Descriptive Analysis Report – LEGO Sets (2018 & 2019)

1 | Objective

Michael Thompson wants to understand the 2018–2019 LEGO landscape to spot themes or sub-themes that might deliver the best long-term value.

This report explores the data set of 614 retail sets released in those two years, focusing on:

- 18 investment-relevant themes (e.g., Star Wars, Creator Expert)
- 2 collectible sub-themes (Brickheadz, Juniors)

Key metrics examined: set count, average piece count, average retail price, and price-per-piece (PPP) – a proxy for "brick-value".

2 | Methodology

Python (pandas 2.2, matplotlib 3.9) was used to:

- Load & clean the Excel file, standardising column names.
- Compute price_per_piece = Price ÷ PieceCount for every set.
- Aggregate statistics by Theme and by Sub-theme.
- Visualise patterns with three charts (Figures 1-3).
- Export summary tables (theme_summary.csv, subtheme_summary.csv) for reference.
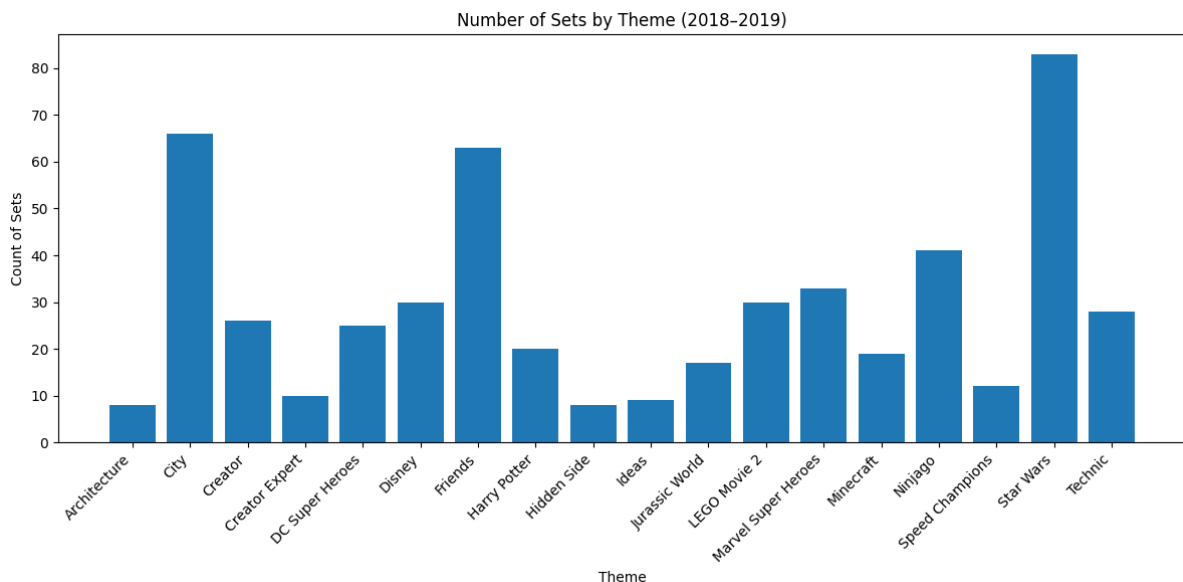
3 | Results & Visuals

Figure 1 – Number of Sets by Theme

- **Star Wars** dominates (83 sets), followed by **City** (66) and **Friends** (63).
- Niche themes like **Architecture** and **Hidden Side** each released fewer than 10 sets.
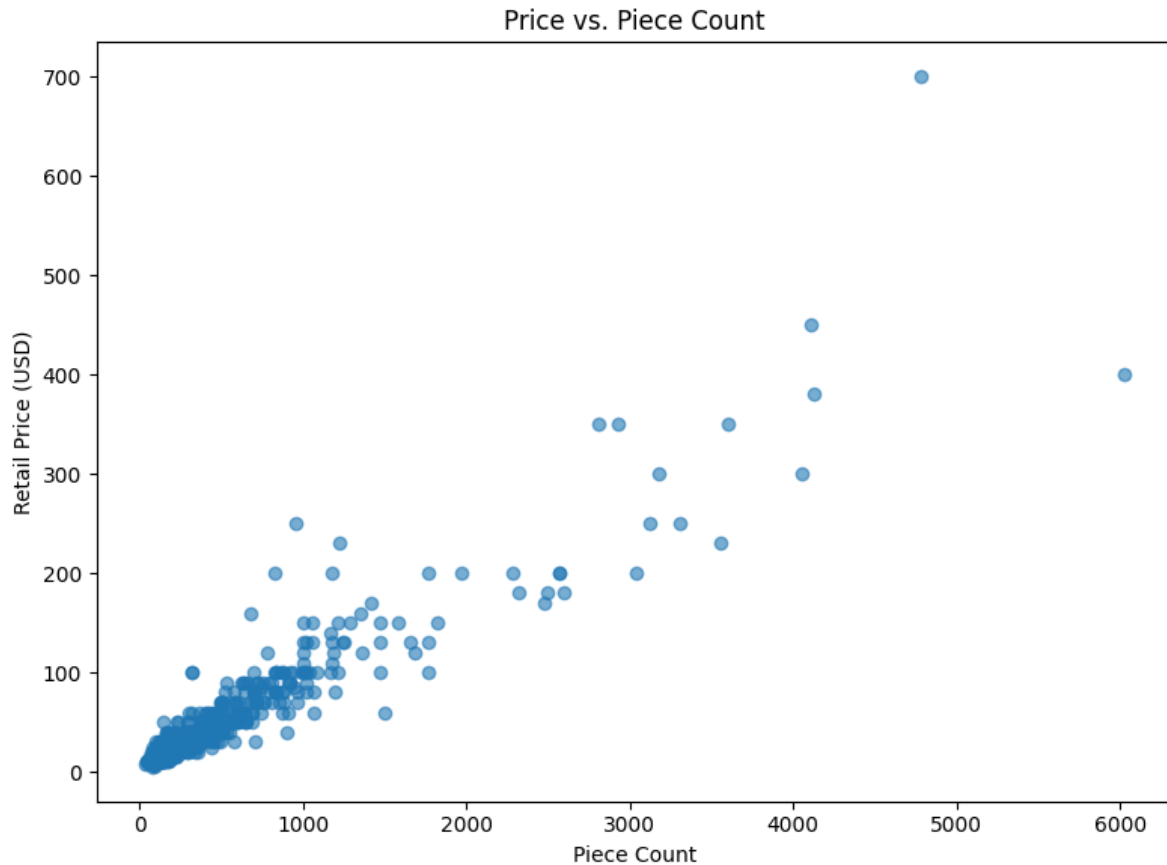
Figure 2 – Retail Price vs. Piece Count

- A clear positive correlation exists; price increases with piece count (~0.10–0.10–0.15 per piece).

- **Outliers**:

  - **Creator Expert** (3,000–4,000 pieces) priced below the trendline (good value).

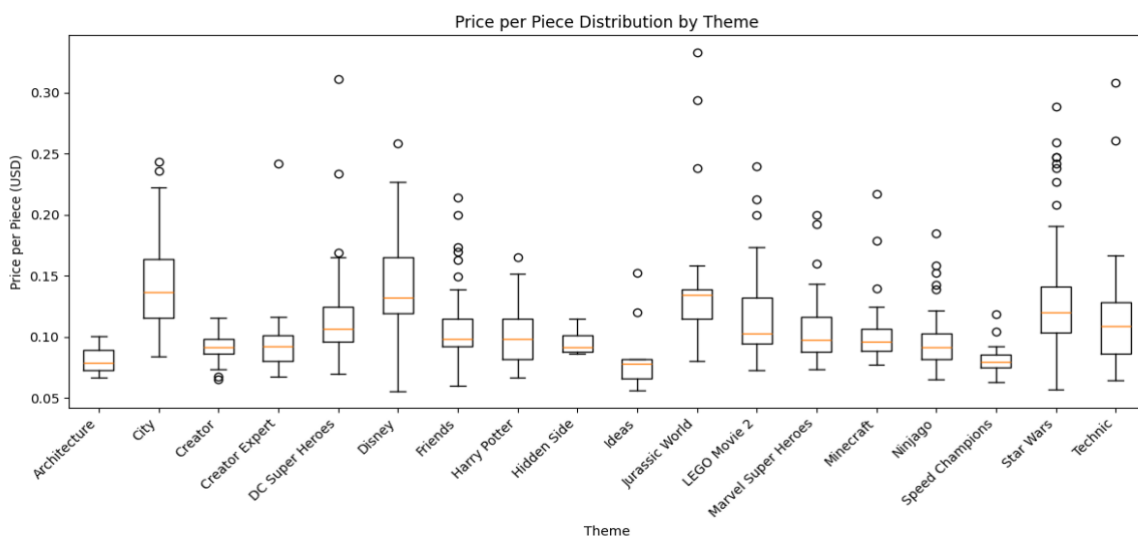 - **Technic flagship set** (4,100 pieces at $700) sits above the trendline (collector premium).

Figure 3 – Price-per-Piece Distribution by Theme

- **Jurassic World** has the highest median PPP ($0.15).

- **Architecture**, **Speed Champions**, and **Brickheadz** cluster at the low end (0.08–0.08–0.09).

- **Star Wars** and **Technic** show wide PPP spreads, indicating both budget and premium sets.

Theme	set_count	avg_pieces	avg_price	avg_price_per_piece
Architecture	8	939	72.49	0.081017199
City	66	339.969697	47.70212121	0.144325668
Creator	26	353.8846154	32.41307692	0.091031659
Creator Expert	10	1751.3	164.99	0.104206931
DC Super Heroes	25	365.12	37.79	0.120602313
Disney	30	305.6	38.99	0.142399129
Friends	63	305.3333333	31.02174603	0.107266132
Harry Potter	20	693	59.49	0.102434946
Hidden Side	8	585.875	54.99	0.096347268
Ideas	9	1209.666667	91.65666667	0.085755648
Jurassic World	17	531.5882353	61.46058824	0.151350052
LEGO Movie 2	30	502.5	51.15666667	0.12128413
Marvel Super Heroes	33	351.9393939	35.89909091	0.107499578
Minecraft	19	309.6315789	31.30578947	0.108281586
Ninjago	41	531.0731707	45.47780488	0.098293726
Speed Champions	12	309.5	27.49	0.083072116
Star Wars	83	496.686747	59.80927711	0.127478487
Technic	28	1134.5	114.99	0.119665523

- **Brickheadz (54 sets)**: Cheapest PPP (~$0.08).
- **Juniors (39 sets)**: Higher PPP ($0.20) due to smaller piece counts.

4 | Key Insights

1. Volume ≠ Value – High-volume themes (Star Wars, City) aren't automatically the best bargains; their PPP sits mid-tier.
2. Best Brick-Value – Architecture, Speed Champions, and Brickheadz consistently fall below $0.09 per piece – attractive for bulk brick investors.
3. Collector Premiums – Jurassic World and flagship Technic sets command the highest PPP (>~$0.15), suggesting brand/licensing or engineering premiums that could translate to aftermarket scarcity.
4. Creator Expert Sweet-spot – Despite large piece counts (1 750) these sets hover near the overall PPP average ($0.10), implying good value for display-grade builds.
5. Sub-theme Contrast – Juniors sets are convenience-priced for young builders, not investors; Brickheadz deliver both low PPP and strong collectability signals (many small, themed releases).

5 | Recommendations for Michael

- **Prioritize**: Creator Expert and low-PPP themes (Architecture, Speed Champions) with adult collector appeal.
- **Avoid**: Juniors sets due to poor brick value and limited demand.
- **Monitor**: Limited-run **Jurassic World** and **Star Wars UCS** (Ultimate Collector Series) sets for potential aftermarket growth.
- **Re-evaluate Annually**: Track retired sets' PPP against secondary market prices to refine strategy.