

# Hallmarking in India: A Major Quality Initiative in the Largest Gold Jewellery Market in the World

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## Abstract

The gold market in India is predominantly a market for buying and selling physical gold and gold in the form of ornaments. In the physical gold front, in the wholesale segment, nominated agencies are the bulk importers. This market is reasonably efficient from the point of view of distribution of bars and scraps over the length and breadth of the country, which takes place in a very effective manner. Price uniformity is also generally observable in areas with identical incidence of duties and tax. However in the market for ornaments and jewellery, consumer protection is still not assured, although it has received much policy attention in last few years. It is a well-known fact that cheating on caratage is widespread. In April 2000, Government of India introduced voluntary hall marking of gold jewellery through Bureau of Indian Standards. But the progress in this regard has been slow so far with only few jewelers have accepted the necessary certification with most of them having only partial stocks of their jewels hallmarked. In this backdrop, a study was carried out to understand the perception of customers purchasing gold ornaments and their awareness levels on the concept of hallmarking by Bureau of India Standards.

**Keywords:** Jewellery, Hall marking, Caratage, Bureau of Indian Standards, Chi-Square Test, Croos-Tabulation

## 1. Prologue

In India gold is as much a thing to be possessed as it is concept. The word 'Gold' in the ancient texts has wide meaning and connotations, ranging from the mundane to the sublime. In Sanskrit language there are atleast seven synonyms for gold namely, 'Swarna', 'Suvarna', 'Hiranya', 'Kanaka', 'Kanchan', 'Hema', and 'Ashtapada'. Gold in India serves many functions and wearing it has several implications. At the most obvious level it is a form of adornment, and also a status symbol. In India gold is associated with most religious ceremonies, such as the naming ceremony or marriage. In certain parts of the country a gold smith pierces a new born child's ear with a gold pin in a ritual performed twelve days after he/she is born, often only in a symbolic manner though. The great Indian epics, such as Ramayana and the Mahabharatha are replete with descriptions of ornaments. Practitioners of traditional medicine in India claim that pure gold has several therapeutic qualities. When consumed regularly, gold is good for circulation of the blood and enhancement of the mind, lifting the spirit.

In India goldsmiths are usually men and are referred to by a variety of names depending on the region. In the Vedic period, goldsmiths had a much higher standing in society than most other artisans because they worked with a precious metal. The gold smiths enjoyed royal patronage. Historical evidence suggests that Indian Jewellers had had early mastery of the various skills required to make fine jewellery, such as mixing alloys, moulding, setting stones, inlay work, drawing gold into fine wires, plating and gilding. The dies of the goldsmith have been defined in an ancient social code, but are observed more by breach than by adherence.

India is the world's largest market for gold. Gold is valued in India as a savings and investment vehicle and is the second preferred investment option after deposits and mutual funds. Its consumption is much higher in India than in many other countries.

## 2. Connotation of the study

In India in the market for ornaments and jewellery, consumer protection is not assured. However, it must be stated that this has received much policy attention in the last few years. Until the late 1980s gold jewellery was only purchased from traditional jewelers – from those jewelers that would have sold jewellery to the fore fathers, grand parents or parents of many Indians. After the abolishment of Gold Control Act in the early 1990s, a lot of jewelers mushroomed in various parts of the country. With the idea of purchasing different brands and different designs of jewellery which are available from these new jewelers.

Since the price of gold was fixed, the gold jewelers tried to compromise on purity of the jewellery. This came to attention of the Ministry of Consumer Affairs in the late 1990s, which was concerned about the lower purity of gold jewellery being sold in the Indian market under the guise of higher caratage gold. The standing committee on gold and precious metals at the Reserve Bank of India decided that an organization with the relevant infrastructure and competence should monitor and control the purity of gold jewellery sold in India. As a result, January 1999, the Bureau of India Standards (BIS) was designated as the sole agency to operate a hallmarking scheme for gold jewellery.

### 3. Hallmarking of Gold

On 11<sup>th</sup> April 2000, the BIS launched its hallmarking scheme. The basic objectives of the scheme were Consumer Protection, to enhance exports, to improve the quality and purity of gold jewellery produced and to monitor any loss to the economy due to the improper caratage. The hallmarking centre in given permission to operate, based on criteria which are in line with the international practices adopted by the International Convention on Marking of Precious Metals, the Vienna Convention. The main objective of aligning the BIS criteria with the criteria of the Vienna Convention was to enable the BIS to become a member of the convention, after displaying adequate confidence in running hallmarking schemes in India.

The Indian hallmark consists of five marks: the first mark is the standards mark which is very similar to the BIS corporate Logo. The second mark, which is put on the hallmarked jewellery by the hallmarking centres, is the fineness marks, 916. Purity can be marked for different fineness such as 916 for 22 carat, 750 for 18 carat, or in the case of lower caratages, there is a provision in the standard to mark six caratages starting from 23 carat to 9 carat. The third mark, which is one of the component of the hall mark is the assaying and hallmarking center's logo. The fourth mark is the jeweller's logo and the last one is the year of marking which is denoted by a letter. When the scheme started in 2000, the mark used was "A", 2001 was "B", 2002 was "C" and so on.

Once a jeweler is certified, they have certain obligations. They must ensure the homogeneity of the jewellery, which they receive from the designer. In addition, they must ensure the homogeneity of the purity of the lot, which they offer to the hall marking centers for hallmarking purposes. Certified jeweler must maintain certain quality control checks on this jewellery. Each certified jeweler can get their jewellery hall marked from any of BIS recognized hallmarking centers. There are eleven hallmarking centers in the country in Delhi, Ahmedabad, Hyderabad, Cochin etc.

Taking above description into consideration the study was carried out in Vijayawada City of Andhra Pradesh, India.

### 4. Span of the Study

The study deals with purchase patterns and behaviors of consumers of gold ornaments. It also deals with their understanding on purity, fineness 916 quality gold and awareness on the hallmarking schemes of BIS. The city lies in the coastal delta area of Andhra Pradesh. A famous landmark is the Prakasam barrage, the 1223.5 metre long modern regulator and road bridge across river Krishna. Its panoramic lake and the three canals that run through the city give Vijayawada, a Venetian appearance. The population of the city is 8, 45,217 persons as per 2001 Census, and with a floating population, the population is estimated to be around one million. The area of the city is 58 square kilo metres and the density of the population is 14,573 per square kilo metre. The big players in the market include: Khazana Jewellery, Kirtilals, Kothari Jewelers, Chandana Brothers etc. Apart from these there are over and above 200 jewellery outlets including small and petty shops in Vijayawada as per the estimates of The Vijayawada Gold Jewellers and Bullion Traders Association. There is research gap in this area where there are no studies being carried out to obtain opinions of respondents on the purchase patterns of consumers of gold ornaments/jewellery considering the apparent gap in this area an attempt is made in the present study to elicit opinions of the respondents on various aspects relating to understanding on purity of gold and hallmarking of gold ornaments. All opinions given by respondents pertain to Vijayawada City only.

### 5. Intents of the Study

The primary objective of the study is to make an analysis of purchase patterns of consumers of gold ornaments and jewellery. The other objectives include:

1. To know when consumers prefer to purchase gold ornaments.
2. To have an understanding on whether they purchase from big jewellery malls or from the small outlets in the unorganized sector.
3. To elicit opinions of respondents on purity and fineness of gold ornaments.
4. To know the awareness levels of consumers of hallmarking scheme of Bureau of India Standards.

5. To analyze the opinions of the respondents on purity and hallmarking.
6. To suggest such measures that would help the gold merchants to serve the consumers in a better way and the consumers be not cheated or misled by the jewelers or gold merchants.

## 6. Basis of Data

Based on the objectives the study was carried out involving both primary and secondary data. The primary data was obtained by administering a questionnaire to the respondents to elicit information on various issues relating to purchases made by them from retailers. The questionnaire was administered to a sample of 285 respondents. The opinions were collected from 285 respondents at random covering different sections of people. This survey was carried out when respondents are at different retail outlets, in Vijayawada city. Secondary data was collected from different journals, magazines and data from internet was also put into use.

## 7. Issues Covered

The issues covered in the opinion survey include the following : as when customers purchase gold ornaments, preferences of respondents to weights of ornaments, preferences of customers towards plain jewellery or jewellery studded with precious or semi precious stones, as purchase of the ornaments in big malls or small outlets, purchase of ornaments ready made or placing an order to get them, price of gold in branded and chain stores, quality of gold in branded and chain stores and malls, quality of gold of local gold merchants, variety of the ornaments with local merchants, awareness of 916 purity of gold, awareness of hallmarking from BIS. The other topics covered are the profile of respondents which include age, sex, education, occupation and income levels.

## 8. Application of Statistical Tools

In order to accomplish the objectives of this study analysis is carried by applying Cross Tabulation, Chi-Square Test for testing of Independence between two attributes.

## 9. Analysis and elucidation of the Data

*9.1 Age of the Respondent Vs Purchase of Ornaments:* From the results of the Chi-Square Test, it can be inferred that the variables age and as when the customers prefer to purchase ornaments are dependent as the calculated  $\chi^2$  value 500.94 is greater than Table  $\chi^2$  value 24.99 at d.f. 15.

*9.2 Income Levels Vs Purchase Patterns of Respondents:* It is evident from the survey results that there is dependency between the attributes income levels of respondents and their purchase pattern of gold ornaments. Here the calculated  $\chi^2$  value 527.22 is greater than Table  $\chi^2$  value 21.06 at d.f. 12.

*9.3 Age Vs Importance to Weight of Ornaments:* As regards to weight of the ornaments in grams and age of the respondents it is evident that the said variables have association as the calculated  $\chi^2$  value 335.43 is greater than  $\chi^2$  value 18.30 at d.f. 10.

*9.4 Income Levels and Weight of Ornaments:* Similarly, with regard to the attributes income levels and weight of ornaments in grams it can be inferred there is association between the two attributes. The calculated  $\chi^2$  value 351.91 is greater than Table  $\chi^2$  value 15.50 at d.f. 8.

*9.5 Occupation Vs Type of Jewellery:* With reference to two attributes occupation and type of jewellery (which include plain gold jewellery, ornaments studded with precious stones, ornaments studded with diamonds), there is association as the calculated  $\chi^2$  value 570.00 is greater than Table  $\chi^2$  value 16.91 at d.f. 9.

*9.6 Income Levels Vs Place of Purchase of Ornaments:* From the results of Chi-Square Test it is evident that there is dependency between the attributes income levels and place of purchase of ornaments. Here the calculated  $\chi^2$  value 273.69 is greater than Table  $\chi^2$  value 15.50 at d.f. 8.

*9.7 Occupation Vs Purchase Pattern:* The attributes occupation and purchase pattern have association. The calculated  $\chi^2$  value 127.36 is greater than Table  $\chi^2$  value 7.81 at d.f. 3.

*9.8 Education Vs Quality Assurance:* It is clear that the attributes education of respondents and quality assurance in branded outlets and chain stores are dependent on each other as the calculated  $\chi^2$  value 162.35 is greater than Table  $\chi^2$  value 12.59 at d.f. 6.

*9.9 Occupation Vs Opinion on Price of Gold Ornaments in Chain Stores:* As inference can be drawn from the survey results that occupation and opinion on price of gold in chain stores are dependent on each other as the calculated  $\chi^2$  value 73.66 is greater than Table  $\chi^2$  value 12.5 at d.f. 6.

*9.10 Occupation Vs Opinion on Variety and Range of Ornaments in Branded and Chain Stores:* The attributes occupation and opinion on the variety of ornaments made available in branded outlets and chain stores have association. Here the calculated  $\chi^2$  value 569.07 is greater than Table  $\chi^2$  value 21.02 at d.f. 12.

*9.11 Occupation Vs Opinion on the Quality of Gold sold at Local Merchants:* It can be concluded that attributes occupation and opinion on the quality of gold sold at local merchants are dependent as the calculated  $\chi^2$  value 399.30 is greater than Table  $\chi^2$  value 21.02 at d.f. 12.

*9.12 Occupation Vs Opinion on the Price of Gold sold at Local Merchants:* From the survey test results it can be inferred that there is association between attributes occupation and opinion on the price of gold ornaments sold by local merchants. The calculated  $\chi^2$  value 125.03 is greater than Table  $\chi^2$  value 12.59 at d.f. 6.

*9.13 Income Levels and Opinion on Variety of Ornaments with Local Merchants:* With regard to the attributes income levels and opinion on variety of ornaments available with local merchants it can be concluded that they are dependent on each other as the calculated  $\chi^2$  value 327.75 is greater than Table  $\chi^2$  value 26.29 at d.f. 16.

*9.14 Education Vs Awareness of 916 Kadium Gold Ornaments:* The attributes education and awareness of 916 Kadium gold ornaments have association. The calculated  $\chi^2$  value 83.87 is greater than Table  $\chi^2$  value 7.81 at d.f. 3.

*9.15 Education Vs Awareness of BIS Hallmarking of Gold Ornaments :* With regard to education and awareness of BIS Hallmarking of gold ornaments it can be inferred that the said attributes have dependency as the calculated  $\chi^2$  value 67.41 is greater than Table  $\chi^2$  value 7.81 at df 3.

*9.16 Occupation Vs Awareness of Availability of BIS Hall Marked Ornaments:* It can be inferred from the Chi-Square Test results that occupation and awareness of availability of BIS hallmarked ornaments have association. Here the calculated  $\chi^2$  value 151.45 is greater than Table  $\chi^2$  value 12.59 at d.f.6.

*9.17 Education Vs Opinion on Difference Between 916 Kadium Purity and BIS Hallmarking :* It is quite evident that there is association between attributes education and opinion on differences between 916 purity and BIS Hallmarking as the calculated  $\chi^2$  value 142.46 is greater than Table  $\chi^2$  value 7.81 at d.f. 3.

*9.18 Income Levels Vs Opinion on the Availability of Caratometers in All Outlets:* It can be concluded that the attributes income of respondents and opinion on the availability of caratometers in outlets, are dependent on each other as the calculated  $\chi^2$  value 52.15 is greater than Table  $\chi^2$  value 9.48 at d.f. 4.

## 10. Findings of the Study

By applying statistical tools which include Chi-Square Test, Cross Tabulation and Frequency Distribution the following given under are the findings of the opinion survey carried out on 285 respondents. They are as follows:

1. With regard to age of the respondents around 33.3 per cent belong to the age group of 36-40 years, while 19.6 per cent 19.3 per cent of respondents belong to age groups of 41-45 years and 31.35 years respectively.
2. A large group of 76 per cent of respondents is females while the rest 24 per cent are male respondents.
3. The survey results indicate that a majority of respondents 45 per cent are graduates while 27 per cent have +2 as intermediate as educational background.
4. It is evident that a good number of respondents (38 per cent) are private employees, while 25% of respondents are into various professions, and 28% are into their own business.
5. As regards to income levels, a majority of respondents (45 per cent) are in the income level of Rs.5001 to 10000 per month and less number of respondents (10 per cent) have less than Rs.5000 as earnings per month.
6. When respondents are asked as when they purchase ornaments a large group (around 52 per cent) stated that they purchase for specific occasions or festivals. Only 9.8 per cent stated that they purchase ornaments when there is fall in price of gold. 25 per cent of respondents stated they purchase ornaments when they require irrespective of price variations.
7. With regard to weight as a parameter in purchase of ornaments a large section of respondents 60.4 per cent opined that they prefer ornaments in light weight. While 30 per cent stated that they prefer ornaments in moderate weight.
8. The study results indicate that around 38 per cent of respondents prefer jewellery in plain gold. Similarly, same percentage of respondents (38 per cent) stated that they prefer gold ornaments made of precious and semi precious stones. Only 7.4 per cent opined they prefer jewellery in diamonds.

9. A vast group of respondents 68 per cent stated that they purchase jewellery from local merchants, goldsmiths, and only 9.4 per cent stated that they purchase from branded outlets like Tanishq. But 22.6 per cent stated that they prefer to purchase jewellery from chain stores.
10. When customers are asked to respond on whether they purchase ornaments ready made or place an order, a good number of respondents (68 per cent) stated that they purchase ready made ornaments.
11. With regard to quality/ purity of gold in branded and chain store outlets a large group of respondents 79 per cent opined that quality is assured in the chain stores and branded outlets.
12. It is clear from the survey results that 33 per cent of respondents stated that the price of gold ornaments will not be high in branded and chain store outlets. However 57 per cent opined that price of ornaments will be high in such outlets when compared to conventional gold merchants.
13. A large section (37.5 per cent) of respondents expressed that variety and range of designs are available in chain stores is good, while 17 per cent opine it is satisfactory and 13 per cent opined it is poor. However, 22 per cent stated that the variety and range is very good.
14. When asked about the quality/ purity of gold ornaments sold by local merchants 27 per cent opined that they are satisfied, 18 per cent opined that it is good. But 9.8 per cent stated the quality is very poor when compared to large chain stores.
15. It is clear from the study results that 65 per cent of respondents expressed that the local merchants in unorganized sector will not sell jewellery at reasonable price, while 25 per cent opined that they sell jewellery at reasonable prices.
16. With regard to range, variety and designs of ornaments with local merchants, 30 per cent opined that the range is good, 35 per cent stated that they are satisfied. Only 17 per cent opined that the local merchants have poor variety and range.
17. A very large group of respondents 90 per cent stated that they are aware of 916 KDM ornaments, while the rest stated that they are not aware.
18. From the survey, it is inferred that a large group of respondents 81 per cent stated that they are not aware of BIS hallmarking, while 19 per cent are aware of it.
19. As regards to availability of BIS hallmarked jewellery, 31 per cent stated that they are aware of the availability and 50 per cent of respondents stated that such BIS hall marked ornaments are not available in their localities.
20. A very large segment of respondents 90 per cent are not aware of the difference between 916 purity and BIS hallmarking of ornaments.
21. When respondents are asked whether all ornaments should be BIS hallmarked, a very large number of respondents 90 per cent opined that hallmarking is a must.
22. With reference to the weight of the ornaments around 73 per cent expressed that ornaments should be made available in less weight.
23. Around 68 per cent of the respondents opined that ornaments should be trendy and match with work life conditions, while 33 per cent opined they prefer traditional models and designs.
24. When customers are asked whether caratometres be made available in jewellery outlets a large group of them i.e., 87 per cent opined in favour of the idea.

### **11. Propositions**

1. The gold merchants should make ornaments available in less weight and in small sizes be it ear studs, nose pins, necklaces, or bracelets for women. Items of small size will match with the work life of the employed sector.
2. The jewelers should give importance to jewellery in plain gold. It is a general feeling with customers that they pay to the weight of the stores in jewellery.
3. In case of jewellery studded with precious and semi-precious stones the small jewellery outlets should calculate the price of gold and price of stones separately. This is the practice with larger outlets and malls.
4. Ornaments made of precious and semi-precious stones should be trendy, fashionable, and small in size. Such items are preferred by students and working women.
5. Branded jewellery outlets like Tanishq should promote their designs and models and should inform the customers through effective advertising that the price is not high when compared to the other outlets.
6. Such outlets should focus on quality and purity of gold, quality of the precious stones to attract and motivate customers.
7. Smaller outlets should focus more on display of the models and designs.
8. Such outlets should allocate more shelf space for display of ornaments which is common with large malls.

9. As ready made purchases are on an upswing jewelers should maintain stocks of finished items in their outlets. Consumers unless specific about a design they are ready to 'pick and pack' the ornaments.
10. Larger malls and chain store should focus on price in their advertisements and should educate the customer about taxes in the outlet. It is observed that customers feel price of gold is high in the outlet when compared to price in advertisements.
11. The small outlets display a price per gram of gold and reduce the price while calculating the price of the ornament. This is leading to an amount of suspicion in the minds of consumers with regard to price and quality. This should be avoided. Price should be same in a given day to all customers for all types of models and designs of ornaments.
12. The smaller outlets should provide bill to the consumers. This will enhance the confidence on the outlet and services rendered.
13. The jewelers and the associations at the local level should educate consumers about 916 fineness and purity of gold.
14. Consumers should also be educated about the difference between 916 purity and BIS hallmarking of the ornaments.
15. Efforts should be put in, in the form of advertising by Bureau of Indian Standards, Chambers of Commerce, Consumer organizations to educate the consumers about hallmarking of gold ornaments.
16. The jewelers and their associations at each level should take all necessary steps to educate consumers about BIS hallmarking of ornaments.
17. The caratometres are available only in or two big outlets. The caratometres should be made available in other outlets too.
18. Apart from jewellery outlets they can be made available in consumer organizations, chambers of commerce and these organizations should advertise about the availability of such quality testing equipment. They can charge nominal price for testing ornaments.
19. Big outlets like Khazana Jewellery, Kirtilas, Kothari Jewellers, Tanishq, Chandana Brothers have no workshops attached to their show rooms. This is causing great inconvenience to the consumers even if slight modifications have to be made to the ornaments. However this is not so with the smaller outlets. They have workshops attached to outlets or goldsmiths who work for these outlets. Bigger malls should have workshops to make suitable modifications to the ornaments when purchased by consumers.
20. The behaviour of sales men in small outlets should be polite and refined like that of the sales persons of larger malls.
21. In large outlets the people who receive and extend welcome to customer should speak in such language (regional or local) as is applicable to that particular customer. Usually they welcome customers in English language which is not well understood by customers who are not so fluent in English.
22. The outlets should not only display ornaments which they make, they should have catalogues of their own or should have catalogues general in nature. These should be available with all outlets. When a consumer comes out with a description of a particular ornament which he/she has seen in some functions or in films, will be supported with the content of the catalogue.
23. In promotional campaigns and in advertisements, larger malls should avoid celebrity endorsements which include stars particularly heroines of films industry or of small screen shows. Instead they can prepare the ad copy by involving an ordinary woman who depicts the next door person.
24. Usually in all advertisements, only young women are considered while advertising their ornaments or designs. But the outlets cater to the needs of different classes and ages of customers. So the jewelers should come out with advertisements even with children and men too.
25. Apart from festivals celebrated all over the country like Dassarah, Dhana Theras, Deewali, Akshaya Thrithiya, other regional festivals also should be given due importance. Other regional festivals include: Pongal, Varalakshmi Pooja, Baisakhi, Onam, New Year's Day, Muhurats (auspicious period for wedding) and so on. As people purchase gold ornaments during these festivals the marketers can come out with special designs, models and promotional offers to win customers.
26. The jewelers should pack the ornaments in an attractive way where they would be interested to keep the ornaments in the same pack given by the jeweler. Usually the jeweler packs the ornaments in plastic boxes which are not so impressive to retain for a long time.
27. The jewelers send birthday or wedding anniversary greetings to the customers to reach the customer on that special day. Instead they can send greetings a week before the said date, thereby they will be first to greet the customer, secondly they can remind the customer about the forthcoming special day and finally they can extend

an invitation pay a visit to the outlet to celebrate that special occasion with new designs and models of ornaments. So the same greeting card will serve all three purposes.

28. While taking feed back from consumers the executives in the outlets should not come out with a lengthy questionnaire. Instead they can ask few questions by recording through a camcorder or CCTV camera. This will help the jeweler to understand the emotions and feelings of the customers.

29. To retain the existing customers, the jewelers can extend reward points on the purchases made. For example for a purchase made worth Rs. 1000/-, 10 reward points can be given to a customer. Once a customer attains a particular mark of 100 reward points in his account a gold coin weighing 2 grams can be given free of cost, or equivalent discount can be extended on the bill amount.

30. The same concept can be applied for one time huge purchasers of ornaments. For example if a customer purchases jewellery worth one lakh or above in single transaction he can be given reward points which can be redeemed then and there.

31. 'Consumer Clubs' can be started by the outlets, where frequent purchasers will be made member free of cost. They can be given a card and when the customer tenders the card at the time of purchase of ornaments discount he can be extended a discount on the price or the bill amount of the ornaments.

## 12. Finale

In the world's largest market for gold ornaments and jewellery, consumer protection is still not assured. However it has received much policy attention since the beginning of this millennium. Although hallmarking scheme is progressing, the consumer awareness levels must be improved and that a lot of promotion of the hallmarking scheme is still required. The promotion and advertising activities carried out is in a limited fashion due to various reasons. Good progress can be made if the jewelers, the BIS and the public could work together.

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Table 1. Age of the Respondent Vs Purchase of Ornaments

Age of the Respondent Vs Purchase of Ornaments

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 500.940 <sup>a</sup> | 15 | .000                  |
| Likelihood Ratio             | 412.606              | 15 | .000                  |
| Linear-by-Linear Association | 17.221               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 6 cells (25.0%) have expected count less than 5. The minimum expected count is 2.06.

Source: Questionnaire

Table 2. Income Levels Vs Purchase Patterns of Respondents

**Income Levels Vs Purchase Patterns of Respondents**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 527.228 <sup>a</sup> | 12 | .000                  |
| Likelihood Ratio             | 447.485              | 12 | .000                  |
| Linear-by-Linear Association | 18.646               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 5 cells (25.0%) have expected count less than 5. The minimum expected count is 2.75.

Source: Questionnaire

Table 3. Age Vs Importance to Weight of Ornaments

**Age Vs Importance to Weight of Ornaments**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 335.439 <sup>a</sup> | 10 | .000                  |
| Likelihood Ratio             | 355.466              | 10 | .000                  |
| Linear-by-Linear Association | 62.972               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 3 cells (16.7%) have expected count less than 5. The minimum expected count is 2.06.

Source: Questionnaire

Table 4. Income Levels and Weight of Ornaments

**Income Levels and Weight of Ornaments**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 351.912 <sup>a</sup> | 8  | .000                  |
| Likelihood Ratio             | 267.217              | 8  | .000                  |
| Linear-by-Linear Association | 44.548               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 3 cells (20.0%) have expected count less than 5. The minimum expected count is 2.75.

Source: Questionnaire

Table 5. Occupation Vs Type of Jewellery

**Occupation Vs Type of Jewellery**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 570.000 <sup>a</sup> | 9  | .000                  |
| Likelihood Ratio             | 616.648              | 9  | .000                  |
| Linear-by-Linear Association | 9.500                | 1  | .002                  |
| N of Valid Cases             | 285                  |    |                       |

a. 2 cells (12.5%) have expected count less than 5. The minimum expected count is 2.06.

Source: Questionnaire

Table 6. Income Levels Vs Place of Purchase of Ornaments

| Income Levels Vs Place of Purchase of Ornaments |                      |    |                       |
|-------------------------------------------------|----------------------|----|-----------------------|
|                                                 | Value                | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square                              | 273.690 <sup>a</sup> | 8  | .000                  |
| Likelihood Ratio                                | 250.149              | 8  | .000                  |
| Linear-by-Linear Association                    | 4.465                | 1  | .035                  |
| N of Valid Cases                                | 285                  |    |                       |

a. 4 cells (26.7%) have expected count less than 5. The minimum expected count is 2.65.

Source: Questionnaire

Table 7. Occupation Vs Purchase Pattern

| Occupation Vs Purchase Pattern |                      |    |                       |
|--------------------------------|----------------------|----|-----------------------|
|                                | Value                | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square             | 127.364 <sup>a</sup> | 3  | .000                  |
| Likelihood Ratio               | 163.082              | 3  | .000                  |
| Linear-by-Linear Association   | 92.376               | 1  | .000                  |
| N of Valid Cases               | 285                  |    |                       |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.04.

Source: Questionnaire

Table 8. Education Vs Quality Assurance

| Education Vs Quality Assurance |                      |    |                       |
|--------------------------------|----------------------|----|-----------------------|
|                                | Value                | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square             | 162.354 <sup>a</sup> | 6  | .000                  |
| Likelihood Ratio               | 149.773              | 6  | .000                  |
| Linear-by-Linear Association   | 27.460               | 1  | .000                  |
| N of Valid Cases               | 285                  |    |                       |

a. 3 cells (25.0%) have expected count less than 5. The minimum expected count is 2.42.

Source: Questionnaire

Table 9. Occupation Vs Opinion on Price of Gold Ornaments in Chain Stores

| Occupation Vs Opinion on Price of Gold Ornaments in Chain Stores |                     |    |                       |
|------------------------------------------------------------------|---------------------|----|-----------------------|
|                                                                  | Value               | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square                                               | 73.662 <sup>a</sup> | 6  | .000                  |
| Likelihood Ratio                                                 | 89.184              | 6  | .000                  |
| Linear-by-Linear Association                                     | 12.253              | 1  | .000                  |
| N of Valid Cases                                                 | 285                 |    |                       |

a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 2.75.

Source: Questionnaire

Table 10. Occupation Vs Opinion on Variety and Range of Ornaments in Branded and Chain Stores

**Occupation Vs Opinion on Variety and Range of Ornaments in Branded and Chain Stores**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 569.079 <sup>a</sup> | 12 | .000                  |
| Likelihood Ratio             | 589.246              | 12 | .000                  |
| Linear-by-Linear Association | 10.920               | 1  | .001                  |
| N of Valid Cases             | 285                  |    |                       |

a. 2 cells (10.0%) have expected count less than 5. The minimum expected count is 2.65.

Source: Questionnaire

Table 11. Occupation Vs Opinion on the Quality of Gold sold at Local Merchants

**Occupation Vs Opinion on the Quality of Gold sold at Local Merchants**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 399.306 <sup>a</sup> | 12 | .000                  |
| Likelihood Ratio             | 441.361              | 12 | .000                  |
| Linear-by-Linear Association | 22.165               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 2 cells (10.0%) have expected count less than 5. The minimum expected count is 2.75.

Source: Questionnaire

Table 12. Occupation Vs Opinion on the Price of Gold sold at Local Merchants

**Occupation Vs Opinion on the Price of Gold sold at Local Merchants**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 125.038 <sup>a</sup> | 6  | .000                  |
| Likelihood Ratio             | 150.832              | 6  | .000                  |
| Linear-by-Linear Association | 27.518               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 2.75.

Source: Questionnaire

Table 13. Income Levels and Opinion on Variety of Ornaments with Local Merchants

**Income Levels and Opinion on Variety of Ornaments with Local Merchants**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 327.752 <sup>a</sup> | 16 | .000                  |
| Likelihood Ratio             | 345.471              | 16 | .000                  |
| Linear-by-Linear Association | 9.102                | 1  | .003                  |
| N of Valid Cases             | 285                  |    |                       |

a. 8 cells (32.0%) have expected count less than 5. The minimum expected count is 2.06.

Source: Questionnaire

Table 14. Education Vs Awareness of 916 Kadium Gold Ornaments

**Education Vs Awareness of 916 Kadium Gold Ornaments**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 83.877 <sup>a</sup> | 3  | .000                  |
| Likelihood Ratio             | 82.146              | 3  | .000                  |
| Linear-by-Linear Association | 8.615               | 1  | .003                  |
| N of Valid Cases             | 285                 |    |                       |

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 2.95.

Source: Questionnaire

Table 15. Education Vs Awareness of BIS Hallmarking of Gold Ornaments

**Education Vs Awareness of BIS Hallmarking of Gold Ornaments**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 67.411 <sup>a</sup> | 3  | .000                  |
| Likelihood Ratio             | 77.971              | 3  | .000                  |
| Linear-by-Linear Association | 20.376              | 1  | .000                  |
| N of Valid Cases             | 285                 |    |                       |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.79.

Source: Questionnaire

Table 16. Occupation Vs Awareness of Availability of BIS Hall Marked Ornaments

**Occupation Vs Awareness of Availability of BIS Hall Marked Ornaments**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 151.454 <sup>a</sup> | 6  | .000                  |
| Likelihood Ratio             | 198.214              | 6  | .000                  |
| Linear-by-Linear Association | 32.493               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.40.

Source: Questionnaire

Table 17. Education Vs Opinion on Difference between 916 Kadium Purity and BIS Hallmarking

**Education Vs Opinion on Difference Between 916 Kadium Purity and BIS Hallmarking**

|                              | Value                | df | Asymp. Sig. (2-sided) |
|------------------------------|----------------------|----|-----------------------|
| Pearson Chi-Square           | 142.467 <sup>a</sup> | 3  | .000                  |
| Likelihood Ratio             | 112.880              | 3  | .000                  |
| Linear-by-Linear Association | 82.550               | 1  | .000                  |
| N of Valid Cases             | 285                  |    |                       |

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 2.95.

Source: Questionnaire

Table 18. Income Levels Vs Opinion on the Availability of Caratometers in All Outlets

**Income Levels Vs Opinion on the Availability of Caratometers in All Outlets**

|                              | Value               | df | Asymp. Sig. (2-sided) |
|------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square           | 52.154 <sup>a</sup> | 4  | .000                  |
| Likelihood Ratio             | 66.115              | 4  | .000                  |
| Linear-by-Linear Association | 19.121              | 1  | .000                  |
| N of Valid Cases             | 285                 |    |                       |

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 3.64.

Source: Questionnaire