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Impact of Bit Coin on Trade and Commerce: (A Comparative Study of North Kashmir & Central Kashmir)

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Abstract
Bitcoin is a virtual currency and has been accepted as a mode of payment by many countries now-a-days.the main threat for Bitcoin are its vulnerability in the mining process as well as lack of security during the storage of coins on the online pools. To provide security against the attack, the framework of Bitcoin protocol need to be changed and the same will be accepted by all the users because Bitcoin is a decentralized crypto currency. The current study tries to determine the impact of Bitcoin on Trade and Commerce in the study area. After the analysis of data it was found that the two regions (viz Central Kashmir and North Kashmir) of the study area do not differ significantly with respect to socio-economic variables, general awareness about the bitcoin and impact of bitcoin of trade and commerce.
Keywords: Bitcoin, Volatility, Blockchain, Cryptocurrency, Mining.

1. Introduction

The concept of bit coin incepted with the white paper that was published in 2008 under the pseudonym 'Satoshi Nakamoto'. Bit coin being a virtual currency or monetary unit and hence has no physical representation. Bitcoin was implemented as open source code (public software or non-proprietary software) and the first bitcoin transaction occurred in January 2009 ***(http://historyofbitcoin.org).*** The main goal of creator behind creating the bit coin was to develop a cash-like payment system that permit electronic transactions but that also includes many of the advantageous features of physical cash. Bit coin was published via a mailing list for cryptography and has a like appearance as an academic paper. A bit coin unit is divisible and can be divided into one hundred million 'Satoshis' the basic fraction of bit coin. Satoshi Nakamoto described bit coin as "Peer-to-Peer electronic cash system" ***(http://bitcoin.org/ bitcoin.pdf)*** that would be fundamentally different from the traditional currency system due to the absence of any central third-party mediators (central banks, credit card companies and the like). All the past bit coin transactions are recorded in the bit coin block chain. A block chain is a data file that carries the record of all past bit coin transactions. Moreover, the bit coin block chain is often referred to as the ledger of the bit coin system. The block chain consists of a sequence of blocks where each block builds on its predecessor and contains information about new bit coin transactions. The first block, block #0 was created in 2009 and the average time between bit coin blocks is 10 minutes. The block #494600 was added as the most recent block to the chain. Bitcoin Blockchain is a public record as everyone can download and read it. Besides, it is a ledger that contains bitcoin ownership information for any point of time.

For using the Bitcoin system, a person has to download a bitcoin wallet. A bitcoin wallet is software that permits in receiving, storing and sending of fractions of bitcoin units. Than subsequently the next step is to exchange flat currencies such as the US dollar for bitcoin units. The most common way is to open an account at one of the many bitcoin exchanges and to transfer flat currency to it. It is the account holder who can use these funds to buy bitcoin units or one of the many other cryptoassets on the exchange. Due to the widespread adoption of bitcoin, the pricing on large exchange is very competitive with relatively small bid-ask spreads. Most exchanges offer order books and many other financial tools that make the trading process as transparent as possible.

Bitcoin Mining

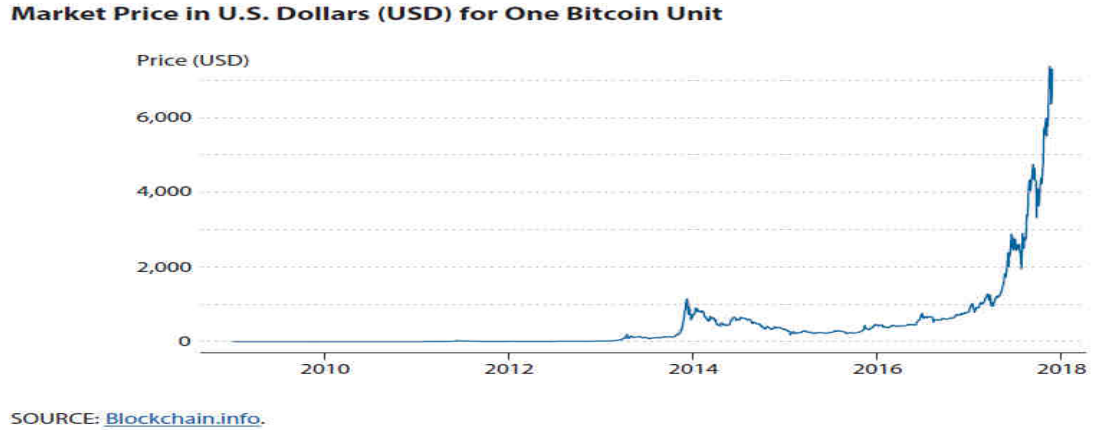
In order to understand the mechanism of bitcoin system, we are bound to discuss the role of a miner. A miner gathers pending bitcoin transactions, verify their legitimacy and assemble them into what is known as a 'block candidate'. The motive is to earn newly created bitcoin units through this activity. The miner can succeed in doing this if he or she can convince all other network participants to add his or her block candidate to their copies of the Bitcoin Blockchain. For bitcoin mining there is no need to seek permission, anyone can become a miner by downloading the required software and the most recent copy of the Bitcoin Blockchain. However, in practice, there are a few large miners that produce most of the new generally accepted blocks. The reason being the competition is too hard and fierce that only large mining farms with highly sophisticated hardware and access to cheap electricity can still make a profit from mining. For a block candidate to be generally accepted, it must fulfill a specific set of predefined criteria. For example, all included transactions must be legitimate. Another important criterion is the so-called "fingerprints" of the block candidate. A miner obtains this fingerprint by

computing the block candidates hash value using the hash function Dsha256.

Miners are constantly endeavoring to find block candidates that have a hash value satisfying the above mentioned criterion. For this reason, a block includes a data field containing arbitrary data. The miners try to modify this arbitrary data in order to gain a new fingerprint. These modifications do not affect the set of included transactions, and every modification results in a new hash value. most of the time, the hash value lies above the threshold value and the miner discards the block candidate. If however a miner succeeds in creating a block candidate with a hash value below the current threshold value, he or she broadcasts the block candidate as quickly as possible to the network. All the other network participants can then easily confirm that the fingerprint satisfies the threshold criterion by computing it themselves.

Price Volatility of Bitcoin

The price of bit coin is highly volatile that is its price fluctuates tremendously. Most Bitcoin users believe that Bitcoin's limited supply will result in deflation i.e. they are convinced that its value will forever increase. Indeed, till this time we have experienced a spectacular price increase from essentially a value of $0 for one bitcoin unit in 2009to a value of over $7000 at this time. The following figure clearly reveals the fact:



SOURCE: Blockchain.info.

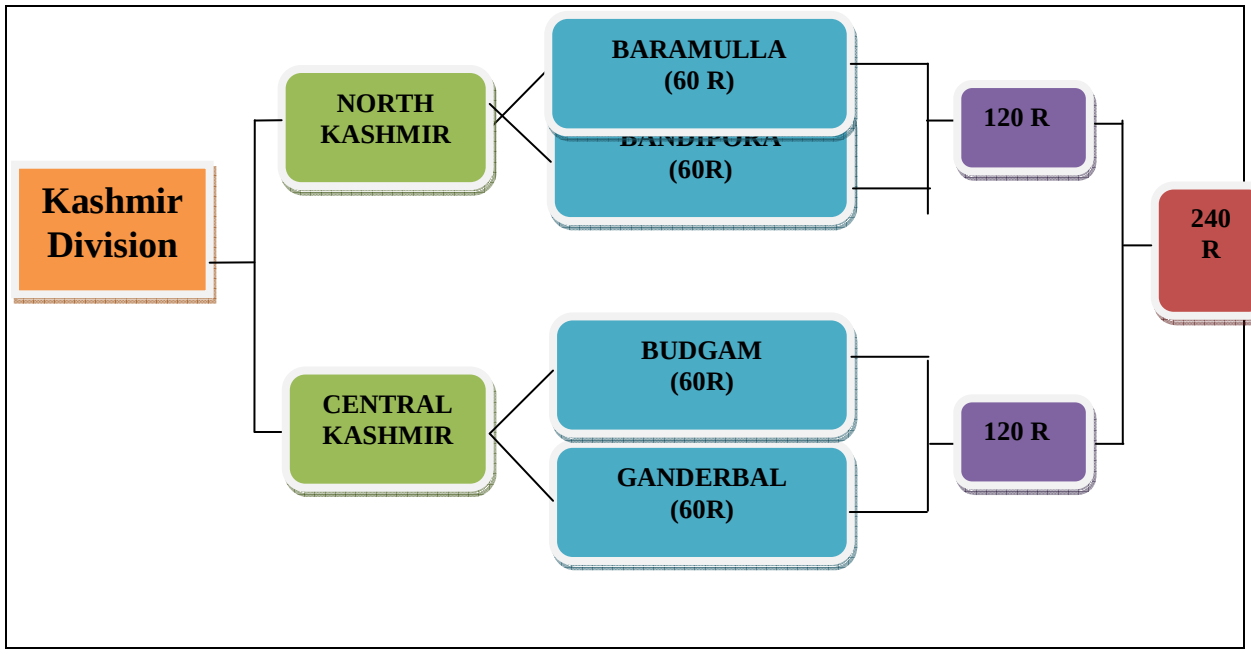
2. Literature Review of Bitcoin

Bitcoin has enjoyed wider adoption than any previous cryptocurrency, yet its process also attracted the attention of fraudsters at every step. The researchers examined the potential disestablishing effects of emerging digital currencies like bitcoin, a decentralized partially anonymous and largely unregulated particular well-liked in past few years. The main threat for bitcoin are its vulnerability in the mining process and transactions and lack of security during the storage of coins on the online pools (Butwall & Soni, 2015). The price return and volatility changes in Bitcoin Market were studied and the analysis depicts a negative relationship between the US Implied Volatility Index (VIX) and bitcoin realized volatility (E.Bourie & Dyhrberg, 2016)**.** The value of bitcoin and its relationship to various financial data like the Dow Jones, FTSE 100, WTI Oil and Nikkei 225 was inspected, and the findings reveal that the WTI oil price and the Euro-Dollar exchange rate have a significant impact on the price of bitcoin in the short run, but only the Dow Jones has a significant impact on the value of bitcoin in the long run. The researchers have also found that other variables like the Dollar-Yen exchange rate and the Nikkei 225 have no statistically significant effect on the formation of Bitcoin price (Wijk, 2013)**.** The relationship between Bitcoin price and the interest in the currency as measured by online searches in Wikipedia and Google was examined and was concluded that not only there exists a strong correlation between price level and the queries in Wikipedia and Google, but also found a strong bidirectional casual relationship between the price and the searched items (Kristoufek, 2015)

3. Research Design

Universe: All the businessman and employees who are above the age of 18 years and below 80 years forms the universe of the study.

Sample selection: Two districts from North Kashmir and two from Central Kashmir have been selected on the simple random sampling basis. From each district 60 respondents have been chosen, thus the total size of sample is 240. Moreover, the following figure clearly depicts the sample selection:



Objectives of the study

1. To understand the theoretical concept of Bitcoin
2. To analyze the socio-economic profile of respondents
3. To evaluate the impact of bit coin on trade and commerce within the study area.

Hypothesis

$H0_1$: There is no significant difference between the central Kashmir and North Kashmir with respect to socio-economic profile of respondents.

$H0_3$: The two regions do not differ significantly with respect to general awareness about bitcoin.

$H0_2$: The impact of bit coin on trade and commerce in North Kashmir and Central Kashmir do not differ significantly.

Data Collection

The present study is descriptive as well as analytical in nature. Both primary and secondary data were used for the study. Primary data forms the backbone for meeting the objectives of the study and has been collected from employees and businessmen by using a well administered interview schedule. Besides, the secondary data was also collected from journals, periodicals, books, websites, reports and so on and so forth.

Tools and Techniques used

In order to test the hypothesis, there is no significant difference between the Central Kashmir and North Kashmir with respect to socio-economic profile of respondents and the impact of bit coin on trade and commerce in North Kashmir and Central Kashmir do not differ significantly *Chi Square* (χ^2) test and *Independent Sample T test* have been respectively made use of. The whole analysis of data was done in the Statistical Package for Social Science (SPSS) and the hypotheses were tested at 5% level of Significance ($\alpha=0.5$).

4. Discussion and Results

Before starting the actual discussions, we would like to know the reliability of data. For knowing the reliability, Cronbach's alpha is computed. In the case of socio-economic variables, the data has 85% reliability, as depicted by the reliability statistics table.

Reliability Statistics	
Cronbach's Alpha	Number of Items
.850	5

$H0_1$: *There is no significant difference between the central Kashmir and North Kashmir with respect to socio-economic profile of respondents.*

For testing the hypothesis, "there is no significant difference between the Central Kashmir and North Kashmir with respect to socio-economic profile of respondents" Chi square test have been used. The output of the data reveals that there is no significant difference between the two regions viz. Central Kashmir and North Kashmir with respect to Gender, Age group, Income, Qualification. Hence, our first hypothesis gets accepted.

The correlation matrix shows the correlation between the various socio-economic variables. Gender and

age, Income and Gender, qualification and Gender, Income and Qualification have a significant correlation whereas region and Gender, Region and age, region and Income and region and qualification have insignificant correlation between themselves.

Variables		Central Kashmir		North Kashmir		REMARKS
		No.	%age	No.	%age	**P value (.105)> α Value (0.05)**, Hence we can conclude that the two regions do not differ significantly with respect to Gender.
Gender	Male	84	(70)	72	(60)	
	Female	36	(30)	48	(40)	
Age Group	18-30	12	(10)	24	(20)	***P Value (.098) > α Value (0.05),*** thus we can declare that there is no significant difference between the two region with respect to age group.
	30-40 years	40	(33)	36	(30)	
	40-60 Years	48	(40)	36	(30)	
	60-80 Years	20	(17)	24	(20)	
Income	Upto 2 lakh	20	(17)	30	(25)	**P value (.158) > α Value (0.05)**, therefore we have enough grounds to conclude that the two regions do not differ significantly with respect to Income.
	2 lakh to 5 lakh	42	(35)	48	(40)	
	5 lakh to 10 lakh	36	(30)	24	(20)	
	60 lakh-80 lakh	22	(18)	18	(15)	
Qualification	Upto 12th	12	(10)	24	(20)	**P value (.063) > α Value (0.05)**, so again we can say that there is no significant difference between Central Kashmir and North Kashmir with respect to qualification of respondents.
	Graduation	24	(20)	20	(17)	
	P.G/ B.Ed./	46	(38)	36	(30)	
	Professional/Technical	30	(25)	24	(20)	
	M.Phil/ Ph. D	8	(7)	16	(13)	

Source: Primary Survey

Correlation Matrix

		Region	Gender	Age	Income	Qualification
Region	Pearson Correlation	1	.105	-.070	-.126	-.035
	Sig. (2-tailed)		.105	.281	.051	.588
Gender	Pearson Correlation		1	.735	.762	.773
	Sig. (2-tailed)			.000	.000	.000
Age	Pearson Correlation			1	.910	.920
	Sig. (2-tailed)				.000	.000
Income	Pearson Correlation				1	.911
	Sig. (2-tailed)					.000
Qualification	Pearson Correlation					1

General Awareness about Bitcoin

Ho: The two regions do not differ significantly with respect to general awareness about bitcoin.

The calculated value of Chi square is less than the Table value in all the below cases, hence we accept the hypothesis and can conclude that the two regions do not differ significantly with respect to general awareness about bitcoin.

In Central Kashmir 65% of the respondents are aware about the concept of bitcoin whereas 60% are aware about the concept of bitcoin in North Kashmir.30% and 32% of the respondents have made investment in Central Kashmir and North Kashmir respectively. 25% of the respondents of Central Kashmir are ready to recommend others to invest in bitcoin whereas 28% respondents of North Kashmir recommend others to invest in bitcoin. For more detailed information, please refer to the following table:

Q1. Are you aware about the concept of bit coin?							
Response	Central Kashmir		North Kashmir		Cal. Value χ^2	Tab. Value χ^2	Remarks
	Number	%age	Number	%age	.640	3.841	**H_0: Accepted**
Yes	78	65	72	60			
No	42	35	48	40			
Q2. Have you ever made the investment in bit coin?							
Response	Central Kashmir		North Kashmir		Cal.value χ^2	Tab. Value χ^2	Remarks
	Number	%age	Number	%age	.078	3.841	**H_0: Accepted**
Yes	36	30	38	32			
No	84	70	82	68			

Q3. Would you recommend others to invest in bit coin?							
Response	Central Kashmir		North Kashmir		Cal.value χ^2	Tab. Value χ^2	Remarks
	Number	%age	Number	%age	.194	3.841	**H_0: Accepted**
Yes	30	25	33	28			
No	90	75	87	62			

Source: Primary Survey

Impact of Bitcoin on Trade and Commerce

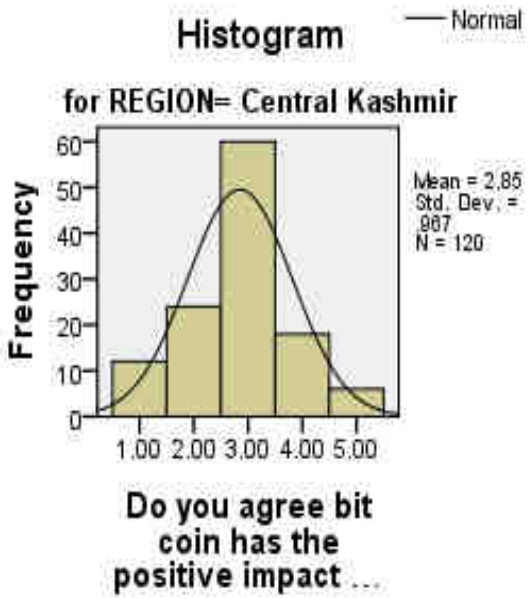
Ho_2: *The impact of bit coin on trade and commerce in North Kashmir and Central Kashmir do not differ significantly.*

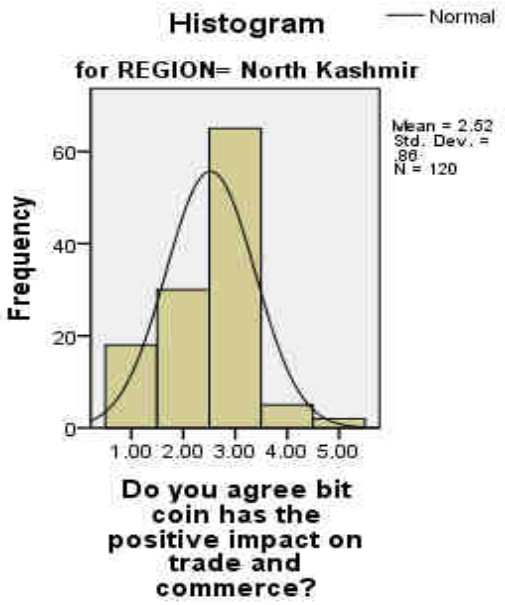
For testing the above hypothesis, Independent Sample T test has been used. The normality and homogeneity of variance of data have been effectively tested through Statistical Package for Social Science. In order to know whether the data is normally distributed or not, its Skewness value has been computed. The data with zero skewness is reckoned to possess high degree of normality. The more it diverges from zero the less would be the normality of data.

Besides, for obtaining the assumptions of Homogeneity of Variance, Levene's test has been made use of. If sig. value of Levene's test is more than .05 the data is said to possess normality as well as homogeneity of variance. Moreover, while performing the Independent T test, we along with the T test for equality of means also get Levene's test for equality of variances as output. The P value of Levene's test is used to check the normality of data. If P value of Levene's test is more than .05, subsequently we can conclude that our data is normally distributed otherwise not.

Q1. Do you agree bit coin has the positive impact on trade and commerce?				
Response	Central Kashmir		North Kashmir	
	Frequency	Percentage	Frequency	Percentage
Strongly Agree	12	10	18	15
Agree	24	20	30	25
Not Sure	60	50	65	54
Disagree	18	15	5	4
Strongly Disagree	6	5	2	2

Source: Primary Survey





Normalcy of data related to Q1.			
Skewness		Mean Difference	Levene's test for homogeneity of Variance (P Value)
Central Kashmir	North Kashmir	.325	
-.033	.200		.891

Independent Samples Test

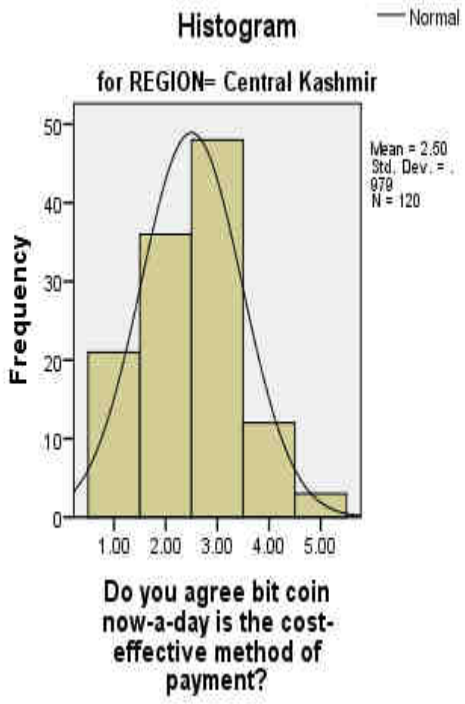
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Do you agree bit coin has the positive impact on trade and commerce?	Equal variances assumed	.019	.891	2.752	238	.006	.32500	.11812
	Equal variances not assumed			2.752	234.768	.006	.32500	.11812

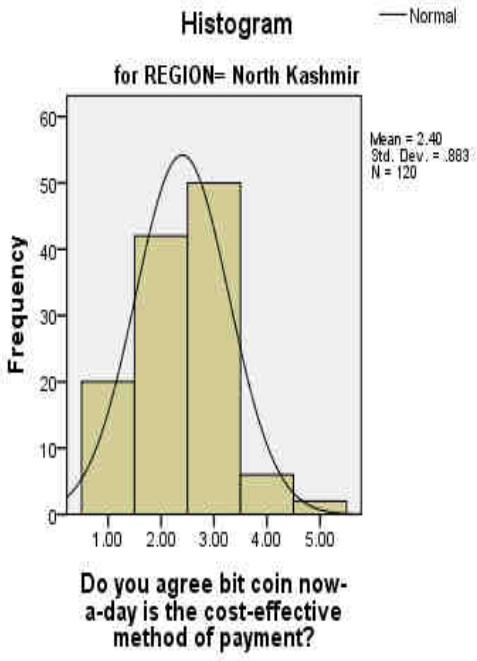
The data is normally distributed with respect to Central Kashmir and North Kashmir, as is quite evident from the histogram and skewness figure which is very close to zero. Again there is homogeneity of variance since P value of Levene's test is much higher than the level of significance. Thus, the assumptions necessary for using the parametric test are satisfied.

The mean difference between the two regions is .32500, now in order to know whether the difference is significant or not we would look at the P value of the T test. If P value is higher than the alpha value, the difference is regarded as insignificant or vice versa. In the above case, the sig value (.006) is less than the level of significance (0.05). Hence, we can conclude that the mean difference between the two regions is significant.

Q2. Do you agree bit coin now-a-day is the cost-effective method of payment?				
Response	Central Kashmir		North Kashmir	
	Frequency	Percentage	Frequency	Percentage
Strongly Agree	21	17	20	17
Agree	36	30	42	35
Not Sure	48	40	50	41
Disagree	12	10	6	5
Strongly Disagree	3	3	2	2

Source: Primary Survey





Normalcy of data related to Q1.			
Skewness		Mean Difference	Levene's test for homogeneity of Variance (P Value)
Central Kashmir	North Kashmir	.100	
.164	.161		.221

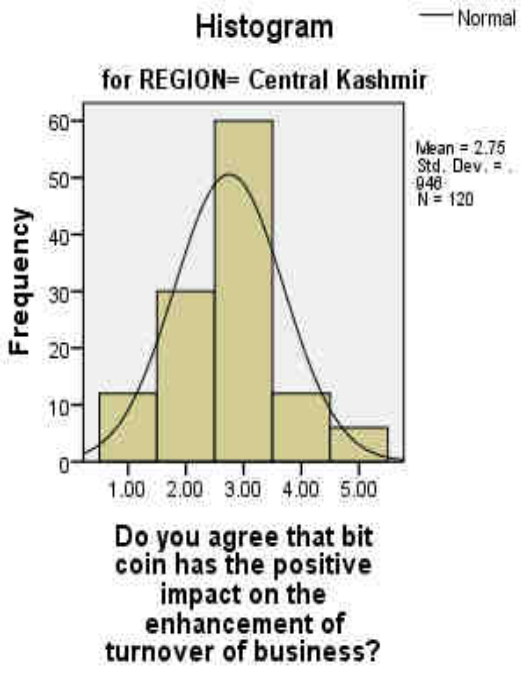
Independent Samples Test

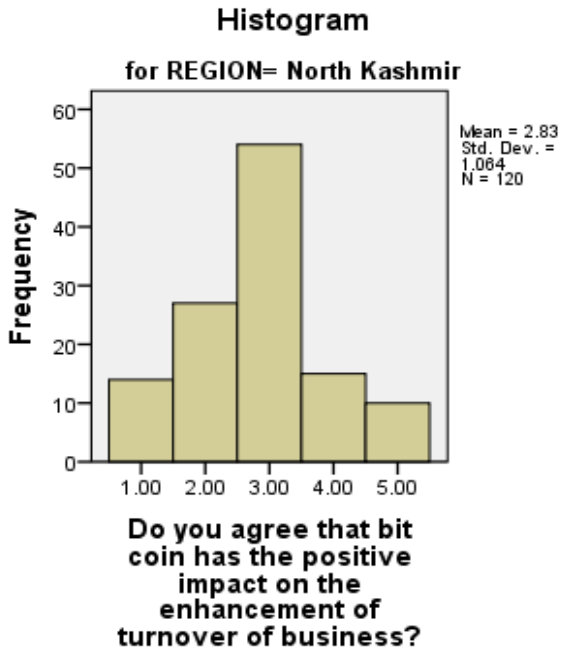
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Do you agree bit coin now-a-day is the cost-effective method of payment?	Equal variances assumed	1.505	.221	.831	238	.407	.10000	.12034
	Equal variances not assumed			.831	235.525	.407	.10000	.12034

It is quite evident from the above histogram and skewness figure that the data is normal and P value of Levene's test exhibits the homogeneity of variance as P value of Levene's test is higher than the level of significance. Besides, the sig value of T test depicts that the mean difference between the two regions is not significant.

Q3. Do you agree that bit coin has the positive impact on the enhancement of turnover of business?				
Response	Central Kashmir		North Kashmir	
	Frequency	Percentage	Frequency	Percentage
Strongly Agree	12	10	14	12
Agree	30	25	27	22
Not Sure	60	50	54	45
Disagree	12	10	15	13
Strongly Disagree	6	5	10	8

Source: Primary Survey





Normalcy of data related to Q1.			
Skewness		Mean Difference	Levene's test for homogeneity of Variance (P Value)
Central Kashmir	North Kashmir	-.083	
.159	.170		.355

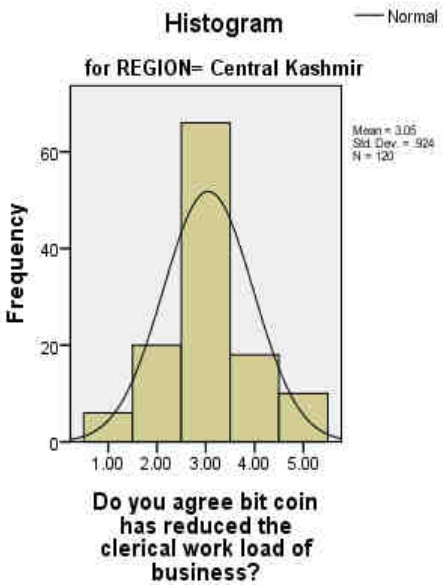
Independent Samples Test

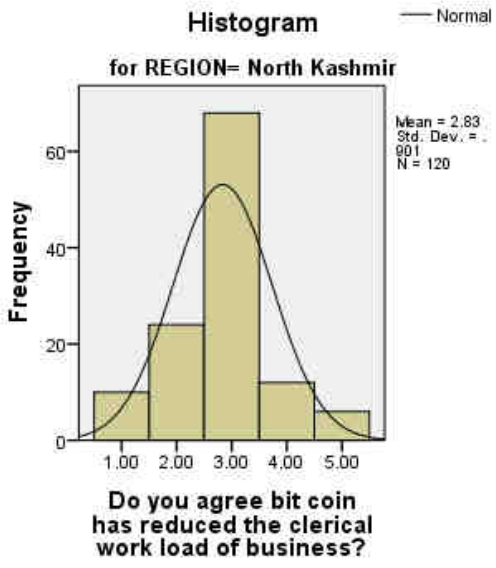
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Do you agree that bit coin has the positive impact on the enhancement of turnover of business?	Equal variances assumed	.857	.355	-.641	238	.522	-.08333	.12996
	Equal variances not assumed			-.641	234.797	.522	-.08333	.12996

Again the data is normally distributed as is depicted by histogram and skewness figures. In addition to this, there is homogeneity of variance because the level of significance is much less than the P value of Levene's test. The P value of the T test for Equality of Means states that the Mean Difference is not significant.

Q4. Do you agree bit coin has reduced the clerical work load of business?				
Response	Central Kashmir		North Kashmir	
	Frequency	Percentage	Frequency	Percentage
Strongly Agree	6	5	10	8
Agree	20	17	24	20
Not Sure	66	55	68	57
Disagree	18	15	12	10
Strongly Disagree	10	8	6	5

Source: Primary Survey





Normalcy of data related to Q4.			
Skewness		Mean Difference	Levene's test for homogeneity of Variance (P Value)
Central Kashmir	North Kashmir	.216	
.159	.057		.736

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Do you agree bit coin has reduced the clerical work load of business?	Equal variances assumed	.114	.736	1.838	238	.067	.21667	.11786
	Equal variances not assumed			1.838	237.847	.067	.21667	.11786

The histogram and Skewness figure states that the data is normally distributed. Besides equal variances are assumed as sig. value of Levene's test is greater than the level of significance. For testing whether the mean difference is significant or not, P value of T test is compared with alpha level. Here, P value is greater than alpha value, hence the mean difference will be regarded as insignificant.

Conclusion

The Intention behind creating the Bitcoin was to develop a decentralized cash-like electronic payment system. In this process they faced the fundamental challenge of how to establish and transfer digital property rights of a monetary unit without a central authority. They solved this challenge by inventing the Bitcoin Blockchain. The findings of the study reveal that majority of the respondents do not make investment in bitcoin because of the main two reasons viz. price volatility and lack of central regulating authority. Moreover, it was also found that the mean difference between the two regions is significant with respect to question "Do you agree Bitcoin has a Positive Impact on Trade and Commerce".

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