Alex Racapé
Professor Avilova
Econometrics
12/15/23

LEGOnomics: An Economic Analysis of LEGO Resale Values

I. Abstract

This research uses an original dataset of nearly 15,000 LEGO products dating back to 1975 to examine factors influencing LEGO set resale prices. Utilizing multiple linear regression analyses, this study establishes the statistical significance of several explanatory variables including retail price, release year, user ratings, rarity, and theme. With several robustness checks, this analysis estimates an average annual appreciation of 9.97 percent for LEGO sets. Standardized regression coefficients were also calculated to further explain the relative impact of each variable, and this analysis supports findings from previous literature on similar secondary markets for collectible assets. The results are robust to changes in model specification, and the sample also provides some insight into which products are most actively traded.

II. Background

Starting off in the niche market for construction toys, LEGO has grown to dominate the toy industry with its global reach and iconic brand. Now, as the leading toy manufacturer by revenue, LEGO operates at a massive scale with a cultural impact that transcends generations. These changes in scale have been accompanied by shifts in perception as LEGO products now cater to a more diverse audience. As many adults remain engaged with the brand, an active secondary market has emerged for nostalgic fans, collectors, and even investors. This market is active on e-commerce sites like Ebay, and specialized platforms like Bricklink.com have also grown in popularity. Bricklink alone has nearly 18,000 different vendors and was acquired by

LEGO in 2019.[1] On these markets, there have also been instances of remarkable value growth. For example, at the 2013 San Diego Comic-Con, 350 Spider-Man minifigures were given away in a raffle, and the figure has since been resold for as much as $22,000.[2] Apart from these rare occurrences, research from Dobrynskaya and Kishilova showed that LEGO investments yielded an 8% real return in a sample of sets from 1987 to 2015.[3] With this in mind, this paper will examine the characteristics that drive appreciation and make LEGO sets valuable in secondary markets.

Besides Dobrynskaya and Kishilova's preliminary analysis of the market, previous academic literature has largely ignored this market despite its potential implications for investors and other markets. The market for retired LEGO sets is uncorrelated with traditional financial markets, resulting in diversification opportunities.[4] A survey from Barclays found that on average wealthy individuals hold about 10 percent of their total assets in collectible goods for diversification purposes.[5] Typically these assets include fine art, jewelry, and wine collections, yet these luxury goods are relatively inaccessible for most investors, especially when compared to LEGO. Despite their apparent differences, secondary markets for wine share many similarities with those for LEGO, and they have been studied to a much greater extent. Like LEGO sets, wines are produced in limited quantities, and over time much of the supply is taken out of circulation as the good is consumed. Wine has caught the attention of many investors, and in 1999 the London International Vintners Exchange (Liv-ex) was established to facilitate trading

---

[1] BrickLink, Bricklink reference catalog, accessed December 14, 2023, https://www.bricklink.com/catalog.asp.
[2] "Lego San Diego Comic-Con 2013 Spider-Man," BrickEconomy, accessed December 14, 2023, https://www.brickeconomy.com/set/SID0021300-1/lego-san-diego-comic-con-2013-spider-man.
[3] 1. Victoria Dobrynskaya and Julia Kishilova, "Lego - the Toy of Smart Investors," SSRN, April 1, 2018, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291456#paper-citations-widget.
[4] *Ibid.*
[5] Barclays, 2012. Profit or pleasure? Exploring the motivations behind treasure trends. Wealth Insights, volume 15 (Barclays Wealth, London).

between wine merchants. The existing academic literature has reported mixed results for wine investments. Some studies have found nominal returns ranging from 12% to 18%, but other studies show that returns from wine investments are more similar to those from treasury bonds.[6] Masset and Henderson studied Bordeaux wine prices from 1996 to 2007 and found that adding exposure to wine in a portfolio reduces risk through diversification.[7] Looking at the variables determining wine prices, Wood and Anderson used a seemingly unrelated regressions model to show that weather and growing conditions have significant predictive power when explaining variation in secondary market prices.[8] This implies that subjectives qualities in the product are important for resale valuations. Several studies have examined the effect of aging on resale prices using linear and cubic models.[9] However, here the product's quality is changing over time unlike a sealed LEGO set.

Looking more broadly, markets for collectible goods share some fundamental characteristics. First, collectible goods are non-reproducible, and consequently, there is a limited supply that can not be increased. In terms of supply and demand, this essentially removes one of the factors that can lead to declines in price since supply cannot increase. Stoller, in "The Economics of Collectible Goods," calls this effect "downward price rigidity."[10] LEGO markets have this characteristic due to the limited production of each set. While LEGO can issue another version of the model, reproductions tend to be differentiated in their design and assortment of

---

[6] Karl Storchmann, "Wine Economics." *Journal of Wine Economics* 7, no. 1. July 31, 2012. doi:10.1017/jwe.2012.8.
[7]Masset, Philippe, and Caroline Henderson. "Wine as an Alternative Asset Class." *Journal of Wine Economics* 5, no. 1 (2010): 87-118. doi:10.1017/S1931436100001395.
[8] Danielle Wood, and Kym Anderson. "What Determines the Future Value of an Icon Wine? New Evidence from Australia." *Journal of Wine Economics* 1, no. 2, 2006:: 141-61. doi:10.1017/S1931436100000171.
[9] Karl Storchmann, "Wine Economics." *Journal of Wine Economics* 7, no. 1. July 31, 2012. doi:10.1017/jwe.2012.8.
[10] Michael Stoller "The Economics of Collectible Goods." *Journal of Cultural Economics* 8, no. 1, 1984: 91–104. http://www.jstor.org/stable/41811143.

pieces. Despite this quality, prices can still fall if there is a decline in demand or investors liquidate a large number of assets at once. In these markets, demand tends to spike with added speculation and changing expectations, yet this is rare.[11] As some collectible goods are associated with heterogeneous quality, markets may treat moderate quality goods differently from those of superior quality. With high demand, the valuations for inferior goods approaches those of higher quality, and there tends to be a more dramatic gap with low demand. Another factor that contributes to price rigidity is intrinsic value associated with the collectible good. For example, there is utility in antique furniture, beauty in art, and nostalgia value associated with baseball cards. Meanwhile, LEGO products benefit from all three of these attributes. In order to understand price rigidity even further, it is also helpful to think about the specific participants in these markets who are generally either collectors or investors. Investors purchase these assets with a long investment horizon, and collectors are likely planning on holding onto the asset indefinitely. In either case, suppliers are only willing to sell the good after substantial increases in price. Consequently, a decrease in demand could result in a temporarily stagnant market where prices are slow to adapt. Lastly, Stoller highlights the presence of price guides as an indication that the market is more developed with a high number of participants. In the case of LEGO there are several price guides with Bricklink being the most prominent. Research from Janet Slater looks at Hallmark ornaments and Coca-Cola products to underscore how these markets are driven by nostalgia and connections to brands.[12] Collectors are brand loyal and licensing with other brands has resulted in highly coveted items in the past. This suggests that some of LEGO's licensed products may be differentiated from other sets in the market.

---

[11] *Ibid*.

[12] Janet Slater. "Trash to Treasure: A Qualitative Study of Relationship Between Collectors and Collectible Brands." Syracuse University ProQuest Dissertations Publishing, 1998: 9842237. https://www.proquest.com/docview/304470561?pq-origsite=gscholar&fromopenview=true&sourcetype=Dissertations%20&%20Theses

Looking more specifically at the toy industry, there has been some limited research into the secondary markets for LEGO and other games like Magic the Gathering cards. Magic the Gathering is a trading card game where players can battle each other, and like LEGO, the cards are actively traded and resold. Weber examines this market along with several psychological and sociological factors which motivate collecting more generally.[13] Collecting is often driven by the pursuit for closure, completion, and perfection, and it can also be a mechanism to gain some social status within a group. The markets for Magic the Gathering also underscore some issues of company involvement and the impact of speculation. In response to the large number of collectors, they added foil cards to their packs. These cards are functionally the same as any other, but they have a metallic effect added to differentiate the card by its rarity. In response to climbing prices, Wizards of the Coast reprinted old rare cards, resulting in outrage and backlash from loyal members of their community. In response, the company created a "reserved list" for cards that would never be reprinted, providing a scarcity guarantee. The intrinsic value associated with a card is distinct from a LEGO set since select cards are much stronger for gameplay, leading to concentrations in demand. With added speculation from investors, some of these cards are unattainable for many players, and in response, the game draws a distinction between several formats where certain types of cards are allowed. This instance underscores how investors can come into conflict with hobbyists as prices soar. In terms of the implications for LEGO, children are unlikely to be affected by investment as most parents purchase sets at retail, yet casual collectors and nostalgic adults may find that certain sets are unaffordable. For LEGO, there is no notion of a "reserved list," and LEGO could release new versions of old sets. Although there are some packs containing random collectible minifigures, there is nothing akin

[13] Daniel Weber, "Exploring Markets: Magic the Gathering - a Trading Card Game," EconStor, January 1, 1970, https://www.econstor.eu/handle/10419/235491.

to foiling. The LEGO Group acquired bricklink, but they have not made any explicit actions to support or interfere with this market.

III. Data

This study uses an original dataset that has been collected from two primary sources: Brickset.com[14] and Bricklink.com.[15] They are both online platforms serving slightly different roles in the LEGO community. Brickset.com is more of an online database that allows users to catalog their own LEGO collection. Bricklink.com functions primarily as an online marketplace where users can manage their own online LEGO store. Bricklink also has forums where LEGO fans can ask questions or post builds that they have designed. I constructed the dataset using the APIs from both sites, and to the best of my knowledge, this is the most up to date LEGO dataset that is publicly available.

From Brickset.com I was able to get the set ID for LEGO products dating back to 1975 along with features such as name, year released, theme, category, packaging type, number of instructions, availability, number of pieces, number of minifigures, average rating from brickset users, the number of sets owned (as reported by users), and the list price when the set was first released. This constitutes the majority of the data. Then, I used Bricklink to get the current prices for sets that are being resold along with the total quantity of trades for each model. The most limiting feature of the samples was that only the last six months of sales are available through the API. Older LEGO sets are naturally traded less frequently, so some selection bias is to be expected. Table 1 shows several differences in the sample for sets that did record a recent trade. Specifically, there were significant differences in sets over time, and larger, more expensive sets

[14] "API Version 3 Documentation," Brickset.com, accessed December 14, 2023, https://brickset.com/article/52664/api-version-3-documentation.
[15] "API Guide: Getting Started," Bricklink API, accessed December 14, 2023, https://www.bricklink.com/v3/api.page.

were also more common in my sample with recent trades. As expected, the sample includes fewer trades from sets that are rare, and there were more sets from licensed themes. Figure 1 illustrates differences in the sample by release year. For these purposes, I am using the last transaction price for an unopened set as a measure of market price. Unlike other financial markets, this market is very illiquid as there are relatively few buyers and sellers for each set. Consequently, some sets only have a couple of trades in the last six months, and within that period, there are significant price fluctuations. This means that there is likely some measurement error in the current resale value. However, this should not be an issue as I expect this error to be zero on average with no correlation with certain explanatory variables. In my sample from May of 2023, the most limiting factor is the number of recent trades, and in total, 2,300 sets had information on both list and resale price.

IV. Methodology

This analysis utilizes multiple linear regression to explore the different explanatory variables that have an impact on price. From the features in the dataset, I identified several variables which I thought would be the most important to use for a base model. These included the retail price, release year of the set, number of pieces, and number of minifigures. However, this model omits important variables such as the rarity and quality of the set. To account for these variables, I added two proxy variables: user reviews and retail availibility. First, I added user reviews to capture the more subjective qualities for each model. Brickset reviews are on a five-star scale, and I conducted online research to assess which elements are discussed in these reviews. The following quotation is from a review for the 2016 ultimate collector series Death Star by Haloweenboy2000.

> I was a kid when [the original Death Star] came out and I couldn't afford it. I can now though, and I'm really glad that I can. The set is straight up awesome. The build is the most fun I've ever done, it took me four days to make. The minifigure selection is great as well, and they were definitely in need of an update from the previous set... In terms of playability, the set is jam-packed with features... I display my sets rather than play with them. Admittedly it's not the best display piece, but I think the sheer size makes it cool to look at.[16]

Although this is just a single review, it is very representative of the other reviews on Brickset.com. First, nostalgia is a motivating factor for many buyers, and adults with more expendable income are willing to pay for more expensive products. The review also touches on a diverse set of characteristics such as the building experience, piece quality, and the overall look of the set. With this diverse range of criteria, user reviews are a compelling proxy for set quality.

Next, I considered multiple variables as proxies for rarity. For the base model, I constructed a dummy variable as a rough approximation, using the set's retail status. Here, a set is considered rare if it was exclusively released, part of a promotional event, or never sold. For example, some sets were given away to employees. This dummy variable does not explain all of a set's rarity, so there is likely some error that remains, resulting in omitted variable bias. Specifically, the year a set is released is most likely correlated with a portion of rarity that is not accounted for, resulting in some endogeneity. That being said, including the proxy does still help with identification. Retail availability is not the only way to approximate rarity. Therefore, as a robustness check, I used the quantity of sales on secondary markets as a proxy instead. I tested for heteroskedasticity using the Breusch-Pagan test and accounted for it by using robust standard errors. Additionally, I used a RESET test to check for functional form misspecification error, and

[16] Halloweenboy2000, "Review for Set 75159-1: Death Star," Brickset.com, July 27, 2017, https://brickset.com/reviews/set-75159-1.

settled on logarithmic transforms for both price variables. I also chose to include release year as a continuous variable so the coefficient is more interpretable as average annual appreciation. With the two proxies included, the base model takes the following form:

$$(1)\quad log\ resale\ price = \beta_0 + \beta_1 log\ retail\ price + \beta_2 pieces + \beta_3 year + \beta_6 minifigures + \beta_7 rare + \beta_8 rating + u$$

After plotting residuals, I identified several outliers which were all products from the same collection. They were 5 collectible minifigures which were initially sold for $2.99 in 2010 and 2011, and their resale values ranged from $125 to $365. Going forward, I performed regressions both with and without these outliers. For each regression, I also standardized the data and regressed using the z-scores to calculate beta coefficients. While these coefficients are not as interpretable, they help to compare the relative magnitudes of the coefficients.

For robustness checks, I developed several variations on this base model. First, I suspected that the theme of each set could be significant, yet the dataset includes over 150 different themes. Including binary variables for all of the themes bloated the regression and resulted in many cases of perfect multicollinearity. In response, I decided to limit the model to include several of the largest themes. These themes included collectible minifigures, City, Star Wars, Friends, Ninjago, space, castle, and Harry Potter. While I primarily made this selection based on the number of sets produced, I also wanted to explore a diverse group of themes which includes licensed and unlicensed themes along with Friends, which is one of the only themes targeted for girls. Similarly, I wanted to evaluate if licensed themes as a broader category outperform sets from generic or LEGO original themes. For this specification, I included a dummy variable indicating whether a set was part of a licensed theme. Lastly, I added year fixed effects to control for other factors that may be specific to a single year.

V. Results and Discussion

Table 2 shows the results from estimating equation (1). All of the coefficients were significant at the 99% level, except for the number of pieces. This is due to the fact that the number of pieces is highly correlated with the list price of the set, so it has little explanatory power after the list price has been controlled for. The coefficient for the release year shows that each additional year results in an average price appreciation of 9.97 percent. In other words, this model suggests that LEGO sets have an average annual return of 9.97 percent. Meanwhile the S&P had an average annual return of 10.52 percent over the same time frame from 1991 to 2023. Average annual returns for the S&P vary slightly with different ranges of years, but in general returns are around 10 percent indicating that LEGO investments performed comparably. However, it is important to note that there may be some bias in the coefficient for release year due to flaws in the rarity proxy. If older sets are correlated with aspects of rarity that are not controlled for by retail availability, there will be some endogeneity, resulting in bias. The omitted components of rarity would be positively correlated with resale value, and it would be negatively correlated with the year as newer sets are less rare. Therefore, there is likely a downward bias on the coefficient for the release year, meaning that average annual returns may be slightly greater than this estimate.

The right column of Table 2 contains the standardized coefficients obtained by regressing on the z-scores of the data. Essentially, these coefficients reflect the relative significance of each explanatory variable as they are standardized to comparable scales during the regression. The retail price is the most significant variable by a large margin which makes sense intuitively. More expensive sets will command higher prices on secondary markets. The year released has the next largest coefficient as sets naturally appreciate over time, and user ratings were the next most

impactful variable. While minifigures and the availability at retail were significant regressors, their beta coefficients were much smaller than these first three variables. Results for the regressions without outliers can be found in the appendix, and Table 3 shows the results for the same regression without outliers. The coefficients are not significantly different, but the coefficient for retail price increases slightly.

Table 4 contains the regression results from several variations on the model specification. When considering these other models, the estimated average annual return is in the range of 9.97 percent to 10.2 percent. The coefficients for the base explanatory variables do not change by much, and all of the themes exhibited a statistically significant impact at the 95 percent confidence level. Collectible minifigures were associated with the largest increase in resale value with a 125 percent increase on average. However, Table 5 shows that this effect actually became negative after accounting for the 5 outliers which were all in this theme. Star Wars sets were associated with the next largest effect as Star Wars models were worth 23.5 percent more on average after controlling for other variables. Castle sets were worth 21.1 percent more and Ninjago sets were worth 12.6 percent more on average. Meanwhile many of the other themes, such as Harry Potter, City, Friends, and Space, were actually associated with lower resale values. When looking at licensed sets in general instead of specific themes, licensed sets were generally worth 22.9 percent more. The results from an f-test showed that these coefficients for themes were jointly significant at the 99 percent confidence level. Using the number of resale trades instead of retail availability as a proxy for rarity did not have much of an effect on the other coefficients, and while the number of trades was also a significant regressor, this specification did not explain any more variation in price than the base model. Lastly, using dummy variables to control for individual years did not significantly change any of the other coefficients. Looking

at Table 6 and the beta coefficients for each regression, the relative magnitudes were the same for all of the base regressors. While all of the themes were statistically significant, their beta coefficients were still smaller than retail price, year, and user reviews. However, these results indicate that most themes are relatively more important than the number of minifigures and availability at retail. Changing the robustness checks to ignore outliers did not impact the results, except for the changes to the collectable minifigures coefficient.

These various results show that the regression estimates are relatively robust to changes in model specification, yet there are several limitations to these findings. First, there is likely bias due to error in the proxy for rarity. However, as previously noted, this would result in downward bias and underestimates of the year coefficient. The other variables are less likely to be correlated with the omitted components of rarity. Another limitation with this model is that there could be demand shocks in certain years that interact with other variables. For example, the release of a Star Wars movie could lead to a spike in demand for Star Wars sets, and LEGO might release more Star Wars sets that year. Similarly, shifts in LEGO's products over time could impact several variables such as the number of pieces, the minifigures, and user reviews. Such shifts in supply and demand in the past are beyond the scope of this model, but it would be an interesting problem to explore in future research. For example, with time series data, one could perform an event study to evaluate the impact of movie releases on resale valuations for specific sets. Lastly, there is selection bias that arises naturally with this sample. Certain sets are no longer traded frequently, and it is difficult to measure current resale valuations. This limits external validity and the extent to which these findings can be generalized to a broader population. As with any financial analysis it is also difficult to determine whether these trends will continue into the future. Despite these limitations and minor endogeneity concerns, the

thorough robustness checks and strong statistical significance of these estimates shows that there is a causal relationship between factors such as list price, release year, set design, and theme on resale prices.

VI. Conclusion

This research provides evidence for a causal relationship between certain set characteristics and resale value. This methodology implements several robustness checks, accounts for outliers, checks for functional form misspecification, and corrects for heteroskedasticity in order to yield reliable estimates. In our sample, I found an average annual return for LEGO sets between 9.97 percent to 10.2 percent, which is comparable to the S&P 500 and previous research which observed an annual return of 11 percent. LEGO investments may not beat stock market returns as a whole, but they offer promise as a diversification tool for investors. Surprisingly, LEGO sets are not so different from wine after all as the age of the set along with subjective qualities in the design were two of the most significant predictors of resale value. This sample also highlights some characteristics of LEGO markets that are similar for other collectibles. Like Magic the Gathering cards, the outliers in the sample with extraordinary appreciation were collectible minifigures which are drawn at random from sealed packs. Furthermore, in Magic the Gathering and other collectible markets, there is often a separation between inferior and high quality assets. In this case, our sample showed that expensive sets with higher piece and minifigure counts were more actively traded in secondary markets. Additionally, licensed themes were more actively traded with higher resale values. This aligns with previous research that connects collecting activity to strong brands. In future research, event studies could evaluate the impact of movies and LEGO original entertainment on resale values, and it is unclear if LEGO sets are truly non-reproducible. To test this, another study could

examine whether LEGO releasing a new version of a model adversely affects prices demand for older models. LEGO markets have yet to be explored fully, and this research offers encouraging results, suggesting that in the future, findings from LEGO can be extended to other niche markets.

VII. Appendix

Table 1: Summary Statistics

	Without Recent Trades	With Recent Trades	T-Statistic
Retail Price	29.76 (40.5)	46.25 (61.5)	-11.23
Year	2003 (11.7)	2012 (8.35)	-51.43
Pieces	166.9 (324.8)	332.9 (612)	-20.84
Rating	3.869 (.378)	3.880 (.351)	-1.177
Minifigures	2.376 (3.08)	3.089 (2.76)	-10.64
Licensed	.0458 (.209)	.3000 (.458)	-46.29
Rare	.1406 (.348)	.1786 (.383)	-6.191
Resale Price	—	90.16 (193)	—
Number of Resales	0	10.62 (30.5)	—
Total Observations	6,834	5,442	

Notes: All values in the table are means with standard deviations in parenthesis. Current resale prices are up to date as of May 10, 2023. T-statistics were calculated using a two sample t-test to evaluate the difference in means.

Figure 1: Segments by Year and Trade Activity

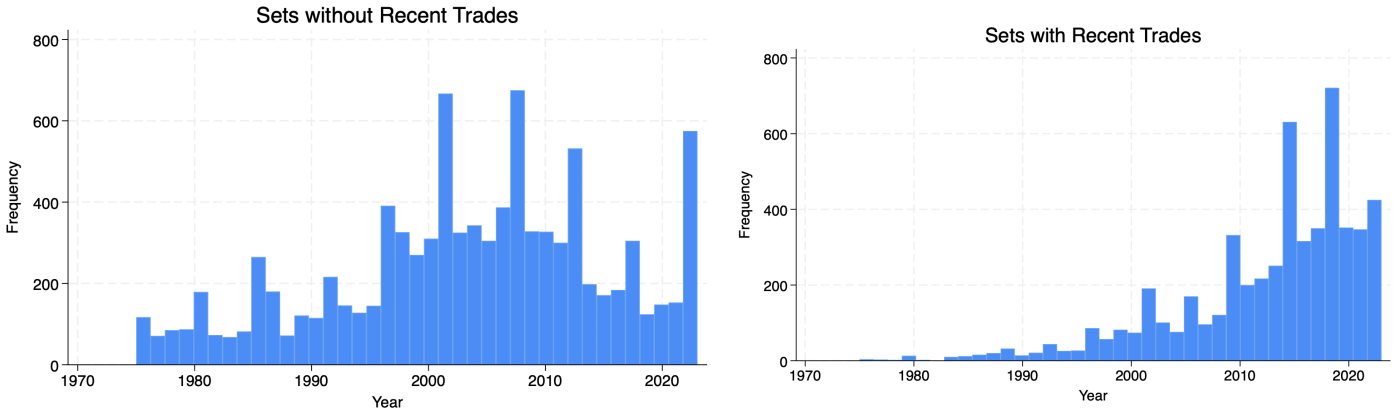

Table 2: Regression Results for the Base Model

VARIABLES	(1) Base model	(2) Beta Coefficients
Log Retail Price	0.786***	0.670
	(0.0263)	
Year	-0.0997***	-0.385
	(0.00243)	
Rating	0.698***	0.206
	(0.0454)	
Minifigures	0.0134***	0.0338
	(0.00466)	
Pieces	3.30e-06	0.00192
	(3.03e-05)	
Available at Retail	0.127***	0.0317
	(0.0461)	
Log Resale Price		
Constant	199.4***	
	(4.921)	
Observations	2,314	2,314
R-squared	0.800	0.800

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Regression Results for the Base Model, Excluding Outliers

VARIABLES	(1) Base model	(2) Beta Coefficients
Log Retail Price	0.829***	0.702
	(0.0179)	
Year	-0.0987***	-0.382
	(0.00237)	
Rating	0.656***	0.194
	(0.0402)	
Minifigures	0.0121***	0.0306
	(0.00456)	
Pieces	-2.78e-05	-0.0162
	(2.55e-05)	
Available at Retail	0.148***	0.0370
	(0.0448)	
Log Resale Price		
Constant	197.5***	
	(4.797)	
Observations	2,309	2,309
R-squared	0.814	0.814

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Regression Results for Robustness Checks

VARIABLES	(1) Themes	(2) Licensed	(3) Other Rarity Proxy	(4) Year Fixed Effects
Log Retail Price	0.808***	0.767***	0.774***	0.776***
	(0.0186)	(0.0260)	(0.0258)	(0.0269)
Year	-0.0983***	-0.102***	-0.0997***	
	(0.00246)	(0.00237)	(0.00247)	
Rating	0.649***	0.721***	0.699***	0.735***
	(0.0406)	(0.0441)	(0.0463)	(0.0472)
Minifigures	0.00967**	0.00999**	0.0138***	0.0132***
	(0.00445)	(0.00444)	(0.00467)	(0.00468)
Pieces	-1.03e-05	4.22e-06	4.32e-05	7.35e-06
	(2.90e-05)	(3.07e-05)	(2.76e-05)	(3.17e-05)
Available at Retail	0.109**	0.161***		0.136***
	(0.0503)	(0.0464)		(0.0475)
Star Wars	0.235***			
	(0.0286)			
Collectable Minifigure	1.257**			
	(0.500)			
Harry Potter	-0.166***			
	(0.0468)			
City	-0.177***			
	(0.0239)			
Friends	-0.0966**			
	(0.0393)			
Ninjago	0.126***			
	(0.0341)			
Space	-0.257***			
	(0.0531)			
Castle	0.211***			
	(0.0711)			
Licensed Theme		0.229***		
		(0.0194)		
Number of Trades			5.70e-05	
			(0.000324)	
Constant	196.7***	203.5***	199.5***	-2.505***
	(4.979)	(4.790)	(5.010)	(0.183)
Observations	2,314	2,314	2,314	2,314
R-squared	0.821	0.810	0.799	0.808

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Regression Results for Robustness Checks, Excluding Outliers

VARIABLES	(1) Themes	(2) Licensed	(3) Other Rarity Proxy	(4) Year Fixed Effects
Log Retail Price	0.825***	0.810***	0.816***	0.822***
	(0.0169)	(0.0174)	(0.0178)	(0.0179)
Year	-0.0983***	-0.101***	-0.0990***	
	(0.00246)	(0.00231)	(0.00243)	
Rating	0.641***	0.679***	0.656***	0.689***
	(0.0400)	(0.0386)	(0.0408)	(0.0415)
Minifigures	0.00929**	0.00866**	0.0125***	0.0121***
	(0.00445)	(0.00433)	(0.00455)	(0.00457)
Pieces	-3.53e-05	-2.72e-05	1.86e-05	-2.67e-05
	(2.53e-05)	(2.57e-05)	(2.41e-05)	(2.63e-05)
Available at Retail	0.156***	0.183***		0.159***
	(0.0451)	(0.0451)		(0.0461)
Star Wars	0.237***			
	(0.0287)			
Collectable Minifigure	-0.269**			
	(0.123)			
Harry Potter	-0.163***			
	(0.0466)			
City	-0.174***			
	(0.0238)			
Friends	-0.0927**			
	(0.0392)			
Ninjago	0.132***			
	(0.0339)			
Space	-0.250***			
	(0.0537)			
Castle	0.216***			
	(0.0711)			
Licensed Theme		0.232***		
		(0.0193)		
Number of Trades			0.000247	
			(0.000307)	
Constant	196.6***	201.6***	198.0***	-1.414***
	(4.965)	(4.668)	(4.913)	(0.167)
Observations	2,309	2,309	2,309	2,309
R-squared	0.830	0.825	0.813	0.823

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Regression for Robustness Check, Beta Coefficients

VARIABLES	(1) Themes	(2) Licensed	(3) Other Rarity Proxy	(4) Year Fixed Effects
Log Resale Price				
Log Retail Price	0.688	0.653	0.660	0.661
Year	-0.380	-0.393	-0.385	
Rating	0.192	0.213	0.207	0.217
Minifigures	0.0244	0.0252	0.0348	0.0333
Pieces	-0.00600	0.00245	0.0251	0.00427
Available at Retail	0.0272	0.0403		0.0340
Star Wars	0.0815			
Collectable Minifigure	0.0763			
Harry Potter	-0.0217			
City	-0.0622			
Friends	-0.0193			
Ninjago	0.0329			
Space	-0.0317			
Castle	0.0231			
Licensed Theme		0.104		
Number of Trades			0.00112	
Constant				
Observations	2,314	2,314	2,314	2,314
R-squared	0.821	0.810	0.799	0.808

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Regression for Robustness Checks, Beta Coefficients Excluding Outliers

VARIABLES	(1) Themes	(2) Licensed	(3) Other Rarity Proxy	(4) Year Fixed Effects
Log Resale Price				
Log Retail Price	0.698	0.685	0.691	0.695
Year	-0.380	-0.390	-0.383	
Rating	0.190	0.201	0.194	0.204
Minifigures	0.0234	0.0218	0.0315	0.0304
Pieces	-0.0205	-0.0158	0.0108	-0.0155
Available at Retail	0.0390	0.0457		0.0398
Star Wars	0.0821			
Collectable Minifigure	-0.0116			
Harry Potter	-0.0214			
City	-0.0612			
Friends	-0.0186			
Ninjago	0.0346			
Space	-0.0309			
Castle	0.0237			
Licensed Theme		0.106		
Number of Trades			0.00489	
Constant				
Observations	2,309	2,309	2,309	2,309
R-squared	0.830	0.825	0.813	0.823

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Works Cited

"API Guide: Getting Started." Bricklink API. Accessed December 14, 2023. https://www.bricklink.com/v3/api.page.

"API Version 3 Documentation." Brickset.com. Accessed December 14, 2023. https://brickset.com/article/52664/api-version-3-documentation.

Barclays. "Profit or pleasure? Exploring the motivations behind treasure trends." Wealth Insights, Volume 15, 2012.

BrickLink. Bricklink reference catalog. Accessed December 14, 2023. https://www.bricklink.com/catalog.asp.

Dobrynskaya, Victoria, and Julia Kishilova. "Lego - the Toy of Smart Investors." SSRN, April 1,2018.https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3291456#paper-citations-widget.

Halloweenboy2000. "Review for Set 75159-1: Death Star." Brickset.com, July 27, 2017. https://brickset.com/reviews/set-75159-1.

"Lego San Diego Comic-Con 2013 Spider-Man." BrickEconomy. Accessed December 14, 2023. https://www.brickeconomy.com/set/SID0021300-1/lego-san-diego-comic-con-2013-spider-man.

Philippe, Masset, and Caroline Henderson. "Wine as an Alternative Asset Class." *Journal of Wine Economics* 5, no. 1 (2010): 87-118. doi:10.1017/S1931436100001395.

Slater, Janet. "Trash to Treasure: A Qualitative Study of Relationship Between Collectors and Collectible Brands." *Syracuse University ProQuest Dissertations Publishing*, 1998: 9842237. https://www.proquest.com/docview/304470561?pq-origsite=gscholar&fromopenview=true&sourcetype=Dissertations%20&%20Theses

Stoller, Michael A. "The Economics of Collectible Goods." *Journal of Cultural Economics* 8, no. 1, 1984: 91–104. http://www.jstor.org/stable/41811143.

Storchmann, Karl. "Wine Economics." *Journal of Wine Economics* 7, no. 1. July 31, 2012. doi:10.1017/jwe.2012.8.

Weber, Daniel. "Exploring Markets: Magic the Gathering - a Trading Card Game." EconStor, January 1, 1970. https://www.econstor.eu/handle/10419/235491.

Wood, Danielle, and Kym Anderson. "What Determines the Future Value of an Icon Wine? New Evidence from Australia." *Journal of Wine Economics* 1, no. 2, 2006: 141-61. doi:10.1017/S1931436100000171.