

Case Study: Building a LEGO Investment
Strategy Through Data Analytics
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Descriptive Analysis: Exploring the LEGO Landscape

1. Summary of the data:

For this case study I calculated price per piece for each set and filtered by selected theme and subtheme. After this calculated summary statistics filtered by theme, subtheme and price per piece and its combinations.

a. Observation of summary when filtered by theme:

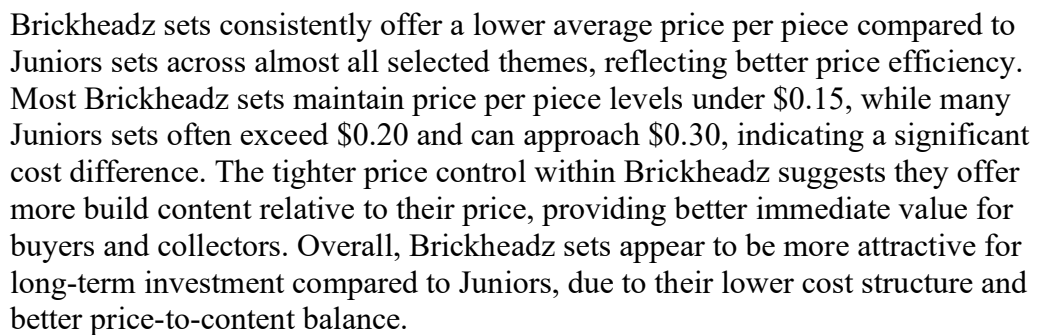
- Themes like Star Wars, City, and Friends released the highest number of sets during 2018–2019, reflecting strong brand presence and sustained consumer demand in the LEGO market.
- Creator Expert and Technic sets had the highest average piece counts, suggesting these complex builds are highly appealing to serious builders and collectors and likely to retain strong long-term value.
- Architecture and Creator themes offered lower average price per piece, indicating better cost efficiency and making them attractive choices for investors aiming for steady value appreciation.
- Franchise-heavy themes like Jurassic World and LEGO Movie 2 showed higher price per piece, reflecting premium licensing costs, but sets tied to such major franchises could still offer strategic upside depending on fan loyalty.

b. Observation of summary when filtered by subtheme:

- Brickheadz and Juniors were the most active subthemes during 2018 and 2019, offering smaller builds with average piece counts around 174 and 127 pieces respectively, highlighting their accessibility but limited build complexity.
- High-piece-count subthemes like Fairground, Ultimate Collector Series, and Modular Buildings demonstrated exceptional set complexity, with piece counts exceeding 2500 pieces, suggesting strong appeal to advanced collectors and builders.
- Pricing analysis revealed that Brickheadz sets maintained lower average retail prices (around \$13), while premium subthemes like Fairground and Master Builder Series commanded much higher prices (\$349–\$379), reflecting their collector-targeted positioning.
- Larger, detailed subthemes with strong brand identity and higher minifigure counts, such as Master Builder Series and LEGO Ninjago Movie, showed the most attractive price-per-piece ratios (6–7 cents), offering strong investment potential for long-term appreciation.

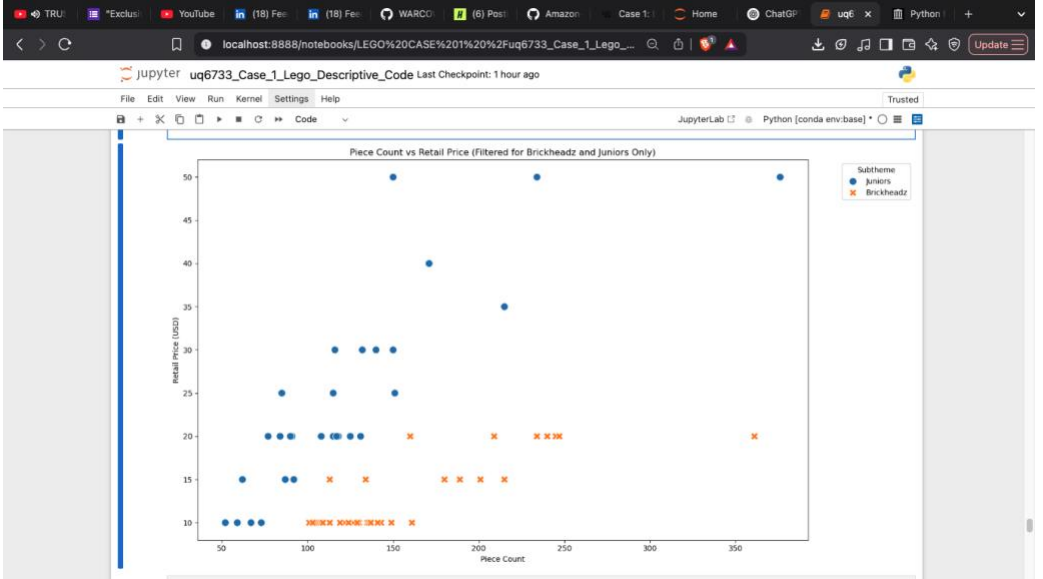
- c. Observation of summary when filtered by theme & subtheme:
- Brickheadz and Juniors appeared widely across many major LEGO themes during 2018 and 2019, contributing heavily to the total set counts but generally offering smaller builds with average piece counts between 120 and 180 pieces.
 - High-end subthemes like Modular Buildings, Ultimate Collector Series, Fairground, and Master Builder Series featured extremely large and detailed builds, with average piece counts exceeding 2500 to 4000 pieces, reflecting their alignment with serious collector interest and premium market positioning.
 - These premium subthemes not only offered larger builds but also maintained lower price-per-piece ratios (around 6–9 cents), making them excellent value investments compared to smaller subthemes like Juniors and certain Brickheadz editions, which showed higher price-per-piece values (14–20 cents).
 - Subthemes tied to global franchises such as Star Wars, Harry Potter, and Marvel Super Heroes showed variability in complexity and pricing but consistently demonstrated strong collector appeal through higher minifigure counts, suggesting that larger, licensed, detailed sets within these brands offer the best prospects for long-term investment appreciation.
- d. Observation of summary when filtered by theme, subtheme & price per piece:
- Subthemes associated with larger, more complex builds such as Modular Buildings, Fairground, and Ultimate Collector Series consistently offered the lowest average price per piece (around 6–9 cents), highlighting strong intrinsic value for long-term investors.
 - In contrast, smaller or promotional subthemes like Juniors, Microfighters, and certain Brickheadz editions had significantly higher average price per piece (often above 15–20 cents), suggesting lower build value relative to price and greater reliance on marketing appeal.
 - Licensed subthemes tied to popular franchises like Star Wars and Marvel Super Heroes generally maintained moderate price per piece ratios (typically 8–12 cents), balancing the premium associated with branding while still offering reasonable build value.
 - Higher variability in price per piece was observed in themes like Batman and Star Wars Brickheadz, indicating inconsistent value across individual sets, whereas subthemes with larger builds and strong brand backing, like Creator Expert and Star Wars, consistently presented the most promising opportunities for future value appreciation.

a. Bar Chart: Average Price Per Piece by Selected Themes and Subthemes

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The heatmap clearly shows that Brickheadz sets across most themes maintain a lower average price per piece compared to Juniors sets, which often have higher costs relative to the number of pieces. Themes like Star Wars, Harry Potter, and Marvel Super Heroes offer Brickheadz sets with some of the lowest average price per piece values, making them particularly attractive for value-conscious investment. In contrast, Juniors sets, especially those under themes like Jurassic World and Disney, show significantly higher price per piece averages, indicating less value for builders and collectors.

c. Scatter Plot: Piece Count vs Retail Price for selected Themes and Subthemes only



3. Conclusion

- Analysis of LEGO sets from 2018 and 2019 shows that while Brickheadz and Juniors dominated in set counts, Brickheadz consistently outperformed Juniors in terms of value and investment potential.
- Brickheadz sets maintained lower average price per piece across major themes like Star Wars, Marvel Super Heroes, and Disney, offering stronger value for collectors, whereas Juniors sets showed higher price per piece ratios and greater variability, making them riskier for investment.
- Visual analyses such as box plots and scatter plots revealed that Brickheadz sets had tighter and more predictable price and piece count distributions, whereas Juniors sets exhibited wider spreads, indicating less reliable value retention.
- The heatmap further supported these findings, highlighting that Brickheadz sets under high-demand, globally recognized franchises like Star Wars and Harry Potter provided some of the most attractive price-to-piece ratios for investment.
- Based on all analyses, Michael should prioritize investing in Brickheadz sets under strong franchise themes, as they offer better initial value, strong brand loyalty, and a more consistent potential for future resale growth compared to Juniors sets.