

A Study on Recession Effect on Diamond Brokers During 2008-09

(Income, Brokerage of Diamond and Working Hours)

Mr. Rutulkumar Trikambhai Sutariya

Lecturer in Statistics, Shree J.D. Gabani Commerce College and Shree S.A.S. College of Management, Surat. (India)

Abstract

The recent global recession and its effects are all pervasive, the only difference is huge. Diamond is the main contributor to India's total exports. Of this total diamond export from India contributes more than 12 percent. Gujarat is one of the largest players in diamond processing (cutting, polishing and brokerage) and contributes around 72 percent of India's total exports. As the diamond industry is mainly an export-based industry, during the recession it is negatively affected. This article is an attempt to assess the effect of the 2008-09 diamond brokerage recession (income, diamond brokerage and hours of work) on diamond brokers. The document is a survey of diamond brokers in Surat city on primary and secondary data that was collected from 130 diamond brokers in the diamond industry located in Surat of Gujarat. The Survey concludes that the recent recession has negatively affected the socio-economic condition of the diamond worker and that the social and economic benefits program for those affected is failing to support him. The study will also attempt to determine how to deal with the brokers' strategy and the impact of the employment guarantee and other social security measures initiated by the government. Either way, the recession is happening again; what precautions diamond brokers, workers and government need to take in advance. This study focuses on effect of recession on income, brokerage and working hours of diamond brokers at Surat city.

Key Words: Recession, Diamond broker, Income, working hours, Surat.

1. Introduction

Gujarat is the fastest growing provincial economy on the Indian subcontinent. The main driving forces behind Gujarat's strong economic growth are energy, oil and gas, agribusiness, Textiles, diamonds, petrochemicals, engineering, SEZs, medical tourism, biotechnology and that. The diamond cutting and polishing being export oriented, add greatly to the State GDP and economic growth. Gujarat contributes about 72 percent of total exports from India. Gujarat accounts for around 80 percent of processed diamonds and 90 percent of the export of diamonds from India. Surat owns 65 percent of the diamond trade in India. Diamonds worth \$ 9 billion are being processed in Gujarat, accounting for 80 percent of India's total diamond exports, according to official data. At this point it is important to

understand the impact of the economic recession on workers and their livelihoods as workers is an important factor of production in any business or enterprise, including diamond industry. The livelihood and efficiency of the worker have a key role to play. Like diamond cutting and polishing are essential to the entire diamond supply chain; its performance is essential to the livelihoods of the millions of workers involved in mining as well as retail. Further it has enormous backward and forward linkages that provide additional livelihoods for millions of people. Keeping in mind the importance of diamond broking activity, this paper would try understand in detail the impact of the global economic recession on the livelihoods of diamond brokers in Surat city; despite the fact that the size of the diamond the industry has recovered and there is now an excess demand for brokers. Gujarat is now facing a shortage of about two lakh (200,000) of workers. This shortage is linked to the recession and it is therefore important to analyze the impact of the economic recession in order to that in the years to come, if the recession occurs again, industry and workers will be able to resist any pressure from such economic vagaries.

Surat is one of the most economically progressive cities in Gujarat. Gujarat is one of the most economically progressive provinces in the Indian subcontinent. The diamond industry and diamond brokers have played an important role in the strong economic growth estimated at 12% of SGDP per year. It is estimated that the city of Surat alone employs 4.5 Lakhs in the diamond industry and around 1 million people work in the diamond industry. Rough and cut diamonds worth \$ 43 billion are imported from Antwerp to Surat and other towns in the Saurashtra region in the state of Gujarat and are polished here and still exported to countries like the United States and other European countries. Under the onslaught of the global recession, especially in the United States, the fate of millions of these workers has become uncertain and have lived dignified lives. The plight of the brokers has been reported in the media and even the film industries have captured the plight in the lives of the workers. Most diamond units closed in mid-2008 and virtually all diamond industries closed in early 2009. Diamond brokers migrated to their villages and relied on cultivation and other non-farm activities such as weaving, selling vegetables, tailoring and dressmaking, embroidery and so on. It is interesting to note that workers cope with the change of situation by accepting another job. Keeping the sad plight of workers, this paper would try to understand the impact of the global recession on the livelihoods of diamond brokers through a primary field study of Saurashtra and southern Gujarat.

2. Objectives:

- To find the effect of recession on income of diamond brokers.
- To find the effect of recession on brokerage of diamonds.
- To find the effect of recession on working hours of diamond brokers.

3. Hypothesis:

- H₀: "There is no significant difference between monthly income before recession and after recession"
- H₁: "There is significant difference between monthly income before recession and after recession"

H₀: “There is no significant difference between monthly brokerage of diamonds in carats before recession and after recession”

H₁: “There is significant difference between monthly brokerage of diamonds in carats before recession and after recession”

H₀: “There is no significant difference between average working hours per day before recession and after recession”

H₁: “There is significant difference between average working hours per day before recession and after recession”

4. Analysis of data:

Distribution of the diamond brokers on the basis of Recession effect:

Recession effect	No. of Brokers	Percentage
Yes	114	87.7
No	16	12.3
Total	130	100

The study of above table represents the information regarding to the effect of recession in diamond industry. From the above table we can conclude that there are 87.7% diamond broker says that recession affects their work, and 12.3% says that there is no effect of recession on their work.

Distribution of the diamond brokers on the basis of improvement in this profession after recession:

Improve	No. of Brokers	Percentage
Yes	91	70.00
No	39	30.00
Total	130	100

The figure mentioned in above table clarifies that out of 130 diamond brokers, 91 diamond brokers with 70% are believe that there is improvement in this profession after recession and 39 diamond brokers with 30% are believe that there is no improvement in this profession after recession.

Distribution of the diamond brokers on the basis of another work during recession:

Extra work	No. of Brokers	Percentage
Yes	36	27.7
No	94	72.3
Total	130	100

From the above table we can conclude that there is 27.7% diamond broker work for extra time due to recession and 72.3% diamond broker are not work for extra income because of recession. Some of diamond brokers migrated back to their village and fall back upon cultivation and other non-farm activities like weaving, vegetable vending, sewing and stitching, embroidery and so on.

Distribution of the diamond brokers on the basis of income of diamond brokers before recession, during recession and after recession:

Income Group	No. of diamond brokers		
	Before Recession	During Recession	After Recession
0 - 20,000	109 (83.85%)	120 (92.31%)	94 (72.31%)
20,001 - 40,000	9 (6.92%)	2 (1.54%)	21 (16.15%)
40,001 - 60,000	4 (3.08%)	3 (2.31%)	2 (1.54%)
60,001 - 80,000	1 (0.77%)	4 (3.08%)	0 (0%)
80,001 - 100,000	6 (4.62%)	1 (0.77%)	6 (4.62%)
100,001 - 150,000	1 (0.77%)	0 (0%)	3 (2.31%)
150,001 - 200,000	0 (0%)	0 (0%)	4 (3.08%)
Total	130	130	130

Note: Figures in brackets represents percentage to total.

Analyses of above table express the economical variation in the monthly income of diamond brokers during the span of recession, before recession and after recession. Before recession, out of 130 diamond brokers, 109 with 83.85% were have income up to Rs. 20000 per month, 9 brokers with 6.92% were have in come between Rs.20001 to 40000 per month, 4 diamond brokers with 3.08% were earned between Rs. 40001 to 60000 per month, one broker with 0.77% was earned between Rs. 60001 to 80000 per month, 6 diamond brokers with 4.62% were earned between Rs. 80001 to 100000 per month and only one broker with 0.77% was earned between income group Rs. 100001 to 150000 per month. **The average monthly income of diamond brokers were Rs. 19446.15 before recession.**

During recession, out of 130 diamond brokers, 120 with 92.31% were earned income up to Rs. 20000 per month, 2 brokers with 1.54% were earned income between Rs.20001 to 40000 per month, 3 diamond brokers with 2.31% were earned between Rs. 40001 to 60000 per month, 4 diamond brokers with 3.08% was earned between Rs. 60001 to 80000 per month and only one diamond broker with 0.77% were earned between Rs. 80001 to 100000 per month. **The average monthly income of diamond brokers were Rs. 12192.30 during recession.**

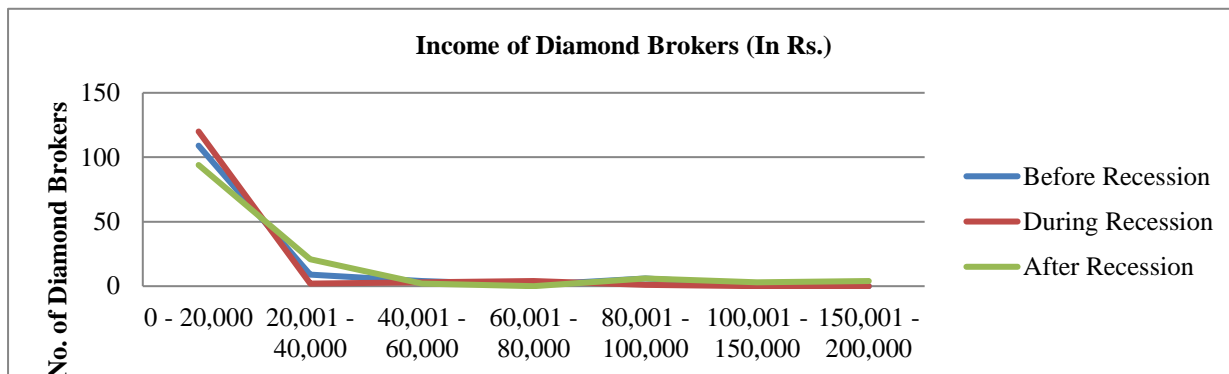
After recession, out of 130 diamond brokers, 94 with 72.31% are earning income up to Rs. 20000 per month, 21 brokers with 16.15% are earning income between Rs.20001 to 40000 per month, 2 diamond brokers with 1.54% are earning between Rs. 40001 to 60000 per month, 6 diamond brokers with 4.62% are earning between Rs. 80001 to 100000 per month, 3 diamond brokers with 2.31% are earning between income group Rs. 100001 to 150000 per month and 4 diamond brokers with 3.08% are earning between Rs. 150001 to 200000 per month. **The average monthly income of diamond brokers are Rs. 28061.53 after recession.**

Chart: 5.9:

Wilcoxon Signed Ranks Test:

H₀: "There is no significant difference between monthly income before recession and after recession"

H₁: “There is significant difference between monthly income before recession and after recession”



Ranks				
		N	Mean Rank	Sum of Ranks
monthly income after recession - monthly income before recession	Negative Ranks	4 ^a	11.75	47
	Positive Ranks	82 ^b	45.05	3694
	Ties	44 ^c		
	Total	130		
a. monthly income after recession < monthly income before recession				
b. monthly income after recession > monthly income before recession				
c. monthly income after recession = monthly income before recession				

Test Statistics ^b	
	monthly income after recession - monthly income before recession
Z	-7.865 ^a
Asymp. Sig. (2-tailed)	0
a. Based on negative ranks.	
b. Wilcoxon Signed Ranks Test	

Interpretation:

Here the test is performed at 95% confidence level (i.e., the chance of occurring type 1 error is 5%) and the p-value comes out as 0.000 which is less than 0.05, it means that the Null Hypothesis H₀ can be rejected. Therefore, we can say that the average monthly incomes after recession and before recession are not same. There is significant difference in average monthly incomes before recession and after recession.

Distribution of the diamond brokers on the basis of monthly brokerage of diamonds in carats before recession, during recession and after recession:

Carats	No. of Diamond Brokers		
	Before Recession	During Recession	After Recession
1-100	43 (33.08%)	72 (55.38%)	28 (21.54%)
101-200	29 (22.31%)	24 (18.46%)	23 (17.69%)
201-300	16 (12.31%)	10 (7.69%)	10 (7.69%)
301-400	14 (10.77%)	2 (1.54%)	6 (4.62%)
401-500	6 (4.62%)	6 (4.62%)	18 (13.85%)
501-600	1 (0.77%)	1 (0.77%)	6 (4.62%)
601-700	0 (0%)	0 (0%)	5 (3.85%)
701-800	0 (0%)	3 (2.31%)	8 (6.15%)
801-900	3 (2.31%)	0 (0%)	1 (0.77%)
901-1000	4 (3.08%)	4 (3.08%)	4 (3.08%)
1001-5000	11 (8.46%)	7 (5.38%)	16 (12.31%)
5001-10,000	1 (0.77%)	0 (0%)	3 (2.31%)
10,001-20,000	1 (0.77%)	1 (0.77%)	1 (0.77%)
20,001-30,000	1 (0.77%)	0 (0%)	0 (0%)
30,001-40,000	0 (0%)	0 (0%)	1 (0.77%)
Total	130	130	130

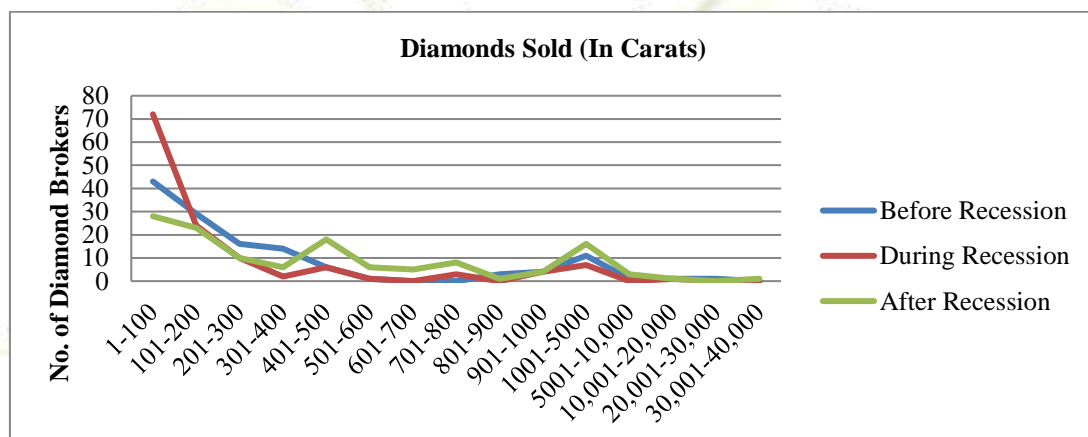
Note: Figures in brackets represents percentage to total.

The above table shows the data of monthly brokerage of diamonds in carats before recession, during recession and after recession. Before recession out of 130 diamond brokers, 43 brokers with 33.08% were transaction of brokerage diamonds between 1-100 carats, 29 transaction of brokerage with 22.31% were transaction of brokerage diamonds between 101-200 carats, 16 brokers with 12.31% were brokered between 201-300 carats, 14 brokers with 10.77% were transaction of brokerage between 301-400 carats, 6 brokers with 4.62% were transaction of brokerage between 401-500 carats, 1 broker with 0.77% were transaction of brokerage between 501-600 carats, no one brokers between 601-700 carats and 701-800 carats group, 3 brokers with 2.31% were transaction of brokerage between 801-900 carats, 4 brokers with 3.08% were transaction of brokerage between 901-1000 carats, 11 brokers with 8.46% were transaction of brokerage between 1001-5000 carats, 1 diamond brokers with 0.77% were transaction of brokerage between 50001-10000 carats, 1 diamond brokers with 0.77% were transaction of brokerage between 10001-20000 carats and 1 diamond brokers with 0.77% were transaction of brokerage between 20001-30000 carats per month. **The average transaction of diamonds was 831.40 carats per month before recession.**

During recession out of 130 diamond brokers, 72 diamond brokers with 55.38% were transaction of brokerage between 1-100 carats per month, 24 diamond brokers with 18.46% were transaction of brokerage between 101-200 carats, 10 diamond brokers with 7.69% were transaction of brokerage between 201-300 carats, 2 diamond brokers with 1.54% were transaction of brokerage between 301-400 carats, 6 brokers with 4.62% were transaction of brokerage between 401-500 carats, 1 broker with 0.77% were transaction of brokerage between 501-600 carats, 3 brokers with 2.31% were transaction of brokerage between 701-800 carats, 4 brokers with 3.08% were transaction of brokerage between 901-1000 carats, 7 brokers with 5.38% were transaction of brokerage between 1001-5000 carats and one

diamond broker with 0.77% were transaction of brokerage between 10001-20000 carats per month. **The average transaction of diamonds was 466.48 carats per month during recession.**

After recession out of 130 diamond brokers, 28 diamond brokers with 21.54% have transaction between 1-100 carats per month, 23 diamond brokers with 17.69% have transaction between 101-200 carats, 10 diamond brokers with 7.69% have transaction between 201-300 carats, 6 diamond brokers with 4.62% have transaction between 301-400 carats, 18 diamond brokers with 13.85% have transaction between 401-500 carats, 6 diamond brokers with 4.62% have transaction between 501-600 carats per month, 5 diamond brokers with 3.85% have transaction between 601-700 carats, 8 diamond brokers with 6.15% have transaction between 701-800 carats, 1 diamond broker with 0.77% have transaction between 801-900 carats, 4 diamond brokers with 3.08% have transaction between 901-1000 carats, 16 diamond brokers with 12.31% have transaction between 1001-5000 carats, 3 diamond brokers with 2.31% have transaction between 5001-10000 carats, 1 diamond broker with 0.77% have transaction between 10001-20000 carats and also between 30001-40000 carats per month. **The average transaction of diamonds is 1180.55 carats per month after recession.**



Wilcoxon Signed Ranks Test:

H₀: “There is no significant difference between monthly brokerage of diamonds in carats before recession and after recession”

H₁: “There is significant difference between monthly brokerage of diamonds in carats before recession and after recession”

Ranks				
		N	Mean Rank	Sum of Ranks
average carats of diamond broking(monthly) after recession - average carats of diamond broking(monthly) before recession	Negative Ranks	7 ^a	19	133
	Positive Ranks	95 ^b	53.89	5120
	Ties	28 ^c		
	Total	130		
a. average carats of diamond broking(monthly) after recession < average carats of diamond broking(monthly) before recession				
b. average carats of diamond broking(monthly) after recession > average carats of diamond broking(monthly) before recession				
c. average carats of diamond broking(monthly) after recession = average carats of diamond broking(monthly) before recession				

Test Statistics ^b	
	average carats of diamond broking(monthly) after recession - average carats of diamond broking(monthly) before recession
Z	-8.327 ^a
Asymp. Sig. (2-tailed)	0
a. Based on negative ranks.	
b. Wilcoxon Signed Ranks Test	

Interpretation:

Here the test is performed at 95% confidence level (i.e., the chance of occurring type 1 error is 5%) and the p-value comes out as 0.000 which is less than 0.05, it means that the Null Hypothesis H_0 can be rejected. Therefore, we can say that the average monthly brokerages of diamonds in carats after recession and before recession are not same. There is significant difference between monthly brokerage of diamonds in carats before recession and after recession.

Distribution of the diamond brokers on the basis working hours of diamond brokers before recession, during recession and after recession:

Hours	No. of Diamond Brokers		
	Before Recession	During Recession	After Recession
up to 3	0 (0%)	10 (7.69%)	1 (0.77%)
4 to 6	25 (19.23%)	55 (42.31%)	27 (20.77%)
7 to 9	67 (51.54%)	52 (40%)	65 (50%)
10 to 12	38 (29.23%)	13 (10%)	37 (28.46%)
Total	130	130	130

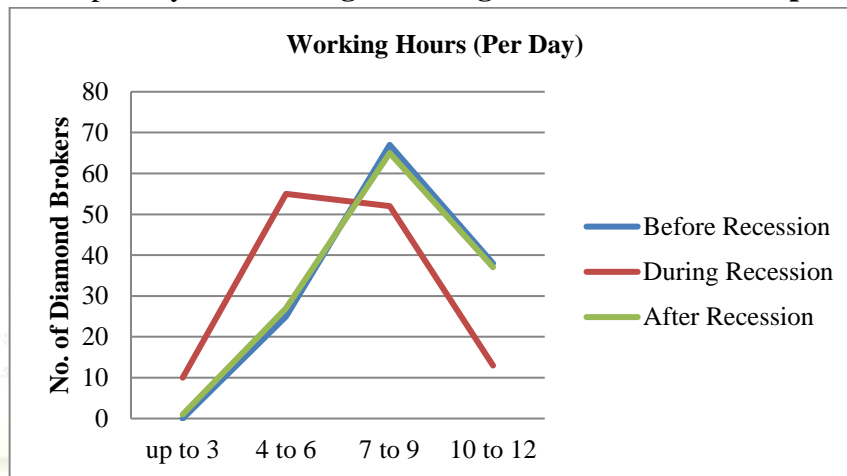
Note: Figures in brackets represents percentage to total.

The above table shows the data about working hours per day in this profession. This table is divided in three parts, before recession, during recession and after recession. Before

recession out of 130 diamond brokers, 25 brokers with 19.23% were working between 4 to 6 hours per day, 67 brokers with 51.54% were working between 7 to 9 hours and 38 brokers with 29.23% were working between 10 to 12 hours per day. **The average working hours before recession was 8.14 hours per day.**

During recession out of 130 diamond brokers, 10 brokers with 7.69% were working up to 3 hours per day, 55 brokers with 42.31% were working between 4 to 6 hours per day, 52 brokers with 40% were working between 7 to 9 hours per day and 13 brokers with 10% were working between 10 to 12 hours per day. **The average working hours during recession was 6.36 hours per day.**

After recession out of 130 diamond brokers, 1 broker with 0.77% is working up to 3 hours per day, 27 brokers with 20.77% are working between 4 to 6 hours per day, 65 brokers with 50% are working between 7 to 9 hours per day and 37 brokers with 28.46% are working between 10 to 12 hours per day. **The average working hours are 8.09 hours per day.**



Wilcoxon Signed Ranks Test:

H₀: “There is no significant difference between average working hours per day before recession and after recession”

H₁: “There is significant difference between average working hours per day before recession and after recession”

Ranks				
		N	Mean Rank	Sum of Ranks
average working hour before recession? - average working hour before recession?	Negative Ranks	12 ^a	13.92	167
	Positive Ranks	12 ^b	11.08	133
	Ties	106 ^c		
	Total	130		
a. average working hour before recession? < average working hour before recession?				
b. average working hour before recession? > average working hour before recession?				
c. average working hour before recession? = average working hour before recession?				

Test Statistics ^b	
	average working hour before recession? - average working hour before recession?
Z	-.496^a
Asymp. Sig. (2-tailed)	0.62
a. Based on positive ranks.	
b. Wilcoxon Signed Ranks Test	

Interpretation:

Here the test is performed at 95% confidence level (i.e., the chance of occurring type 1 error is 5%) and the p-value comes out as 0.620 which is greater than 0.05, it means that the Null Hypothesis H_0 is accepted. Therefore, we can say that the average daily working hours after recession and before recession are same.

5. Finding:

- 1) The study of diamond brokers, the researcher is found the effect of recession on diamond broking profession in 2008-2009, there are 87.7% diamond broker says that recession affects their work, and 12.3% says that there is no effect of recession on their work.
- 2) During recession period the most of people related to diamond industry were migrated back to their village and fall back upon cultivation and other non-farm activities like weaving, vegetable vending, sewing and stitching, embroidery and so on, in this study that there is 27.7% diamond broker work for extra time due to recession and 72.3% diamond broker are not work for extra income because of recession.
- 3) After recession there is economic improvement in this profession, out of 130 diamond brokers, 91 diamond brokers with 70% are believe that there is improvement in this profession after recession and 39 diamond brokers with 30% are believe that there is no improvement in this profession after recession.
- 4) The monthly income of diamond brokers is affected from recession. The average monthly income of diamond brokers were **Rs. 19446.15** before recession. During recession it was decreased, it was **Rs. 12192.30** per month. After recession the monthly income is increase, it's become more than double than during recession. The income of diamond brokers are **Rs. 28061.53** per month after recession. Here the researcher tests the null hypothesis "There is no significant difference between monthly income before recession and after recession" by using Wilcoxon signed-ranks test. The test is performed at 95% confidence level (i.e. the chance of occurring type 1 error is 5%) and the p-value comes out as **0.000** which is less than **0.05**, it means that the Null Hypothesis H_0 can be rejected. Therefore, we can say that the average monthly incomes after recession and before recession are not same. There is significant difference in average monthly incomes before recession and after recession.
- 5) The monthly brokerage of diamonds in carats of diamond brokers is affected from recession. The average transaction of diamonds was **831.40** carats per month before

recession. During recession it was decreased, it **466.48** carats per month. After recession the monthly transaction of diamonds in carats is increase, it's become more than double than during recession. The average transaction of diamonds is **1180.55** carats per month after recession. Here the researcher tests the null hypothesis "There is no significant difference between monthly brokerage of diamonds in carats before recession and after recession" by using Wilcoxon signed-ranks test. The test is performed at 95% confidence level (i.e. the chance of occurring type 1 error is 5%) and the p-value comes out as **0.000** which is less than **0.05**, it means that the Null Hypothesis H_0 can be rejected. Therefore, we can say that the average monthly brokerages of diamonds in carats after recession and before recession are not same. There is significant difference between monthly brokerage of diamonds in carats before recession and after recession.

- 6) The daily working hours are also affected from recession. The average daily working hours of diamonds were **8.14** per day before recession. During recession it was decreased, it **6.36 hours** per day. After recession the daily working hours are increase, it's become equal to before recession. The average daily working hours are **8.09 hours** after recession. Here the researcher tests the null hypothesis "There is no significant difference between average working hours per day before recession and after recession" by using Wilcoxon signed-ranks test. The test is performed at 95% confidence level (i.e. the chance of occurring type 1 error is 5%) and the p-value comes out as **0.620** which is greater than **0.05**, it means that the Null Hypothesis H_0 is accepted. Therefore, we can say that the average daily working hours after recession and before recession are same.

References:

- 1) Miranda Engelshoven, J.P. Parry, Jan Breman, Karin Kapadia, "Diamonds and Patels: A Report on the diamond Industry of Surat", Indian Institute of Labor, New Delhi. (1999)
- 2) Padsala, B. M., "Impact of global recession on socio-economical condition of diamond workers of the surat diamond industry" Economics Department, V.N.S.G.Uni., Surat.(M.phil Thesis)-2009.
- 3) Patel B. B. "Problems of child labour with focus on diamond cutting and polishing industry in Gujarat : carried out at the instance of Ministry of Labour, Government of India"
- 4) Patel Kishor C., "A Socio-Economic Condition of Diamond workers: with special Reference to Navasari city", Economics Department, V.N.S.G.Uni., Surat 2002.
- 5) Patel Preeti B., "Life style, Income And work of Female diamond workers: A study of Female diamond workers of Navasari Region", Economics Department, V.N.S.G.Uni., March, 1997.
- 6) Pratimaben Atul Kumer Vyas, "An Economical and Social Condition of diamond worker (A study on Surat city)", Economics Department, V.N.S.G.Uni., Surat.
- 7) S.P. Kashayap and R.S. Tiwari, "Shaping of diamond in Surat: an inquiry in to some of passes (facts)", Saradar Patel Institute of Economics and Social Research, Ahmadabad. 1982.
- 8) "Project Report on Market Potential of fixed Cellular Terminal within the Surat Diamond Industry" -Bankim S. Shah (2006), V.N.S.G.Uni. Surat.

- 9) "Commission Decision of 25 July 2001 declaring a concentration to be compatible with the common market and the EEA Agreement". Case No COMP/M.2333 – De Beers/LVMH. EUR-Lex. 2003.
- 10) Baldwin R., and S. Evenett (2009), *The collapse of global trade, murky protectionism, and the crisis: Recommendations for the G20*, CEPR, London.
- 11) Baldwin R., and D. Taglioni (2009), The Illusion of improving global imbalances, VoxEU.org, 14th November.
- 12) Eichengreen, Barry and Kevin O'Rourke (2009), "A Tale of Two Depressions," VoxEU.org, 6 April.
- 13) Evans, K. (2009), "Paul Krugman: In Trade, 'It's Not the Great Depression — It's Worse" *Real Time Economics*, WSJ Blog.
- 14) Francois J. and J. Woerz (2009) "The Big Drop: Trade and the Great Recession". VoxEU.org, 2 May.

