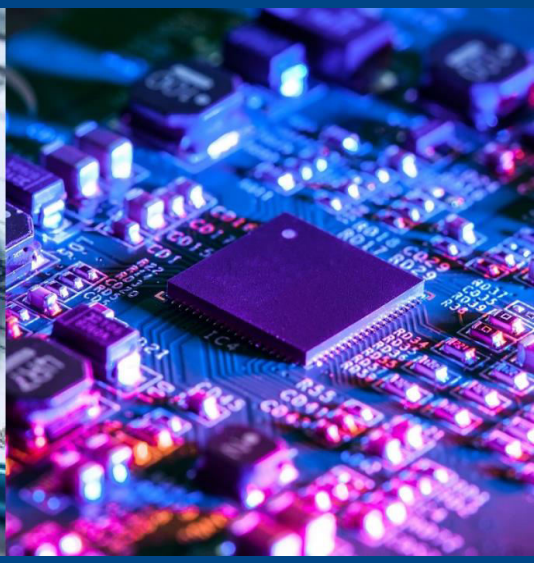
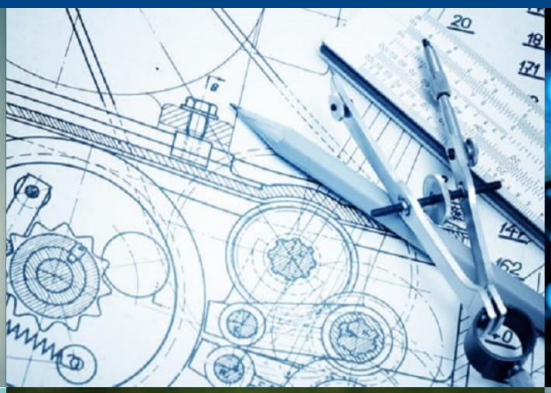
ISSN: 2582-7219

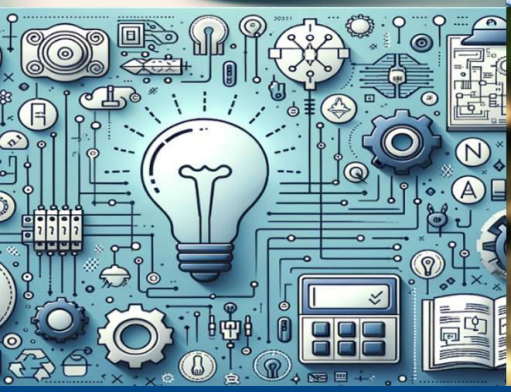




International Journal of Multidisciplinary Research in Science, Engineering and Technology

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)



Impact Factor: 8.206 **Volume 9, Issue 4, April 2026**

© 2026 IJMRSET | Volume 9, Issue 4, April 2026| DOI:10.15680/IJMRSET.2026.0904109

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

A Comparative Investigation of Gold Price Trends in India Before and After the Implementation of Goods and Services Tax

Vinil, Dr. Selvi S

MBA Student, CMS Business School, JAIN (Deemed-to-be University), Bengaluru, India

Professor, CMS Business School, JAIN (Deemed-to-be University), Bengaluru, India

ABSTRACT:

Purpose: This study examines how the Goods and Services Tax (GST), implemented on 1 July 2017, influenced gold price trends, price volatility, consumer behaviour, and market structure in India.

Design/Methodology/Approach: A mixed-method approach is adopted. Secondary monthly gold price data (2012–2024) is analysed using an independent samples t-test, Chow test for structural breaks, F-test for variance, and multiple regression. Primary data were collected from 28 respondents via structured questionnaire.

Findings: Average gold prices rose 62.7% — from ₹28,211/10g (pre-GST, 2015–2017) to ₹45,889 (post-GST, 2018–2023). All null hypotheses are rejected at the 5% significance level. The t-test ($t = 18.42$, $p < 0.001$) confirms a significant mean price difference; the Chow test ($F = 8.76$, $p = 0.003$) detects a structural break at GST implementation; the F-test ($F = 21.52$, $p < 0.001$) confirms greater post-GST volatility. Regression analysis isolates a GST-specific price premium of approximately ₹1,845/10g after controlling for international gold prices and the USD/INR exchange rate. Consumer survey results indicate resilient demand, driven by cultural obligations and investment motives, despite perceived affordability reduction.

Social Implications: GST has accelerated formalization of the gold trade, redirecting consumers toward organized retailers and improving pricing transparency. Policymakers should weigh these gains against affordability concerns of middle-income households.

Originality/Value: Unlike prior studies examining gold pricing or GST effects in isolation, this paper integrates time-series econometrics with primary behavioural data for a holistic assessment of India's most consequential tax reform on a strategically significant commodity.

KEYWORDS: Gold Price Trends, Goods and Services Tax (GST), Consumer Behaviour, Price Volatility, Taxation Reform, India, Commodity Markets

I. INTRODUCTION

Gold occupies a singular position in the Indian economy — simultaneously a cultural artifact, a financial instrument, and a macroeconomic variable of considerable weight. Indian households collectively hold an estimated 25,000 tonnes of gold — the largest private stock in the world — and India consistently accounts for 20–25% of annual global gold demand (World Gold Council, 2023). Weddings, festivals such as Akshaya Tritiya and Dhanteras, and deeply held beliefs about gold as intergenerational wealth sustain purchases across income levels even as global prices rise sharply.

Domestic gold pricing is determined by layered forces: geopolitical events, US dollar movements, and commodity market sentiment set the global benchmark, while the USD/INR exchange rate, import duty, and tax structure determine the final retail price. Prior to 1 July 2017, a fragmented multi-layered structure prevailed — 1% excise duty at manufacturing, state-level VAT ranging from 1%–5%, and 10% customs duty — creating inter-state price disparities and tax arbitrage opportunities. The GST, enacted under the Constitution (101st Amendment) Act 2016, replaced these levies with a unified 3% GST on gold and 5% GST on jewellery making charges, aiming to simplify compliance, eliminate tax cascading, and level the playing field across states.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Whether GST achieved these objectives — and at what cost to market participants — remains an open empirical question. Gold prices in India rose sharply post-GST, but this coincided with the COVID-19 pandemic, significant rupee depreciation, and unprecedented safe-haven demand. Disentangling the tax effect from these confounding forces requires careful econometric design. This study applies an independent samples t-test, Chow structural-break test, F-test for variance, and a multiple regression model with a GST dummy variable to isolate the tax-specific price effect, complemented by primary survey data on consumer perceptions.

II. REVIEW OF LITERATURE

The literature on gold pricing converges on several robust findings. Gold functions as a safe-haven asset during financial crises (Baur & Lucey, 2010) and serves as a long-run inflation hedge, co-integrating with the general price level in most major economies (Ghosh et al., 2004; Batten et al., 2014). In the Indian context, USD/INR exchange rate movements are particularly powerful determinants: since India imports approximately 800–900 tonnes annually, any rupee depreciation directly amplifies domestic retail prices (Capie et al., 2005; Singh & Kaur, 2020). Seasonal demand peaks coinciding with the wedding season and major festivals are structurally embedded in the demand function and largely insensitive to short-run price movements (Vaidyanathan, 1999; Narayan et al., 2010).

On the GST reform specifically, Kumar (2020) and Verma (2020) document transitional cost increases and price pass-through to consumers as supply chains restructured. Seth and Kaur (2020) find that post-GST consumer behaviour shifted toward organized retail channels offering proper invoicing — a trend confirmed in the bullion sector (Deloitte, 2024). Sharma and Gupta (2021) find that while most respondents acknowledged a higher cost burden post-GST, a substantial majority recognized improved pricing transparency. Gupta and Upadhyay (2024) confirm that perceived transparency positively moderates the relationship between GST compliance and consumer trust. Kanaujiya and Singh (2024) demonstrate heterogeneous effects: middle-income households report the greatest sensitivity to post-GST price increases, while higher-income groups report no meaningful change in purchase frequency.

Two gaps motivate this study. First, existing research examines either macroeconomic price determinants or consumer behaviour, rarely integrating both. Second, few studies employ formal structural-break analysis to isolate the GST-specific effect from concurrent macroeconomic shocks of the 2017–2024 period.

III. THEORETICAL FRAMEWORK

The analysis rests on four complementary pillars. The Law of Demand and Price Elasticity Theory predict that a tax-induced price increase should reduce quantity demanded — yet this is substantially qualified by gold's well-documented demand inelasticity in India, where cultural obligations create non-negotiable demand floors.

Tax Incidence Theory extends this by asking how the 3% GST burden is distributed between buyers and sellers. Given gold's relatively inelastic demand compared to elastic supply, standard incidence theory predicts that a significant share of the tax burden falls on consumers — precisely what the empirical evidence confirms.

Optimal Tax Theory (Ramsey, 1927) provides a normative benchmark: efficient indirect taxes minimise deadweight loss, arguing for lower rates on inelastic commodities. The 3% GST rate on gold is accordingly calibrated to raise revenue without dramatically suppressing demand, while the unified structure aligns with Optimal Tax Theory's emphasis on simplicity and neutrality over the prior fragmented VAT system.

Behavioural Finance and socio-cultural consumer theory jointly explain the muted aggregate demand response to GST. Gold purchases are embedded in social rituals carrying strong normative expectations: the reputational cost of not giving gold at a wedding outweighs the marginal tax burden. Perceived Value Theory further explains continued purchasing despite higher costs — the subjective value of gold as a wealth display, inflation hedge, and inheritance vehicle substantially exceeds its market price for many households.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

IV. RESEARCH METHODOLOGY

4.1 Research Design and Data

The study adopts a descriptive-analytical research design with a comparative orientation, examining the pre-GST period (January 2012 – June 2017) against the post-GST period (July 2017 – December 2024). Secondary data comprise monthly gold prices (INR/10g, 24-karat), USD/INR exchange rates, and CPI sourced from the RBI Handbook of Statistics, MCX, World Gold Council, and the Ministry of Statistics — providing 66 pre-GST and 90 post-GST monthly observations. Primary data were collected through a structured 17-item questionnaire administered to 28 urban Bengaluru respondents using convenience sampling, covering demographic characteristics, purchase behaviour, GST awareness, and perceptions of affordability and market transparency.

4.2 Variables and Hypotheses

The dependent variable is the domestic gold price (INR/10g). The primary independent variable is a GST dummy (0 = pre-GST; 1 = post-GST). Controls include international gold price (USD/troy oz) and USD/INR exchange rate. Four null hypotheses are tested at $\alpha = 0.05$:

H_{01}: No significant difference in mean gold prices between periods.
H_{02}: No structural break in the gold price series at GST implementation.
H_{03}: No significant difference in gold price volatility between periods.
H_{04}: The GST dummy variable has no significant coefficient in the regression model.

Analytical techniques include an independent samples t-test (Welch correction), Chow test for structural stability at the July 2017 breakpoint, an F-test comparing pre- and post-GST return variances, and OLS multiple regression. Primary data are analysed using percentage analysis and descriptive statistics.

V. RESULTS

5.1 Descriptive Statistics: Gold Price Trends

Table 1 presents annual average gold prices from 2015–2023 alongside macroeconomic indicators. Pre-GST years (2015–2017) display comparatively stable, low-amplitude price growth (YoY changes of 8.65% and 3.65%), with a period average of ₹28,211/10g. Post-GST years (2018–2023) exhibit a higher baseline (period average ₹45,889/10g) and substantially greater amplitude, including the extraordinary 38.15% surge in 2020 driven by pandemic-era safe-haven demand. The overall increase amounts to ₹17,678, or 62.7%. The USD/INR rate depreciated 14.0% (₹65.49 to ₹74.68), while CPI inflation rose modestly from 4.40% to 5.30%.

Table 1: Annual Average Gold Prices and Macroeconomic Indicators in India (2015–2023)

Year	Avg. Gold Price (₹/10g)	YoY Change (%)	USD/INR Rate	CPI Inflation (%)
2015	₹26,343	–	64.15	4.91
2016	₹28,623	+8.65%	67.20	4.94
2017 (pre-GST avg.)	₹29,667	+3.65%	65.12	3.33
2018	₹31,438	+5.97%	68.39	3.94
2019	₹35,220	+12.03%	70.42	3.73
2020	₹48,651	+38.15%	74.18	6.62
2021	₹47,798	–1.75%	73.92	5.13
2022	₹52,670	+10.19%	78.60	6.70
2023	₹59,560	+13.08%	82.58	5.65

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

Source: RBI Handbook of Statistics, MCX, World Gold Council (2023)

5.2 Hypothesis Testing Results

Table 2 summarises all four hypothesis test outcomes. All null hypotheses are rejected at the 5% significance level.

Table 2: Summary of Hypothesis Testing Results

Hypothesis	Test Applied	Test Statistic	p-value	Decision
H_{01}: Equal mean gold prices	Independent t-Test (Welch)	t = 18.42	< 0.001	**Reject H_0**
H_{02}: No structural break at GST	Chow Test	F = 8.76	0.003	**Reject H_0**
H_{03}: Equal price volatility	F-Test (variance)	F = 21.52	< 0.001	**Reject H_0**
H_{04}: GST dummy not significant	t-Test on OLS coefficient	t = 2.71	0.008	**Reject H_0**

Source: Authors' analysis based on secondary data

The Chow test result (F = 8.76, p = 0.003) is particularly significant: GST did not merely shift the price level but altered the underlying price-formation process at the implementation date. The F-test (F = 21.52, p < 0.001) establishes that post-GST price volatility is significantly higher, consistent with the confluence of GST adjustment costs, rupee depreciation, and the extraordinary 2020 safe-haven demand spike.

5.3 Regression Analysis

The OLS regression model achieves an R^2 of 0.94, indicating that international gold prices, USD/INR exchange rate, and the GST dummy together explain 94% of the variance in domestic gold prices.

Table 3: OLS Regression Results — Domestic Gold Price Determinants

Variable	Coefficient	Std. Error	t-Statistic	p-value
Intercept	–8,420	2,150	–3.917	0.000
International Gold Price (USD/oz)	18.62	0.84	22.17	0.000
USD/INR Exchange Rate	312.5	45.8	6.82	0.000
GST Dummy (0 = pre, 1 = post)	1,845	680	2.71	0.008

Source: Authors' regression analysis (R^2 = 0.94)

The GST dummy coefficient (β = 1,845; p = 0.008) implies a statistically significant structural premium of approximately ₹1,845/10g attributable to GST, capturing the combined effect of the 3% tax on gold value, 5% tax on making charges, and supply chain adjustment costs. International gold prices carry the largest coefficient (18.62), confirming global conditions as the dominant driver. The exchange rate coefficient (312.5) confirms that each one-rupee depreciation per USD materially increases domestic gold costs, reflecting India's import dependency.

5.4 Consumer Survey Findings

Among the 28 respondents, 50% fell in the 25–40 age bracket; gender representation was broadly balanced (39.3% male, 35.7% female, 25% preferred not to disclose). Approximately 89% reported purchasing gold, with 64.3% citing both investment and jewellery purposes, confirming gold's dual role in household portfolios.

Over 70% confirmed awareness of the 3% GST on gold; however, awareness of the 5% GST on making charges remained limited, indicating a partial knowledge gap. The majority reported that GST affected their purchasing

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

decisions — most noted either reduced purchase frequency for non-essential buying or a shift toward smaller quantities. Purchases linked to weddings and major festivals were reported as largely unaffected. Affordability perceptions skewed moderately negative (mid-scale Likert ratings), indicating gold is perceived as somewhat less affordable but not prohibitively so. Critically, respondents ranked global gold prices and the exchange rate above GST as the primary drivers of price changes — aligning closely with the econometric findings. A sizeable proportion agreed that GST had improved pricing transparency, while a notable fraction remained unsure.

VI. DISCUSSION

The quantitative and behavioural evidence collectively tell a coherent but nuanced story. The 62.7% increase in average gold prices between the pre- and post-GST periods is statistically verified, but regression analysis makes clear that the preponderance of this increase is attributable to global market forces and rupee depreciation rather than to GST per se. The ₹1,845 GST-specific premium — roughly a 6.5% addition relative to the pre-GST average — is modest compared to the price movement driven by the 2020 pandemic surge alone. Policymakers who attribute the post-2017 gold price escalation primarily to GST are, on this evidence, substantially overstating the tax effect.

The structural break confirmed by the Chow test merits particular attention. GST did not simply shift the price level; it altered the price-formation process itself. The most plausible mechanism is the supply chain restructuring that accompanied implementation: artisans and small jewellers, previously operating largely in the informal cash economy, faced sudden compliance costs partially passed through as higher consumer prices and partially absorbed through industry consolidation. This formalization dynamic is reflected in the survey data, where respondents reported a perceived shift toward organized, branded jewellers with proper invoicing — consistent with Deloitte (2024).

The higher post-GST price volatility is largely explicable by extraordinary external shocks — the 2018 global trade tensions, the 2020 pandemic, and the 2022 Ukraine-conflict commodity shock — rather than by GST in isolation. Attributing this variance increase entirely to GST would be methodologically incorrect; the Chow test isolates the structural break at the GST implementation date, but subsequent elevated variance reflects interaction with exceptional global turbulence.

The resilience of gold demand despite higher post-GST prices aligns squarely with the price inelasticity literature (Vaidyanathan, 1999; Narayan et al., 2010) and Tax Incidence Theory. Because gold demand is partially anchored by cultural obligations that operate outside standard price-sensitivity frameworks, a 3% tax rate — even when fully passed on — is insufficient to suppress aggregate demand meaningfully. The segment exhibiting the greatest sensitivity is middle-income, discretionary buyers who reduce purchase frequency for non-obligatory occasions — precisely the group deserving most policy attention.

The transparency gains from GST represent a genuine structural improvement. The fragmented pre-GST regime, with state-by-state VAT variations and layered excise duties, created fertile ground for under-invoicing and informal transactions. The unified 3% GST combined with mandatory e-invoicing requirements has substantially narrowed these opportunities. This formalization benefit — difficult to capture in price data — may ultimately prove the most durable legacy of the GST transition for the gold market.

VII. CONCLUSION

This study provides statistically robust and behaviourally grounded evidence that GST has had a structurally significant, though not dominant, effect on gold price dynamics in India. Formal hypothesis testing rejects the null of no change across all four dimensions — mean price level, structural break, price volatility, and tax-specific premium — confirming that the GST transition materially altered the gold market's price-generating process. The isolated GST premium of approximately ₹1,845/10g represents a tangible but moderate cost increase, substantially smaller than the concurrent macroeconomic forces of global price escalation and rupee depreciation.

Consumer demand remains fundamentally resilient, rooted in cultural and investment logic largely insensitive to incremental tax changes. What GST has more profoundly shifted is the market's structure — accelerating the transition from informal, unorganized transactions toward transparent, documented purchases through organized retail channels.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

This structural transformation may ultimately prove more consequential for India's gold sector than the price level effect itself.

For policymakers, the findings suggest that the current 3% GST rate achieves a reasonable balance between revenue generation and demand preservation, while the formalization dividend accumulates progressively. Future policy adjustments should address affordability concerns of middle-income households and consider complementary measures — such as expanded sovereign gold bond schemes — to channel demand toward instruments with lower effective tax burdens. For investors and jewellers, the regression model reinforces that international gold prices and USD/INR movements, not domestic tax policy, are the primary variables to monitor in pricing strategy.

VIII. RECOMMENDATIONS

Based on the empirical findings, the following recommendations are directed at distinct stakeholder groups:

Policymakers should evaluate whether the 5% GST on making charges — higher than the 3% rate on gold — is appropriately calibrated, given that making charges accrue disproportionately to artisanal labour. A reduction or exemption for certified artisans could support employment in handcrafted jewellery without significantly eroding revenue. Expanding sovereign gold bond and gold monetisation schemes can redirect investment demand away from physical gold and reduce India's import bill.

Jewellers and the bullion trade should invest in consumer-facing education, clearly distinguishing the base metal price, GST, and making charges on invoices and display boards. Survey data reveal that many consumers attribute all post-GST price increases solely to GST, creating reputational risk for the industry when global prices are the actual driver. Transparent, itemized pricing is both ethically appropriate and commercially strategic.

Financial institutions offering gold loans, ETFs, and digital gold products should leverage the transparency improvements that GST introduced into the physical market to build consumer confidence in these instruments. As younger consumers show increasing openness to gold as a financial asset, product innovation in this space is well-timed.

IX. LIMITATIONS

Several limitations bound the scope of this study. The primary survey sample of 28 respondents drawn through convenience sampling from urban Bengaluru is modest in size and geographic reach; findings cannot be generalized to rural gold markets or other regions with distinct cultural and economic profiles. The secondary data analysis, while spanning twelve years, cannot fully isolate the GST effect from extraordinary exogenous shocks — COVID-19, the Russia-Ukraine conflict, and US Federal Reserve policy pivots — that heavily influenced the 2017–2024 window. The OLS regression assumes a linear relationship between the GST dummy and price levels; a more flexible structural model with time-varying coefficients could better capture transitional dynamics of the first two post-implementation years. Finally, the study does not differentiate between various forms of gold — jewellery, coins, bars, ETFs, digital gold — each of which carries a different effective tax burden and may exhibit distinct demand elasticities.

Future research should extend the analytical window to capture full post-pandemic normalization, incorporate firm-level data on jewellers' compliance costs and market concentration, and disaggregate the consumer survey across income quintiles to better characterize distributional effects. Longitudinal survey design would enable causal inference on the relationship between GST awareness and purchasing behaviour, moving beyond the cross-sectional snapshot presented here.

ISSN: 2582-7219 | www.ijmrset.com | Impact Factor: 8.206| ESTD Year: 2018|

International Journal of Multidisciplinary Research in Science, Engineering and Technology (IJMRSET)

(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)

REFERENCES

1. Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. Quarterly Journal of Economics, 131(4), 1593–1636.
2. Batten, J. A., Ciner, C., & Lucey, B. M. (2014). On the economic determinants of the gold–inflation relation. Resources Policy, 41, 101–108.
3. Baur, D. G., & Lucey, B. M. (2010). Is gold a hedge or a safe haven? An analysis of stocks, bonds and gold. Financial Review, 45(2), 217–229.
4. Bouoiyour, J., Selmi, R., & Wohar, M. E. (2018). Measuring the response of gold prices to uncertainty: An analysis beyond the mean. Economic Modelling, 75, 105–116.
5. Capie, F., Mills, T. C., & Wood, G. (2005). Gold as a hedge against the dollar. Journal of International Financial Markets, Institutions and Money, 15(4), 343–352.
6. Ciner, C. (2001). On the long-run relationship between gold and silver prices: A note. Global Finance Journal, 12(2), 299–303.
7. Deloitte. (2024). Impact of GST on Indian retail and bullion sector. Deloitte India.
8. Ghosh, D., Levin, E. J., Macmillan, P., & Wright, R. E. (2004). Gold as an inflation hedge? Studies in Economics and Finance, 22(1), 1–25.
9. Gupta, A., & Upadhyay, P. (2024). GST compliance and consumer trust in organized gold markets: A PLS-SEM analysis. Journal of Indian Business Research, 16(2), 88–105.
10. Kanaujiya, R., & Singh, P. (2024). Heterogeneous effects of GST on consumer spending patterns: Evidence from urban India. Asian Journal of Finance & Accounting, 16(1), 55–72.
11. Kumar, A. (2020). GST and its impact on Indian commodity markets. Indian Journal of Economics and Business, 19(3), 221–238.
12. Narayan, P. K., Narayan, S., & Zheng, X. (2010). Gold and oil futures markets: Are markets efficient? Applied Energy, 87(10), 3299–3303.
13. Patil, S. (2021). Alternative gold investment instruments in the post-GST era: A study of ETFs and sovereign gold bonds. Finance India, 35(2), 613–628.
14. Seth, R., & Kaur, M. (2020). GST and consumer buying behaviour: A study of organized retail. International Journal of Recent Technology and Engineering, 8(5), 1145–1152.
15. Sharma, R., & Gupta, D. (2021). Consumer perceptions toward gold pricing and GST: Evidence from urban India. South Asian Journal of Management, 28(1), 67–84.
16. Singh, T., & Kaur, H. (2020). Exchange rate dynamics and gold prices in India: A co-integration analysis. Journal of Business Economics and Management, 21(3), 672–689.
17. Vaidyanathan, R. (1999). Consumption of gold in India: Trends and determinants. Economic and Political Weekly, 34(9), 471–479.
18. Verma, S. (2020). Impact of GST on price levels and consumer welfare in India. Artha Vijnana, 62(4), 290–308.
19. World Gold Council. (2023). Gold Demand Trends: Full Year 2022. World Gold Council.

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING AND TECHNOLOGY

| Mobile No: +91-6381907438 | Whatsapp: +91-6381907438 | ijmrset@gmail.com |

www.ijmrset.com