Market Sizing, Pricing Dynamics, and Strategic Trends in the Post-Pandemic Global Diamond Industry

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Abstract

The diamond industry now operates in a new diamond value chain, completely transformed by the post-pandemic environment. It includes assessing consumer preferences, competition from lab-grown diamonds, regional pricing, and the supply of rough diamonds. The study examines market sizing and price action, lab-grown disruption, and changing North American, Chinese, and Indian demand from 2019 to 2025. The secondary data are used in a longitudinal design and analyzed using interpretative methods such as trend analysis, percentages, and regional triangulation, based on statistical data from the Kimberley Process, De Beers reports, GJEPC data, World Bank and IMF indicators, and consumer data from commercial sources. According to the results, global rough-diamond production was 138.1 million carats worth US$ 13.57 billion in 2019, which decreased to 98.8 million carats worth US$9.23 billion in 2025. Compared with the 2022 cycle high, production value fell 42.2%, average value per carat fell 29.4%, and production volume fell 18.1%. The lab-grown diamond market has grown rapidly, and the share of US engagement rings is expected to reach around 47% by 2025, up from 5.9% in 2019, with significantly lower per-carat value than natural diamonds. Demand varied regionally, with the United States continuing to dominate, China's growth weakening, and India becoming an important factor. The study concludes that the industry is increasingly divided by country of origin, price, consumer use, and region. Higher-frequency market panels and quality-adjusted transactions should be used in future studies.

Keywords: Global Diamond Industry, Rough-Diamond Pricing, Lab-Grown Diamonds, Diamond Market Sizing, Consumer Demand Trends.

1. Introduction

The global diamond industry is an integrated value chain that includes diamond mining, sorting and cutting/polishing, inventory financing and trading, and jewellery manufacturing and retail. Most rough-diamond supply comes from a cluster of producing countries; India is a major cutting and polishing center, and the United States is the world's largest consumer of natural-diamond jewellery. The year 2019 is a suitable pre-pandemic reference year, as it reflects market conditions before the COVID-19 pandemic affected mining activities, international logistics, retail sales, and discretionary consumption. In 2020, the world produced 107.3 million carats valued at US$9.24 billion, down from 138.1 million carats valued at US$13.57 billion in 2019, according to Kimberley Process statistics (Wolf & M. Užík, 2025).

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The market bounced back in 2022 to a production value of US$15.96 billion, then fell to US$9.23 billion from 98.8 million carats in 2025 (Han, Qi, Hu, Liu, & R. Obbels, 2025); (J. C. C. Yuan, 2025). This represents a 42.2% cut in manufacturing value compared with the peak production year of 2022. Rising interest rates, a stock buildup, inflation, and reduced demand drove this change. Meanwhile, the competition for lab-cut diamonds is expanding. Data from US appraisal values show that the percentage of lab-grown stones in engagement rings has increased from 5.9% in 2019 to 47.0% in 2025, and that lab-grown diamond rings have been priced lower than traditional ones, with prices dropping by 55% from US$ 4622 in 2019 to US$ 2057 in 2025 (Chauhan, Gupta, Patil, & A. Shakthikrishna, 2026).

Most of the literature focuses on either the supply and demand of rough diamonds or the supply and demand of produced/laboratory diamonds, and in most cases assumes both depend on macroeconomic factors. This fragmentation makes upstream price decisions hard to understand because production, stocks, the credit market, and downstream demand determine them endogenously. It also obscures other geographic variations that may matter. Lab-grown meat can still achieve a healthy profit margin, though researchers argue it cannot compete with natural meat. Therefore, the post-pandemic world requires an integrated assessment that accounts for spatial dimensions of consumption and supply, as well as interconnections among supply, prices, and substitution.

This study is guided by four major objectives, which aim to:

1. Quantify changes in global rough-diamond production volume, production value, and average value per carat between 2019 and 2025.
2. Assess post-pandemic rough-diamond pricing dynamics in relation to supply adjustment, inventories, and macroeconomic conditions.
3. Evaluate the growth, price compression, and market-disruption effects of lab-grown diamonds.
4. Compare post-pandemic consumer-demand trends across North America and major Asian markets, particularly China and India.

This study covers 2019-2025, with 2019 as the pre-pandemic baseline and the following years as the disruption, recovery, and correction periods. The analysis covers rough diamond production and value across the global value chain, with a main emphasis on North America, specifically the United States. It also covers Asia, including China and India, and Canada, Japan, and Hong Kong, with supporting evidence. The natural-diamond jewellery market was divided into the US and the remainder of the world, with the US accounting for around 55 per cent of global demand, totaling US$47.7 billion in 2022.

This study is organized into various chapters. Chapter 2 presents the literature review on the natural diamond market, diamond prices, the lab-grown diamond market, disruptions in the natural diamond market, and regional demand. Chapter 3 addresses data sources, sampling, variables, and analytical techniques. Chapter 4 discusses marketplace developments, pricing mechanisms, and strategic developments across geographical regions. Chapter 5 presents the empirical findings, compares the results with the literature review, and offers recommendations for future research. The study ends with a summary of findings and provides recommendations for producers, manufacturers, retailers, and investors.

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2. Literature Review

2.1 Evolution of the Global Natural Diamond Market

The global natural diamond business centered on managing mines, controlling supply access, and ensuring orderly distribution. De Beers took ownership of the rough diamond supply and consolidated, classified, marketed, and controlled the flow and quality of rough diamonds, thereby controlling prices (V. Pouillard, 2025). This enabled the development of a coordinated value chain of farmers, polishers, miners, traders, cutters, and jewellery manufacturers and retailers. Production spread from southern Africa to Russia, Canada, and other jurisdictions, reducing the influence of key producers and diversifying the market (Sun, Jiang, & S. Wang, 2024). However, natural diamonds are also rare from a geological point of view, and deposits, mine-development cycles, and ore grade, combined with the capital intensity of mining itself, restrict output (Smith & J. E. Shigley, 2024). Compared with other gemstones, lab-created diamonds are unique because they can become more plentiful as production rises. This difference was evident during the COVID-19COVID-19 shock. Rough supply dropped in 2020 due to a series of mine suspensions and other factors, and recovery occurred through reopening activity and luxury spending in 2021 and 2022.



Figure 1: Evolution of natural diamond supply, structure, diversification, shock, and recovery

Figure 1 illustrates the evolution in the global natural diamond industry from centralized supply control to geographic diversification. It shows the complex interplay among coordinated value-chain activity, geological rarity, mine-development limitations, and capital needs that shaped natural diamond supply. It also highlights a 2020 supply shortfall that took time to rebound in 2021-2022, and the difference between limited natural supply and the growing prospect of lab-grown production.

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2.2 Post-Pandemic Rough Diamond Pricing Dynamics

Post-pandemic pricing reflected supply and demand. Production cutbacks in 2020 led to stock-replenishment sales of jewellery, along with price increases reflecting manufacturers' increased effort to sell their stock (M. Jagtap, 2026). The rich price index rose 23% over the past year, while the realized average price for De Beers' diamonds rose from about US$146 per carat in 2021 to US$197 in 2022. Destocking, Chinese demand amid international inflation, and higher financing rates in 2023 all contributed to weaker purchasing appetite, driving price realization down about 25% to US$147 per carat (D. Woods, 2026). Sourcing, traceability, and trade routing became more difficult because of restrictions on Russian diamonds. The researchers presented real-time machine learning governance for low-latency financial systems that enable low-latency monitoring of financing and transaction risks in the diamond trading space (Jha, Gannavarapu, & S. Durgam, 2025).

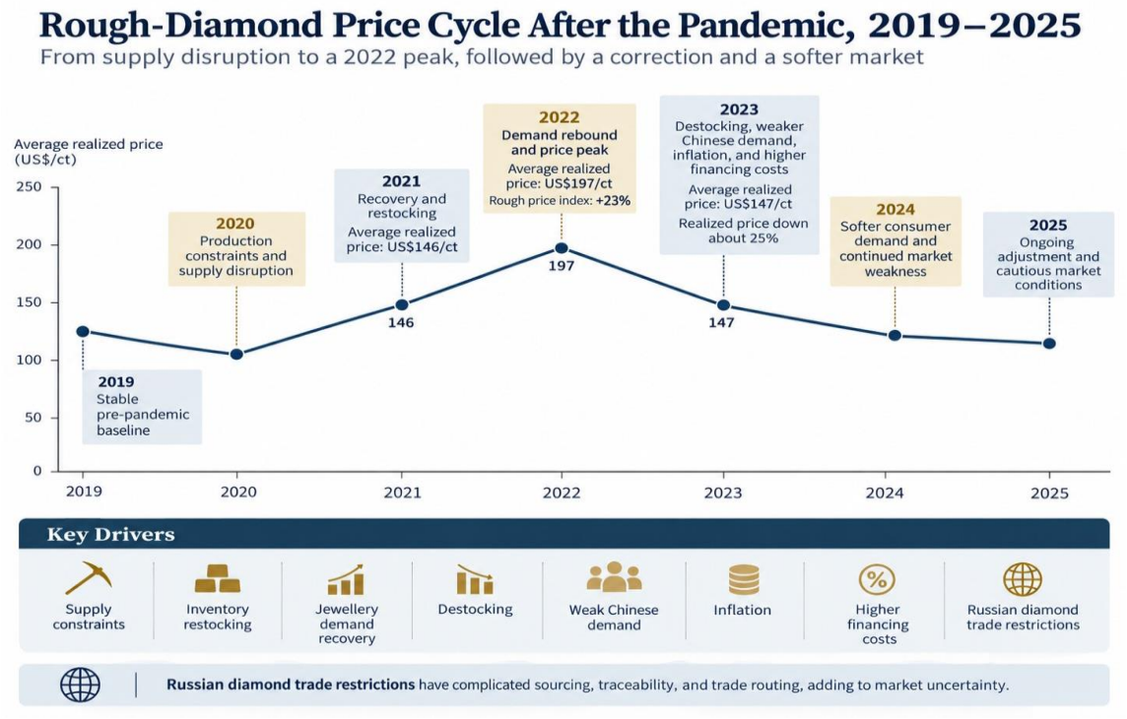

Figure 2: Post-pandemic rough-diamond pricing cycle and major market adjustment drivers

Figure 2 illustrates the rough diamond pricing cycle after the pandemic, from 2019 to 2025. Average identified prices rose from around US$146 per carat in 2021 to US$197 in 2022, then dipped to US$147 in 2023. The correction was due to destocking, declining Chinese demand, inflation, rising financing costs, and lower jewellery demand. The figure also shows the impact of supply restrictions, stock replenishment, and restrictions in the Russian diamond trade on further market adjustment.

2.3 Lab-Grown Diamonds as a Structural Market Disruption

Lab-grown diamonds are a paradigm shift in the industry. In fact, gemstone quality, stability, and production scale have improved with the advent of chemical vapor deposition and high–pressure, high–temperature systems. Lower production costs, higher yields, and new reactors can respond much faster than mining supply. This scalability has contributed to wholesale and retail price compression and, by making it more affordable, has contributed to the acceptance of engagement jewellery (Flesher, Reiter, & J. Whitecross, 2024). However, demand is also influenced by ethical and

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environmental attitudes, as well as rarity, origin, emotional symbolism, prestige, and residual value, which can play a vital role in the natural diamond market.

Fast commercialization is present in India. India exported approximately US$421 million worth of polished lab-grown product in FY2019/20, which rose to US$1.68 billion in FY2022/23 before declining to approximately US$1.27 billion in FY2024/25 (G. P. Kanani, 2026). The value fall complements the price deflation. In another supply chain application, scientists showed how digital forecasting, inventory, and traceability could improve operational responsiveness in the diamond manufacturing process, which is heavily technology-driven (Enugala & G. Goel, 2025).

2.4 Consumer Demand Shifts in North America

Post-pandemic recovery & category substitution in North America. After gaining ground in 2021 and 2022, jewellery spending in the United States slowed to a normal growth rate amid inflation and rising interest rates (Ceron & Monge, 2023). This affordable access to larger stones on a smaller budget drove the lab-grown stone trend over natural stones, particularly for engagement rings. BriteCo's data shows the share of lab-grown stones rose from 5.9% of engagement rings in 2019 to around 47% in 2025, and they accounted for 51% of engagement rings in the first half of 2026 (BriteCo, 2026). Because of this penetration, natural diamonds' value per carat will remain high, and this does not mean value erosion.

Understanding the value and quality of natural stones and using non-bridal purchases as a selection criterion are important. Knot and Tenoris indicators are used for triangulation, but one should be cautious and not assume these indicators represent a country unless they state as such (Stagnaro, Druckman, Berinsky, Arechar, Willer, & D. G. Rand, 2026). Table 1 presents developments in the jewellery market among US consumers, the lab-grown engagement ring business, consumer preference trends, and natural diamonds. It also highlights the quality of proprietary statistics and the need to analyse and act pragmatically on any hint of national consumer trends.

Table 1: North American consumer demand shifts and lab-grown diamond adoption

Indicator	Evidence / Trend	Interpretation
US jewellery spending	Strong growth in 2021–2022, followed by slower growth amid inflation and higher interest rates	Post-pandemic demand normalized after the initial rebound
Lab-grown engagement-ring share	5.9% in 2019	Lab-grown diamonds had limited penetration before the pandemic
Lab-grown engagement-ring share	About 47% in 2025	Lab-grown diamonds became a major engagement-ring category
Lab-grown engagement-ring share	About 51% in H1 2026	Adoption continued to increase among US engagement-ring buyers
Consumer	Larger stones became attainable at	Affordability and stone size supported

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Indicator	Evidence / Trend	Interpretation
preference	lower budgets through lab-grown diamonds	category substitution
Natural-diamond positioning	Higher value per carat and continued relevance in premium and non-bridal purchases	Rising lab-grown unit share did not necessarily imply equivalent value erosion
Data limitation	BriteCo, The Knot, and Tenoris rely on proprietary datasets	Findings require triangulation and should not automatically be treated as nationally representative

2.5 Consumer Demand Transformation in Asia

Demand has contrasted sharply between China and India. Previous data shows that natural diamond jewellery demand in Mainland China in 2022 was about US$8.8 billion, down 11.2%, while in India, it was estimated at US$5.0 billion, with growth of 8% (Liu, Li, Yang, Xia, & C. Zhou, 2025). In contrast, demand in the US was not far behind the US$47.7 billion mark. However, subsequent reports suggest that by 2024, India accounted for around 11% of global natural diamond jewellery demand and became the second-largest market, overtaking China (A. Krawitz, 2023); (S. Dsouza, 2024). Uncertainty in the property market, a slowdown in consumer spending on luxury items, decreased marriage formation, and shifting preferences among younger consumers have correlated with slower growth in the Chinese economy. In India, organized jewellery shops, jewellery culture, and rising domestic consumption of luxury jewellery have all played a role in its favor (Katoon & A. Ali, 2026). Discovery and omnichannel retailing are becoming increasingly relevant in both markets.



Figure 3: Shifting natural diamond jewellery demand across key Asian markets

Figure 3 illustrates the differences in demand from China and India after the pandemic. It shows both depressed demand for Chinese natural-diamond jewellery and stronger Indian demand, along with India's emergence as the second-largest global market. The chart also shows the economic

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and consumer factors behind a potential slowdown in China's economic growth rate and rising demand in India. It also summarizes the rise of organized retail, online jewellery discovery, and omnichannel jewellery buying in both markets.

2.6 Research Gaps and Limitations in the Literature

Some literature has several limitations. Limited research integrates rough diamond pricing with downstream consumer behavior, and little compares natural and laboratory-grown diamond prices. The US, China, and India have different demand paths, and the global average can obscure them. In addition, proprietary consumer surveys use different sampling frames, making it difficult to compare results across them. For most units, even where price differences are great across product categories, unit market share is commonly regarded as value share. To support this study, researchers triangulate production and price data, trade and macroeconomic data, and consumer data. Table 2 shows the key research gaps and methodological limitations in the literature surveyed on the diamond market. It also shows how the current research addresses these limitations by comparing regions, price versus value, and various independent datasets.

Table 2: Research Gaps and Limitations in the Diamond-Market Literature

Literature issue	Evidence from reviewed literature	Research gap or limitation	Implication for the present study
Rough-diamond pricing and consumer behavior	Pricing studies and consumer-demand studies are commonly treated separately	Limited integration between upstream price movements and downstream purchasing behavior	The study links rough-diamond prices with jewellery demand and consumer-market trends
Natural versus lab-grown pricing	Natural and lab-grown diamonds are often analyzed independently	Direct comparison of price formation, price compression, and substitution effects remains limited	The study compares natural-diamond pricing with lab-grown price erosion and penetration
Use of global averages	Industry reports frequently present worldwide market indicators	Global averages can conceal divergent US, Chinese, and Indian demand trajectories	Regional analysis is conducted separately for the United States, China, and India
Proprietary consumer surveys	BriteCo, The Knot, Tenoris, and similar datasets use different sampling approaches	Sampling frames and commercial methodologies reduce direct comparability and national representativeness	Findings are triangulated across several datasets instead of relying on one survey
Unit share versus value share	Lab-grown penetration is often reported using unit-based market	Unit share can be misinterpreted as equivalent to market-	The study distinguishes unit penetration from value contribution and

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Literature issue	Evidence from reviewed literature	Research gap or limitation	Implication for the present study
	share	value share despite substantial price differences	price per carat
Fragmented evidence base	Production, trade, macroeconomic, pricing, and consumer datasets are usually analyzed separately	No single source captures the complete post-pandemic diamond-market structure	The study integrates production, pricing, trade, macroeconomic, and consumer evidence within one analytical framework

3. Methods and Techniques

3.1 Data Collection Methods

This research uses a market comparative approach and secondary data, with a longitudinal scope (2019-2025). The report identifies shifts in production policy, trade, price, the macroeconomic environment, and consumer demand. The report collects production volume, value, and value-per-carat details for rough diamonds from Kimberley Process Rough Diamond Statistics. Diamond Insight will supply De Beers with price index changes, actual rough diamond prices, and demand indices for natural diamond jewellery. This study used Indian data on lab-grown diamond exports provided by the Gem and Jewellery Export Promotion Council.

Gross Domestic Product (GDP) growth rates were obtained from the World Bank's World Development Indicators, while inflation rates and macro-economic data were validated using the World Economic Outlook (WEO) data released by the International Monetary Fund (IMF). Table 3 presents the key data sources, variables, and study area, number of observations, measurement methods, and the study's methodological limitations. Cross-country data from BriteCo, The Knot, and Tenoris provide U.S. penetration, pricing, and demand data for engagement rings. The study triangulates official data, industry and macroeconomic outputs, and commercial observations to understand better global supply, market price evolution, surging supply from synthetic versions, and regional demand.

Table 3: Data Sources, Variables, Periods, Sample Sizes, Units, and Limitations

Data source / analytical panel	Main variables	Period	Sample size	Unit of measurement	Sampling / analytical approach	Key limitation
Kimberley Process Rough Diamond	Global rough-diamond production	2019–2025	n = 7 global-year observati	Million carats, US$ billion, US$/carat	Census of annual global observati	Average value per carat is influenced by diamond

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Data source / analytical panel	Main variables	Period	Sample size	Unit of measurement	Sampling / analytical approach	Key limitation
Statistics	volume, production value, average value per carat		ons		ons	quality and product mix
Five major rough-diamond producers: Russia, Botswana, Canada, Angola, and South Africa	Country-level rough-diamond production volume and value	2019–2025	n = 35 country-year observations	Carats and US$	Criterion-based purposive sampling	Selected producers do not represent every diamond-producing country, although they accounted for about 82.9% of global production volume in 2025
De Beers annual results and Diamond Insight reports	Realized rough prices, rough-price index movements, natural-diamond jewellery demand	2019–2025	Not separately specified	US$/carat, index values, US$ demand	Secondary industry-data review	Realized prices may vary with sales mix and therefore are not universal market prices
World Bank World Development	GDP growth in the United States, China, and	2019–2025	n = 21 country-year observations	Annual GDP growth (%)	Census of annual observations for three	GDP trends provide macroeconomic context but do not

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Data source / analytical panel	Main variables	Period	Sample size	Unit of measurement	Sampling / analytical approach	Key limitation
Indicators	India				selected markets	establish causality with diamond demand
IMF World Economic Outlook	Inflation and supplementary macroeconomic indicators	2019–2025	Not separately specified	Percentage rates and macroeconomic indicators	Secondary-data validation	Macroeconomic aggregates may not directly capture luxury-jewellery purchasing behaviour
Gem and Jewellery Export Promotion Council of India	Polished lab-grown diamond exports	Seven fiscal years	n = 7 fiscal-year observations	US$ export value and trade volume	Census of available annual observations	Fiscal-year reporting is not directly identical to calendar-year series
BriteCo	US lab-grown penetration, engagement-ring trends, and pricing	2019–2025	n = 7 yearly aggregate observations	Percentage share and US$/carat	Commercial longitudinal dataset	Proprietary sampling limits national representativeness
The Knot and Tenoris	US engagement-ring demand, lab-grown penetration, and pricing indicators	Study-period supporting evidence	Not specified	Percentages, prices, and consumer indicators	Commercial-market triangulation	Proprietary sampling frames and methodologies reduce direct comparability

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The analytical sample was split into panels to avoid mixing incompatible observations. There were n = 7 global year observations on the global Kimberley Process series. The producer panel has seven country-year observations, for a total of n = 35 observations in Russia, Botswana, Canada, Angola, and South Africa. In 2025, this group of countries produced about 82.9 per cent of the rough diamond volume reported worldwide. The study used n = 21 country-year observations to compare the United States, China, and India on the macroeconomic aspect. The study used n = 7 fiscal-year observations for the Indian gold export series and n = 7 annual observations for the BriteCo trend. The study selected material markets using criterion-based purposive sampling and retained all annual observations during the period. Observations and comparisons are made under the same conditions and may be empirically reliable when using the experimental testing method.

3.2 Data Analysis

The analysis used descriptive statistics and comparative trend assessment. The study included production volume, production value, and value per carat, jewellery demand, lab-grown exports, market penetration, GDP growth, and inflation. The study calculated year-over-year percentage changes and set 2019 as the non-pandemic baseline. The study showed production value per carat in Kimberley, realized price movements, and rough price index movements and their directionality.The study analyzed demand in the U.S., China, and India. It compared the adoption price with lab, retail, and export prices.

Each model had few observations, so the limited sample size across models prevented estimation of causal regressions. For this reason, macroeconomic indicators were not treated as direct determinants of overall diamond demand; instead, they were used in context. Data processing relied on consistent data fields and repeatable data-cleaning and validation procedures. This is analogous to the use of applications in analytics and data integration, where the selected applications were in the health care or insurance sectors, not the diamond markets (Rangu, Chadha, & S. Samala, 2025).

3.3 Variable Definition and Measurement

The study traced production volume (in carats) and value (in US $) of rough diamonds in the global market. The study used Kimberley production value/carat and De Beers price indicators for rough pricing. The study defined natural diamond consumption as the total value of jewellery sold. A study used indicators of polished export values, retail penetration, and relative prices to measure disruption from lab-grown diamonds (Huang, Wang, & L. Zhang, 2026). This entails inflation indicators, jewellery value, jewellery purchase measures, jewellery penetration in the macroeconomic demand category, and GDP. The study used dollars per carat, the average production unit value reported by the Kimberley Process, as the unit value of production, not the universal spot price. This split was necessary because average yearly stone size, stone quality, geographical site, and production vary, leading to differences in annual averages.

3.4 Reliability, Validity, and Study Limitations

To improve the study's reliability, the study matched similar statistics across data sources and, when available, used official statistics. All original currencies, measurement units, and reporting periods were retained until comparison. Data were observed for calendar and fiscal years. This research used a publicly available consumer dataset that provides some indication of the market but is not nationally representative. However, the data had inconsistencies in diamond quality ranges,

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discrepancies in sales classification across producers, a proprietary framework, and an almost total lack of correlation between natural and lab-grown sales classifications.

The apparent change in trade activity induced by sanctions and the redirection of trade from Russia does not necessarily indicate changes in consumption (A. Shingal, 2024). Therefore, this study gathered isolated correlations rather than a single set of correlations; it presented the results as riddles to be solved and triangulated whenever possible. Table 4 shows the methodological measures taken to increase reliability and validity. It offers hints and comments on data cross-checks, control procedures for the reporting period, commercial datasets, and cautious interpretation of correlations. It also highlights constraints arising from quality disparities, classification and reclassification differences, proprietary trade sampling, sanctions, and trade rerouting.

Table 4: Reliability, validity, and limitations affecting interpretation of study findings

Methodological aspect	Approach used in the study	Purpose / strength	Limitation or risk
Cross-checking of statistics	Comparable figures were checked across independent datasets	Improved reliability by reducing dependence on a single source	Differences in reporting methods could still produce inconsistencies
Use of official data	Official statistical series were prioritized where available	Strengthened data credibility and consistency	Official datasets may have reporting delays or incomplete market coverage
Currency and unit consistency	Original currencies and measurement units were retained before comparison	Reduced conversion and measurement errors	Cross-market comparisons may still be influenced by exchange-rate movements
Reporting-period control	Fiscal-year observations were separated from calendar-year observations	Prevented inappropriate direct comparison between differently timed datasets	Time-period differences limited perfect alignment across sources
Commercial consumer datasets	BriteCo, The Knot, and Tenoris were treated as market indicators	Added timely information on consumer demand, pricing, and lab-grown penetration	Proprietary sampling frames may not represent the national population
Diamond quality variation	Differences in stone size, grade, origin, and product mix were recognized	Improved interpretation of price and value-per-carat measures	Average prices may conceal important quality differences

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Methodological aspect	Approach used in the study	Purpose / strength	Limitation or risk
Producer reporting differences	Variation in producer reporting practices was acknowledged	Reduced overinterpretation of individual producer statistics	Data definitions may differ across companies and jurisdictions
Trade classification	Natural and lab-grown diamond trade categories were assessed separately where possible	Improved product-level comparison	International classifications are not fully harmonized
Sanctions and trade redirection	Russian diamond sanctions and redirected trade routes were considered	Improved interpretation of sourcing and trade-flow changes	Recorded trade routes may not reflect final consumption markets
Causal interpretation	Contemporaneous correlations were interpreted cautiously	Prevented unsupported causal conclusions	Descriptive analysis cannot establish definitive cause-and-effect relationships
Conflicting indicators	Divergent results were triangulated rather than forcibly reconciled	Preserved analytical transparency and acknowledged uncertainty	Some inconsistencies remain unresolved because datasets measure different market dimensions

4. Integrated Market Sizing and Strategic Trend Assessment

4.1 Global Natural Diamond Market Size

This analysis found that the upstream natural diamond market has been in long-term decline since then, amid the pandemic. In 2019, the industry produced an average of 138.1 million carats, worth US$13.57 billion, with a per-carat production value of US$98.24 billion (D. W. Olson, 2025). In 2020, production fell to 107.3 million carats and US$9.24 billion, down 22.3% in volume and 31.9% in value. The average carat price was down 12.3% to US$86.12. The highest carat value was recorded in 2022, with 120.7 million carats, an average value of US$132.30 per carat, and a total value of US$15.96 billion (A. Cunningham, 2025). Production fell another 12.6% from 2019 in volume but rose 17.6% in value in 2022, suggesting that the effects of limited supply and prices picked up during 2022.

The next one was big enough. In 2023, production reached 112.1 million carats, valued at US$12.89 billion, and in 2024 it reached 107.9 million carats, valued at US$9.53 billion. Production by 2025 stood at 98.8 million carats, valued at US$9.23 billion (Chudaeva & O. A. Sapova, 2025). Sales value fell by 42.2%, sales volume by 18.1%, and average value per carat by 29.4% between the

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year with the highest sales, 2022, and 2025. The value decline was larger than the volume decline, suggesting the poor market situation cannot be blamed solely on mine output. From 2024 to 2025, volume fell a further 8.4%, but average value per carat rose 5.7% to US$93.43, showing how unit values can shift amid a market decline due to changes in the quality mix and/or producer selection (Kigo, Omondi, & B. O. Omolo, 2023).

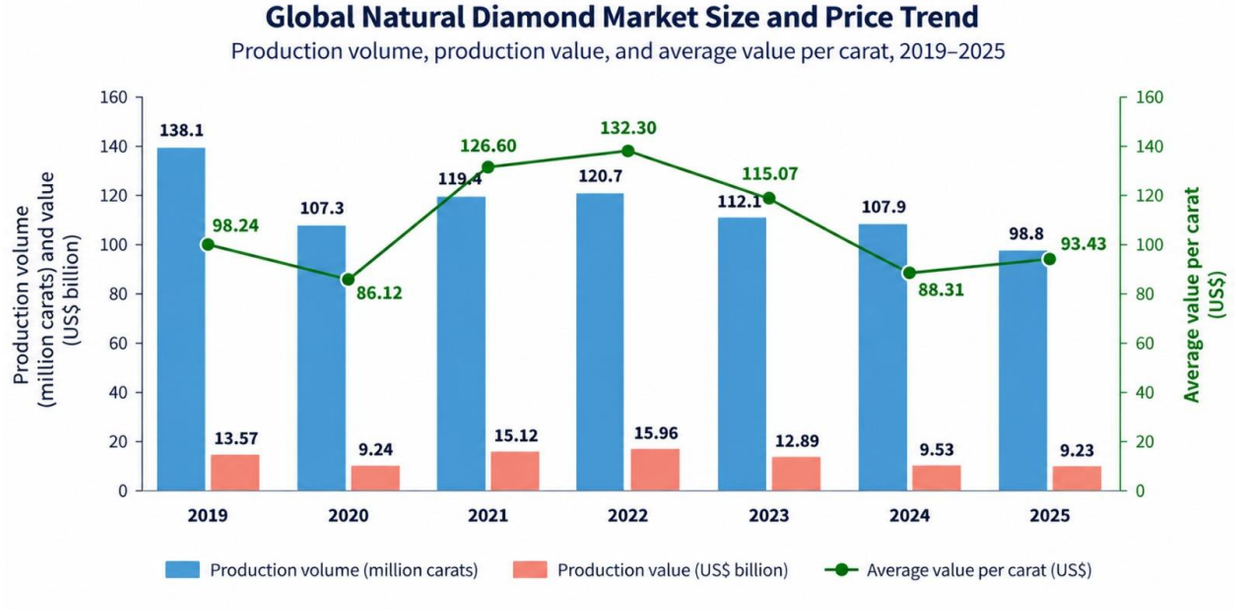

Figure 4: Global rough diamond market size, value, and price trends

Figure 4 shows the development of rough-diamond production volume and value, and the average value per carat, from 2019 to 2025. It shows contractions in 2020, followed by a strong recovery that peaked in 2022 for both production value and average value per carat. Production volume and value fell again in 2025, and value declined at a steeper rate than physical volume. Additionally, average value per carat also slightly rebounded in 2025, even as diamond production continued to shrink.

4.2 Pricing Regime Shift and Lab Grown Deflation

The pricing evaluation found more diverse models for natural diamonds and lab-grown diamonds. Geology, mining economics, grade distribution, and planned supply changes limited natural rough supply. As such, the 2021 and 2022 recovery faced limited supply and a reversion to jewellery demand and stock replenishment. The turnaround in 2023 and 2024 was due to sluggish downwind demand, destocking, rising financing costs, and falling demand from China (Shaikh & K. M. Sawant, 2026). Realized prices also reacted to the composition of stones traded. A producer might thus report a higher realized average price with a less representative mix of products even though the price index for the products might have gone down.

The lab-generated diamonds exhibited one gradient of opposition and reaction. Capacity in chemical vapor deposition and high-pressure, high-temperature equipment could grow faster than mined supply, and process learning and equipment use helped lower unit costs (Zhdanov, Andrzejewski, Bondareva, & S. Evlashin, 2024). Increased manufacturing scalability further boosted competition and the gap between the running price lines of natural stones in the wholesale and retail price comparisons. This trend was strategically significant, as declining lab-grown prices could

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increase units sold while reducing market value. In particular, manufacturing research shows that output and quality performance measures may respond differently under varying operational conditions; therefore, it is important to consider the analytical separability between output and quality measures and their responses, and to view neither measure as a complete indicator of manufacturing function performance (Deshpande, et al., 2025).

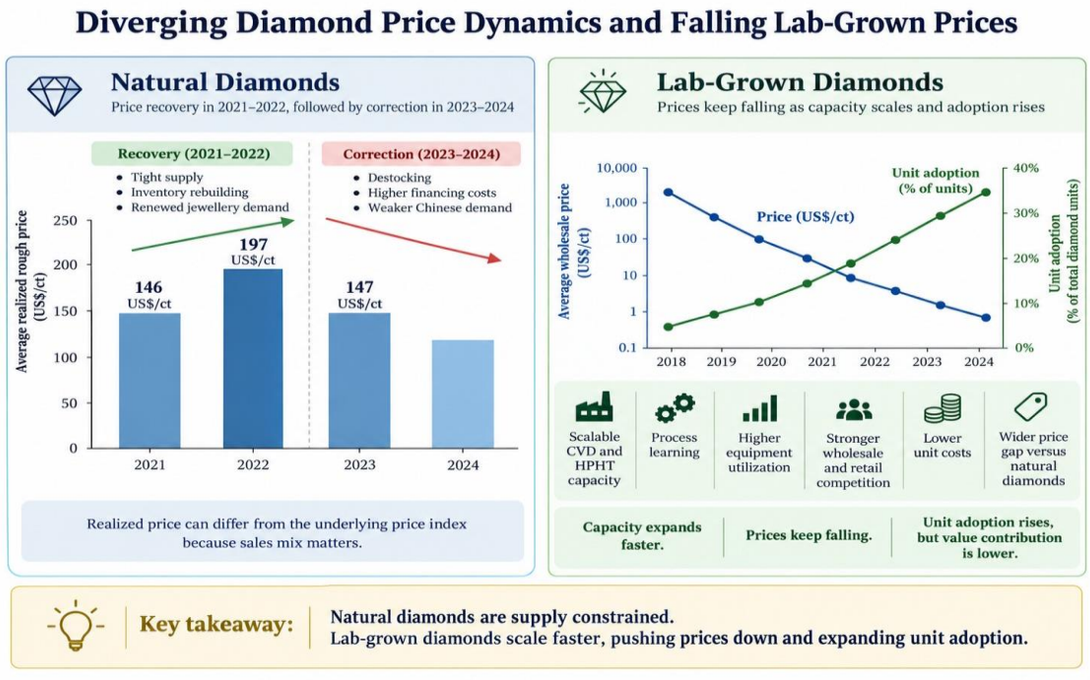

Figure 5: Diverging natural and lab-grown diamond pricing and adoption trends

Figure 5 illustrates changes in pricing structures for natural vs. lab-grown diamonds post-pandemic. Natural rough diamonds increased in price during 2021-2022, but fell in 2023-2024 as stocks unwound, investment costs rose, and Chinese demand declined. Lab-grown diamonds evolved differently, benefiting not only from VC funding and rising CVD and HPHT production capacity, but also from manufacturing improvements and price competitiveness, resulting in consistent, uninterrupted price compression. The figure also shows that lab-grown diamonds continued to see a drop in unit value as their popularity increased, further highlighting the price disparity between natural and manufactured diamonds available in the market.

4.3 Regional Strategic Outlook: North America, China, and India

A regional review indicates that post-pandemic, the diamond market is more fractured. Natural and mined diamonds lead the market in North America, with bridal jewellery rapidly adopting lab-grown diamonds (Perret, Beyerhaus, & S. Ding, 2025). While lab-grown stones offer consumers better value and the ability to buy more stones at a lower cost, the rarest and most natural stones retain their rarity, brand, and luxury value. Indeed, it was a policy of coexistence and not complete replacement at all price levels. However, the Chinese have another choice. The natural diamond market has been affected by the pandemic, with access to luxury commodity markets recovering slowly. A serialization of property markets, cautious household spending, and lasting shifts in marriage lifestyles and younger consumers' preferences have all had a negative impact (Chang, Li, Diao, & X. Li, 2024); (Guo, et al., 2024).

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Long-term prospects remained good, supported by market size and growth, a rising affluent population, jewellery infrastructure, and growing digital retail penetration. The strategic recovery was also driven by a greater focus on brand differentiation and rising consumer confidence. The manufacturing sector was the primary driver, and demand prospects were more promising in India. Natural diamonds continued to be in growing demand in Pakistan as the economy grows and the standard of living improves, and organized jewellery retailing was also a significant category. The country remained an important supplier of diamond cutting and polishing, artificial diamond production, and diamonds for export (Dev & R. Sengupta, 2023). This dual role brought dual dynamics to the natural and diamond economy.

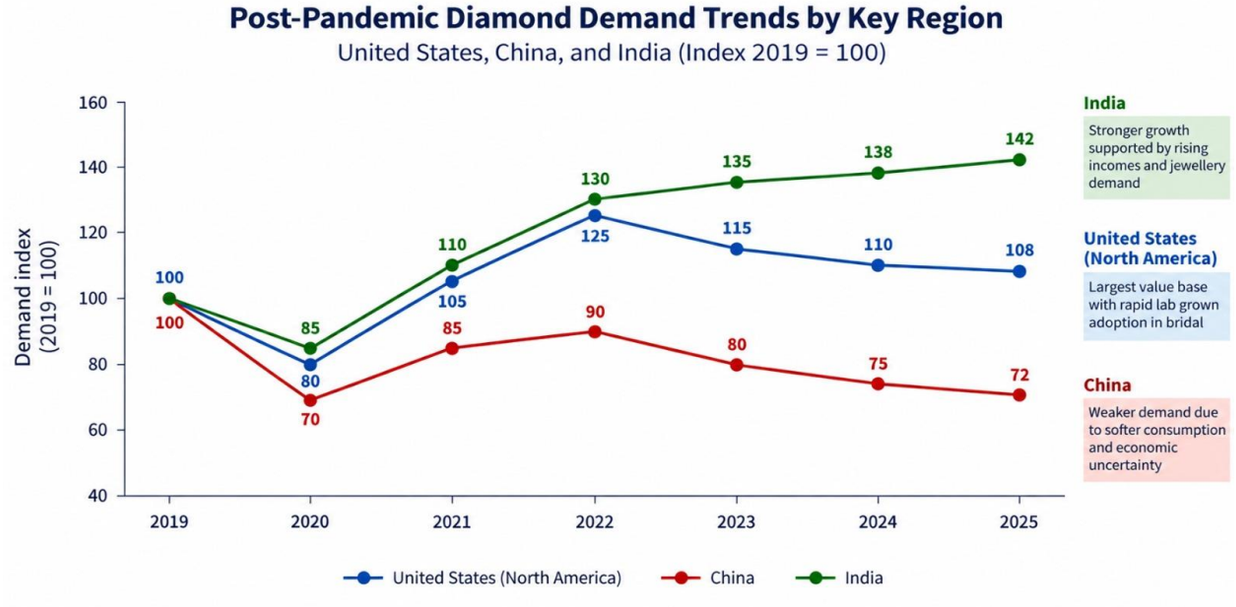

Figure 6: Post-pandemic diamond demand trajectories across United States, China, and India

Figure 6 illustrates two divergent paths of pandemic recovery-related jewellery demand in the USA, China, and India. It shows the United States maintaining the largest value base and high adoption of lab-grown diamonds in bridal jewellery. India shows stronger demand growth, driven by rising incomes, organized jewellery sales, and rising in-country consumption. China shows reduced demand, driven by less luxurious purchases, changing marriage patterns, economic uncertainty, and new consumer preferences.

5. Results and Discussion

5.1 Global Rough Diamond Market Contraction and Recovery Cycle

The results showed that the global rough diamond market experienced disruption, a bounce-back, and contraction between 2019 and 2025. Production fell to 138.1 million carats valued at $13.57 billion in 2019, then dipped to 107.3 million carats valued at $9.24 billion in 2020 after the pandemic-driven economic downturn (B. Tumediso, 2026). Average production value in 2022 was US$132.30 per carat, with recovery pushing the total to US$15.96 billion. Since then, the market has turned sour. By 2025, production fell to 98.8 million carats, valued at US$9.23 billion.

Production value fell 42.2%, volume fell 18.1%, and the average value per carat fell 29.4% compared with the 2022 high. From 2024 to 2025, however, volume dropped by approximately 8.4% while the average value per carat rose by approximately 5.8%. This was attributed to producer supply

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adjustments and changes in the quality mix, and was not consistent with the broader price recovery (A. Azzalini, 2023). Table 5 shows changes in principal production, value, and unit value across the rough-diamond market cycle. It focuses on the impact of the 2020 disruption, the pickup in 2022, and the contraction through 2025.

Table 5: Global Rough-Diamond Market Contraction and Recovery Cycle

Period	Production volume	Production value	Average value per carat	Key interpretation
2019	138.1 million ct	US$13.57 bn	US$98.24	Pre-pandemic baseline
2020	107.3 million ct	US$9.24 bn	US$86.12	Pandemic disruption caused sharp volume and value contraction
2022	120.7 million ct	US$15.96 bn	US$132.30	Strong recovery and peak market value
2025	98.8 million ct	US$9.23 bn	US$93.43	Renewed contraction following the 2022 peak
2022–2025 change	−18.1%	−42.2%	−29.4%	Value deteriorated substantially faster than physical output
2024–2025 change	−8.4%	—	+5.8%	Higher unit value despite falling volume, consistent with supply and quality-mix effects

5.2 Rough Diamond Pricing and Macroeconomic Conditions

Rough diamond prices over time aligned with a macroeconomic and inventory cycle-driven market. Supply in 2020 was limited by pandemic-related restrictions on mining and reopening demand; restocking and jewellery spending supported the recovery in 2021 and 2022 (Matome & T. B. Fischer, 2024). The following correction was accompanied by inflation, rising interest rates, costlier stock financing, a slowdown in China's consumption, and producer efforts to cool production. It is believed that the number of diamond jewellery consumers worldwide fell in 2024 by around 3% to 4%, and by around 2% in the United States, with the decline in China continuing.

These trends showed that luxury diamond consumption could not be explained by GDP growth alone. Diamond demand was subdued, but China has since returned to economic growth and bounced back from the pandemic (S. Y. Tong, 2024). Therefore, household confidence, weakness in the property market, marriage formation, inventories, and changing preferences for luxury goods were considered important for interpreting demand. Restrictions on availability from producer discipline were offset by fewer constraints on supply improvements downstream.

5.3 Quantifying Lab Grown Diamond Disruption

Lab-grown diamond export growth, consumer uptake, and price declines all signaled disruption. Indian polished lab-grown exports grew significantly during FY2022/23 but fell in dollars in subsequent years. FY2025/26 evidence pointed to export value continuing to fall despite an uptick in exported volumes, reflecting lower unit values rather than market withdrawal (Keyser & K.

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Vandenbempt, 2025). It was estimated that only 5.9% of engagement rings in the United States were lab-grown stones in 2019, compared to 47% in 2025. In six years, this grew by 41.1%. BriteCo's 2025 appraisal data indicate that the median value for natural diamonds is approximately US$8,428 per carat, while lab-grown diamonds are approximately US$2,057 per carat (Cardoso & L. Chambel, 2026). The lab-grown figure was about 75.6% lower.

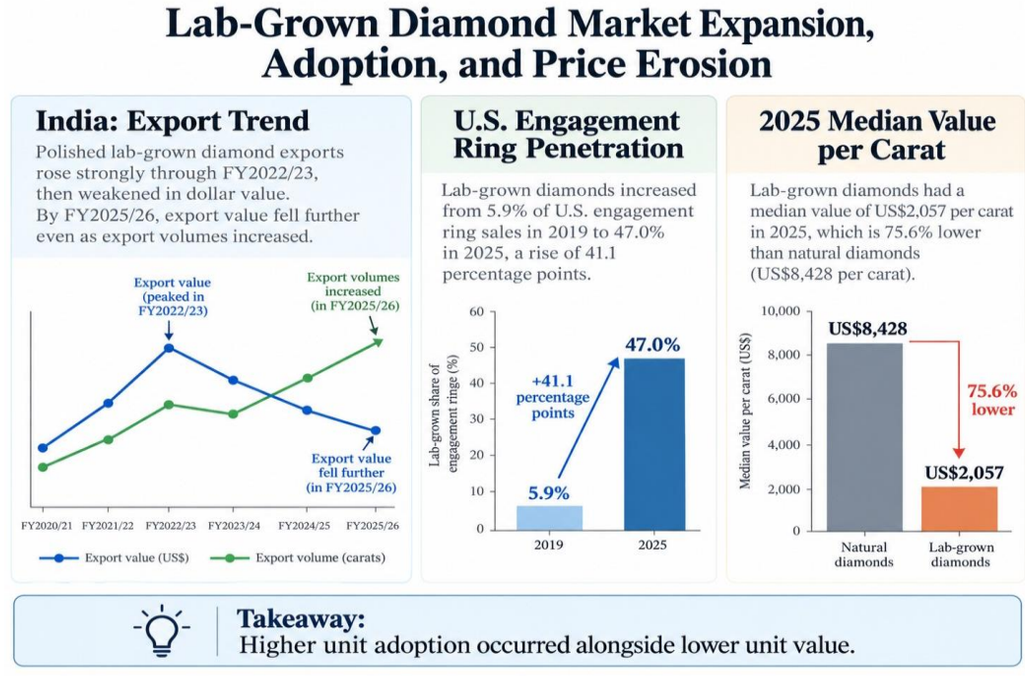

Figure 7: Lab-grown diamond adoption, export shifts, and widening price gap

Figure 7 illustrates structural changes in lab-grown diamonds, including export figures, consumer take-up, and declining unit value. It highlights strong polished lab-grown exports from India before a period of weakness in export dollar value that coincided with growth in export volume. The figure also shows that lab-grown diamonds' market share for engagement rings in the U.S. increased from 5.9% in 2019 to 47.0% in 2025. Lastly, it underscores the significant price difference in 2025, when lab-grown diamonds cost about 75.6% less per carat than natural diamonds.

5.4 Diverging Consumer Demand in North America and Asia

Regional findings showed there was no universal coronavirus pandemic consumer demand trajectory. The U.S. remained the largest natural diamond jewellery market and developed a strong laboratory-grown diamond jewellery market, particularly in bridal jewellery (Eaton-Magaña, Hardman, & S. Odake, 2024). Natural diamonds still played a role in upscale and special purchases. China saw a significant contraction in natural diamond demand amid weaker economic activity.

Reported purchase intentions were higher than actual purchases, so consumer interest in the product based on a survey could not be considered a real purchase. In India, the trend was reversed. Increased consumption also boosted the relevance of its role, and jewellery retailing consolidated its position, while the country remained at the heart of cutting, polishing, and lab-grown manufacturing. India has become the second-largest natural diamond jewellery market, underscoring the need to examine Asian markets country by country rather than in the aggregate (Kamalasaravanan & R. Raja Prasanth, 2023).

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5.5 Comparison of Findings with Previous Literature: From Substitution to Market Segmentation

The findings supported replacing the simple substitution marketing framework with market segmentation in the literature. The historical level of producer concentration mattered, as producers concentrated production in geographically concentrated areas and also produced or operated where other manufactured supply was available, giving consumers additional options. The 2022 peak and 2023-25 correction align with the literature on demand normalization after the pandemic, as well as inventory and financing cycles.

The study also showed rapid adoption in the United States, where vehicle costs and models seem to align with what has been published in the literature on vehicle purchasing (Gillingham, Benthem, Weber, Saafi, & X. He, 2023). Similarly, disparities in the marked prices of natural diamonds challenged ideas of scarcity, rarity, originality, and provenance. Market performance is made up of interplaying measures, not a single headline. Similarly, decision support systems, integrated information, and responsive business systems have been described as a useful operating metaphor for interpreting numerous market signals (P. K. R. Prakashkumar, 2025).

Table 6: Comparison of empirical findings with literature and strategic implications

Empirical finding	Corresponding literature theme	Interpretation	Strategic implication
Rough-diamond supply remained geographically concentrated	Historical producer concentration and supply control	Geographic concentration still matters, but producer influence is increasingly constrained by changing demand and alternative supply	Producers should combine supply discipline with closer monitoring of downstream demand
Market value peaked in 2022 before correcting during 2023–2025	Inventory cycles, financing conditions, and post-pandemic demand normalization	The correction was consistent with destocking, higher financing costs, and softer consumer demand	Inventory and financing conditions should be treated as key market indicators
Lab-grown adoption increased rapidly in the United States	Price accessibility, affordability, and ethical purchase considerations	Lower prices and larger attainable stone sizes supported consumer uptake, especially in bridal jewellery	Retailers should segment natural and lab-grown offerings by budget, occasion, and customer preference
Natural diamonds retained a substantial price premium	Scarcity, authenticity, provenance, and symbolic value	Higher prices indicate continued differentiation despite growing lab-grown penetration	Natural-diamond strategies should emphasize rarity, provenance, branding, and emotional value

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Empirical finding	Corresponding literature theme	Interpretation	Strategic implication
Unit penetration and market value moved differently	Distinction between volume share and value share	Higher lab-grown unit share did not imply equivalent displacement of natural-diamond value	Market analysis should separate unit share, price per carat, and total value contribution
Regional demand became increasingly divergent	Geographic segmentation of consumer behaviour	The United States, China, and India followed different post-pandemic demand trajectories	Strategies should be region-specific rather than based on global averages
Multiple indicators were needed to interpret market performance	Integrated data and decision-support approaches	No single price, volume, or demand indicator adequately explained market conditions	Manufacturers, producers, and retailers should use integrated production, inventory, pricing, and consumer data to make decisions.

Table 6 connects the key themes in the literature with the study's results. It illustrates the effects of supply concentration, financing activities, inventory cycles, adoption of lab-grown diamonds, and the natural diamond premium on post-pandemic market behavior. This table also shows differences in market penetration by unit value and regional market differences across key markets. The data also suggest a shift toward market fragmentation from a traditionally fragmented market.

5.6 Future Research Recommendation

Future research should use quality-adjusted averages for the year in which transactions took place as transaction prices. An orientation panel of producers and retailers is needed to study inventory cycles, promotion, and price transmission to the retail market. Surveys should be standardized and should cover residents in the United States, Canada, China, and Japan (Leitgöb, et al., 2023). Effective research should analyze how sanctions and trade-redirection policies affect pricing and sourcing volume. Natural and lab-grown diamonds' resale values should be calculated. Gen Z and Millennials' behaviors are distinct, and bridal spending should be separated from non-bridal spending (Eka, Elfreda, Setiawan, & F. Mustikasari, 2025); (Gupta & A. Jaiswal, 2025). Retailer records would also be included in an extension, along with carat, cut, color, clarity, origin, certificate, channel, and repurchase event.

6. Conclusions

The study concludes that the global diamond industry underwent a structural adjustment after the COVID-19 pandemic, which went beyond the temporary slowdown. The evidence indicated a pandemic contraction followed by a strong recovery in 2021 and 2022, with a correction thereafter, from 2019 to 2025. In 2020, global rough diamond production fell to 107.3 million carats, valued at US$9.24 billion, down from 138.1 million carats valued at US$13.57 billion in 2019. Production value rose to US$15.96 billion in 2022, but declined to US$9.23 billion in 2025. Production value

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dropped in 2022 by 42.2%, production volume by 18.1%, and the average value per carat by 29.4% from the previous year's maximum. These results corroborated the fall in volume, as well as changes in prices, inventory, and product mix.

The second concerned the rough diamond prices post the Covid-19 pandemic. The findings indicated that factors such as financing, supply conditions, inventories, and consumer demand affected prices. Supply-side pressures stemmed from mine disruptions, while recovery and restocking demand in 2021 and 2022 led to a bounce in prices. Inflation, interest rates, inventory financing, China's reduced farm-price volume demand, and destocking may have driven the post-2022 correction. Total carats produced were lower, although the average value per carat for the 2024-2025 period rose, with no indication of a market recovery. This indicated that the quality mix and producer sales played an important role in the decomposition of unit values.

The third goal involved testing disruption in lab-grown diamonds. The facts suggested diamond manufacturing had become a major thrust, rather than a passing fancy. A scalable manufacturing model, better production technology, and price compression drove consumer adoption. In 2025, lab diamonds accounted for about 47% of all rings purchased in the U.S. for engagement, up from 5.9% in 2019. At the same time, the average price of a 2025 lab-grown diamond was US$2,057, in line with a natural diamond's median valuation of US$8,428. This price difference helped explain why unit penetration increased and value leadership occurred, with the premium categories that natural diamonds served.

The fourth objective was to analyse regional demand. The findings indicated discrepancies across markets. While the United States remained the number one market for natural diamond jewellery, it also saw increases as lab diamonds became more normalized for engagement rings and other jewellery purchases. Consumers' confidence, economic conditions, marriage rates, and luxury acceptance are other factors that cannot be overlooked, as weaker demand in China's booming economy points to reduced demand for natural diamonds. India's role in domestic jewellery demand and its importance in cutting, polishing, and making lab-grown jewellery has also bolstered its standing. It is now the second-largest natural diamond jewellery market, surpassing China.

The study's overall findings indicated increased segmentation in the diamond industry in post-pandemic times across product origin, consumer usage, Pricing, and geo-location. Strategic decision-making should therefore distinguish between volume and value, the price difference between natural and lab-grown products, and local demand conditions versus the overall average. Producers, manufacturers, traders, and investors require one-piece monitoring of issues such as supply, stock, prices, the macroeconomic situation, and consumer behavior. They imply a coexistence/segmentation perspective on the market rather than a concept of uniform substitution, and in the future it would be preferable to use quality-adjusted transactional data, smaller customer and market panels, and comparable cross-country consumer data across different periods of time.

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