and impacts of investment opportunities on economic growth rate of Balochistan. District Kech of Balochistan was taken as the case study for this paper. Data were collected from the Agriculture Department of Balochistan and Bureau of Statistics Balochistan from 1992 to 2011. Unit Root Test was applied to check the stationary of data , the data were stationary so OLS technique was applied to the variables of this study. All variables showed that they have a positive relationship with dependent variable i.e. economic growth rate of Balochistan,

INTERNATIONAL JOURNAL OF RESEARCH SCIENCE & MANAGEMENT

independent variables i.e. annual production , area under production and prices affect the economic growth rate of Balochistan. It is evident from the estimated results that the annual production of date fruit affects the growth rate of Balochistan positively. Prices and area under production also affect the growth rate and investment opportunities in a positive manner but the effects of price on economic growth rate and investment opportunities are minor.

Policy implication
As it is evident from the data regarding prices of date fruit, prices are comparatively less from national and international market prices. The reason of low price is lack of processing plants , lack of organized markets and cold storage facilities , local framers sale they're produced to the middleman because they do afraid of losses due to unavailability organized markets and cold storage plants. So the local farmers sale they're produced to the middleman at cheaper rates.

Since, there are vast qualities an of dates found in Balochistan, especially in Kech, its approach many endearing investment prospects. Dates management is also one of such very feasible business opportunity. Inspite these vast capacities of very costly dates in Balochistan there is only an insignificant quantity of dates which is processed, packaged and retailed in the domestic and global markets. It gives attractive opportunities of corporate for any creative financier with entirely no contest. The formation of such units would severely change the business activities in Kech. This facility will inspire many investors to venture new options of vending their produce on a better price. This will also encourage current traders, middle men and global swapping houses for protecting more orders from high end markets.

Accessibility of land is the prime importance of such of pursuit, and it is easily vacant for the investors to invest in this specific industry.

Kech is the major area for the production of date palm as its soil is fertile, the weather is dry and hot. These weather conditions are efficient for the production of date palm. It is evident from the statistics of agriculture department of Balochistan that the product is easily and cheaply available in this region it means that raw materials (date fruit) is abundant.

References
1. Agoudjil B., A. Benchabane, A. Boudenne, L. Ibos and M. Fois. 2011. Renewable materials to reduce building heat loss: Characterization of date palm wood. Energy and buildings., 43: 491–497.
2. Al-Shahib, W and R. J. Marshall. 2003. The fruit of the date palm: its possible use as the best food for the future?. Int. J. Food Sci. and Nutr., 54(4): 247-259.
3. Al-Sulaiman, F. 2000. Mechanical properties of date palm leaves. Journal of reinforced plastics and composites., 19(17): 1379-1388.
4. Chowdhury, M. S. H., M. A. Halim, N. Muhammed, F. Haque and M. Koike .2008. Traditional utilization of wild date palm (*Phoenix sylvestris*) in rural Bangladesh: an approach to sustainable biodiversity management. J. For. Res., 19(3):245–251.
5. Chao, C. T. and R. R. Krueger. 2007. The Date Palm *(Phoenix dactylifera L.)*: overview of biology, uses, and cultivation. Hort science., 42(5): 1077-1082.
6. FAO. 1993. Palm products (excluding dates).Available (online): http://www.fao.org/docrep/t0681E/t0681e10.htm.
7. Ghosh, S. K., S. Sengupta and M. Naskar. 2010. Physio-mechanical properties of particle board from agro-wastes. Journal of scientific and industrial research., 69(5): 396-400.
8. Ismail, B., J. Henry, I. Haffar, and R. Baalbaki. 2006. Date consumption and dietary significance in the United Arab Emirates. J Sci Food Agric., 86: 1196–1201.
9. Khiari, R., E. Mauret, M. N. Belgacem, F. Mhemmi. 2011. Tunisian date palm rachis used as an alternative source of fibres for papermaking applications. Bio Resources., 6 (1): 265-281.
10. Movahed A., M. M. Mohammadi, S. Akbarzadeh , I. Nabipour , N. Ramezanian and N. Hajian. 2011. The heart of date palm: its nutritional and functional constituents. Iranian South Med J., 2: 100-5.
11. Mohammad ,H.A.,AM. Ali Dan and M.A.Rahman, 2001.The impact of government policy on the supply response of Malaysian palm oil, rubber and cocoa producers. Utara Manage. Rev.,2:41-64.