That '70s Show: An Analytical Postmortem

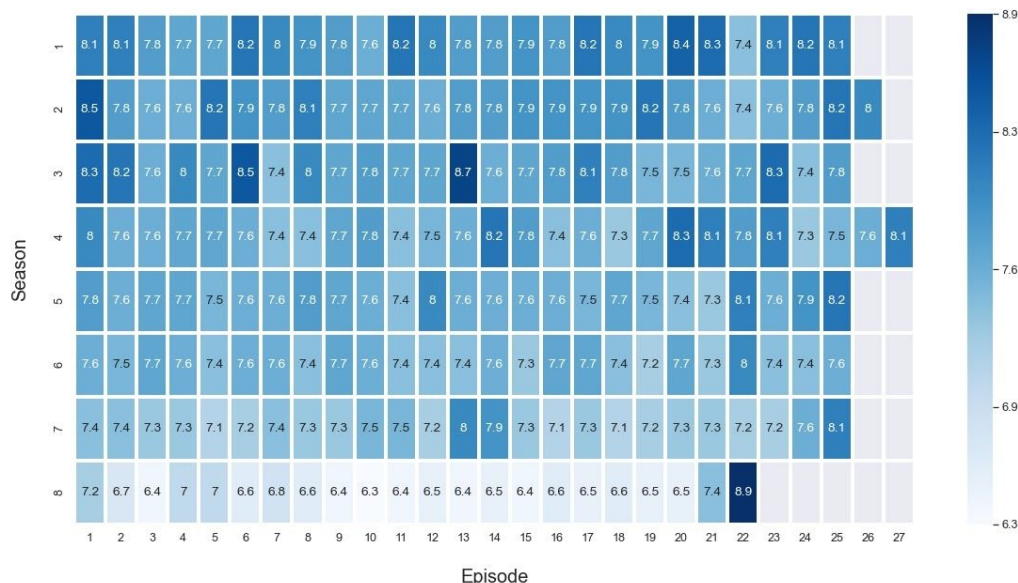*Bo Volwiler, Trang Vu, Karan Pillay, Yi-Ting Chang, Saheli Ganguly*

Debuting in 1998, *That '70s Show* follows a group of teenagers in Wisconsin as they go about their early adult years. The show ran for 8 seasons, spanning 200 episodes and concluding in 2006. Ashton Kutcher and Topher Grace played Michael Kelso and Eric Foreman respectively. These two became the breakout stars of the show, and at the conclusion of Season 7, they decided it was wiser for them to move on to other projects rather than to continue on with the show. Kutcher returned for the first few episodes of Season 8, concluding his character's storyline. Grace returned for a brief appearance in the finale of the show. The actors' sudden departures lead to the writers attempting to fill the void with characters both old and new, but nothing seemed to stick. Ultimately, the season was disliked by viewers, and the show was concluded at the end of the 8th season. Considering that these departures and subsequent drop in quality is generally cited as the reason why the show was cancelled, we want to see if the data supports this claim, or if other factors contributed to this cancelation.

To do this, we accessed and scraped data from a variety of different sources, including user reviews and season statistics from IMDB and RatingGraph.com using the IMDB API and BeautifulSoup.

Were The Departures The Only Reason The Show Was Canceled?

It is tempting to want to cite the departures of Kutcher and Grace as the reason why the show was cancelled, but is that really the case? This chart shows a heatmap of the episodes in each season. As we expect, we do see a dramatic jump to lighter shades of blue (representing lower scores) between seasons 7 and 8. But, more importantly, we are also seeing a gradual brightening of the shade of blue **throughout** the chart, suggesting that the show may have been declining in quality before the departures.

That '70s Show Episode Ratings

Season	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	8.1	8.1	7.8	7.7	7.7	8.2	8	7.9	7.8	7.6	8.2	8	7.8	7.8	7.9	7.8	8.2	8	7.9	8.4	8.3	7.4	8.1	8.2	8.1		
2	8.5	7.8	7.6	7.6	8.2	7.9	7.8	8.1	7.7	7.7	7.7	7.6	7.8	7.8	7.9	7.9	7.9	7.9	8.2	7.8	7.6	7.4	7.6	7.8	8.2	8	
3	8.3	8.2	7.6	8	7.7	8.5	7.4	8	7.7	7.8	7.7	7.7	8.7	7.6	7.7	7.8	8.1	7.8	7.5	7.5	7.6	7.7	8.3	7.4	7.8		
4	8	7.6	7.6	7.7	7.7	7.6	7.4	7.4	7.7	7.8	7.4	7.5	7.6	8.2	7.8	7.4	7.6	7.3	7.7	8.3	8.1	7.8	8.1	7.3	7.5	7.6	8.1
5	7.8	7.6	7.7	7.7	7.5	7.6	7.6	7.8	7.7	7.6	7.4	8	7.6	7.6	7.6	7.6	7.5	7.7	7.5	7.4	7.3	8.1	7.6	7.9	8.2		
6	7.6	7.5	7.7	7.6	7.4	7.6	7.6	7.4	7.7	7.6	7.4	7.4	7.4	7.6	7.3	7.7	7.7	7.4	7.2	7.7	7.3	8	7.4	7.4	7.6		
7	7.4	7.4	7.3	7.3	7.1	7.2	7.4	7.3	7.3	7.5	7.5	7.2	8	7.9	7.3	7.1	7.3	7.1	7.2	7.3	7.3	7.2	7.2	7.6	8.1		
8	7.2	6.7	6.4	7	7	6.6	6.8	6.6	6.4	6.3	6.4	6.5	6.4	6.5	6.4	6.6	6.5	6.6	6.5	6.5	7.4	8.9					

Episode

One interesting thing to point out is that the highest rated episode of the series is the series finale, which also has both Kutcher and Grace reprising their roles for one final time. We think that viewers hold that episode in high regard because it concludes the storylines that they have been consuming over 8 seasons, which holds an extra emotional weight than many other episodes.


Distribution of Episode Ratings Throughout Seasons of That' 70s Show
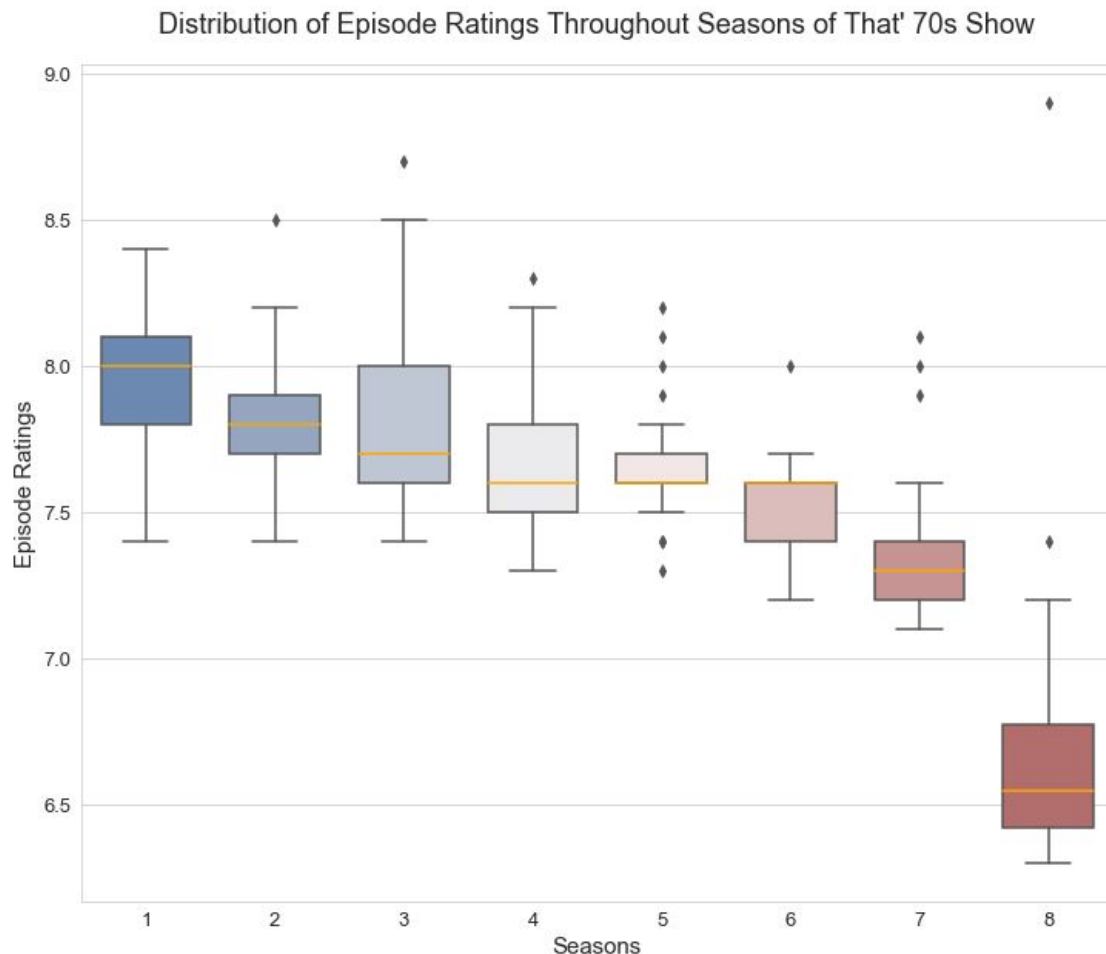
Expanding on the decline in ratings, this boxplot representation of the same viewer ratings data reinforces what we suspected. The show sees a gradual decline in viewer ratings from season to season and a sharp drop in the last season. Since there is still a decline in viewer ratings in the seasons that Kutcher and Grace fully participated in, we think there may be other factors at play contributing to the show's decline in quality and cancellation.

That '70s Show Was An Aging Show

If the departures were not the only factor leading to the show's cancellation, what other factors are there to consider? First, we want to take a look at the lifespan of most sitcoms. The list of sitcoms that we used was taken from an IMDB list of the top 50 sitcoms of all time, The distribution reveals that most sitcoms run for between about 75 and 175 episodes, as well as 5 to 9 seasons. With that context, it is clear that That '70s Show did not necessarily conclude prematurely, running for more episodes and seasons than many of the most well-respected

sitcoms at 8 seasons and 200 episodes. Given this information, it is likely that the show's age played a role in the decision to cancel the show.

Distribution of Episode Counts Of Top Sitcoms

That 70s Show

Distribution of Season Counts Of Top Sitcoms
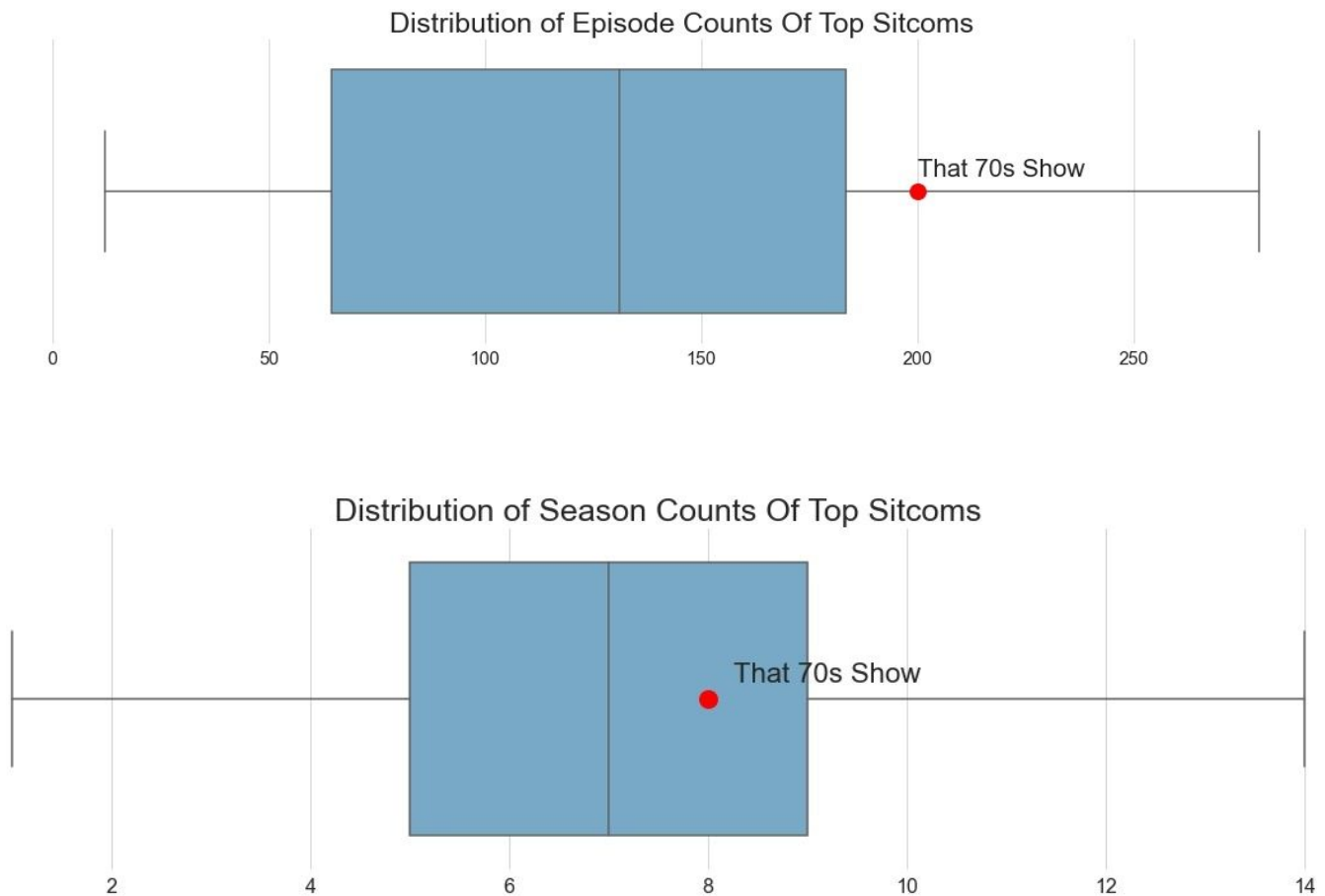
That 70s Show

Television Shows Don't (Usually) Get Better

Recall from earlier the fact that *That '70s Show* saw a gradual decline in viewer ratings throughout its life. When zooming out and viewing the greater sitcom landscape, many sitcoms mirror the same pattern, slowly declining in quality during their runs. In fact, it is fairly rare to find any show (not only sitcoms) that increases its viewer ratings over time. Particularly, most of these positive-trending shows tend to be non-syndicated dramas (meaning their stories build on themselves episode-over-episode) such as Breaking Bad, Ozark and Game Of Thrones.

We are inclined to believe that this inevitable staleness is by design. Sitcoms are often intentionally written to adhere to Status Quo Is God, which is the principle that no matter what happens within an episode (or within a handful of episodes), things must return to the state in which they began. Shows are written this way as to reduce Continuity Lock-Out, which aims to avoid turning away new viewers by making the reliance on previous episode's plot points as minimal as possible. With this in mind, Status Quo Is God is sort of a feature and a bug for sitcoms. On one hand, enforcing this style of writing ensures that valuable prime-time television slots get as many viewers as possible. On the other hand, it encourages sameness that may wear on audiences over time. This idea is reinforced by the fact that many later seasons tend to

Season Average Ratings
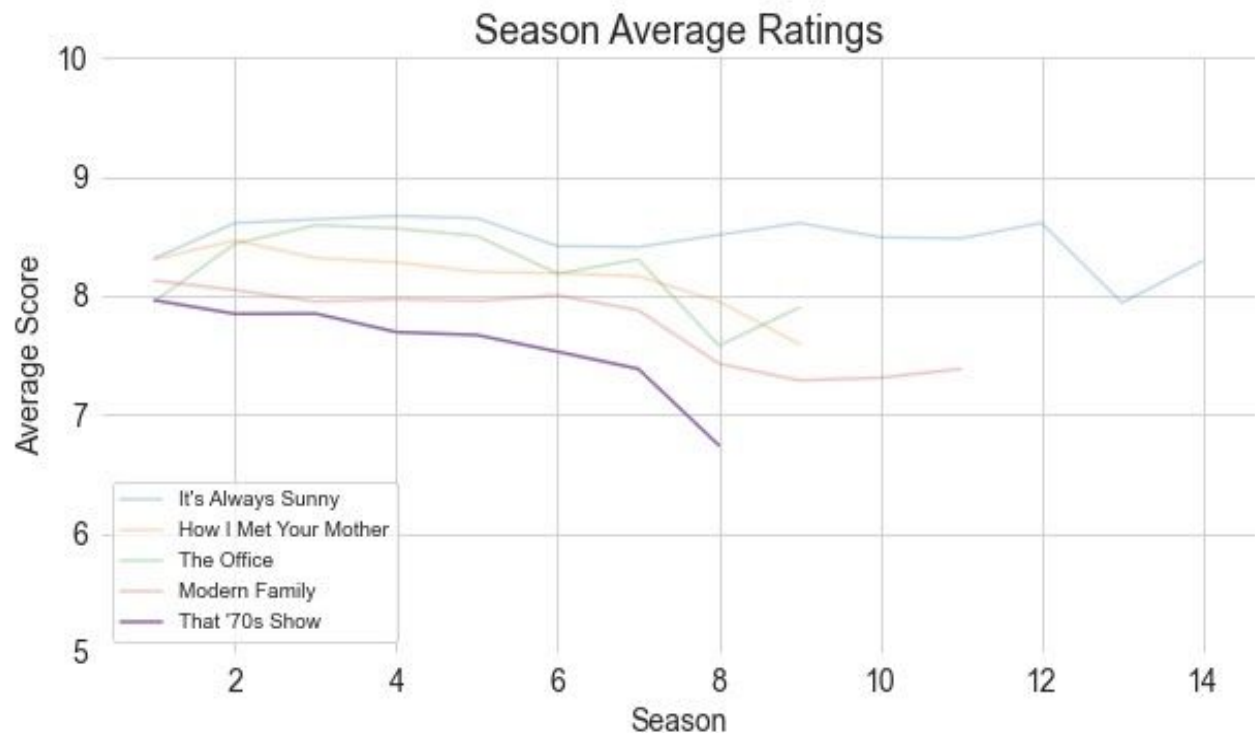
see sharper declines (as in How I Met Your Mother Season 9 and Modern Family Season 8).

It is also worthwhile to point out the top line on the chart, which is the contour of season averages for It's Always Sunny In Philadelphia. It's Always Sunny has run for 14 seasons on FX. FX allows the show runners to produce seasons as they see fit, rather than the usual one season per year format. This less-frequent season creation helps reduce the wear of Status Quo Is God, even though the show adheres to it to a large extent.

Reinforcing this pattern, below is the average episode rating of shows running in various seasons. On a macro scale, the greater trend of declining viewer satisfaction as television shows move on to new seasons is still apparent.


Average Ratings Of Shows That Run N Seasons
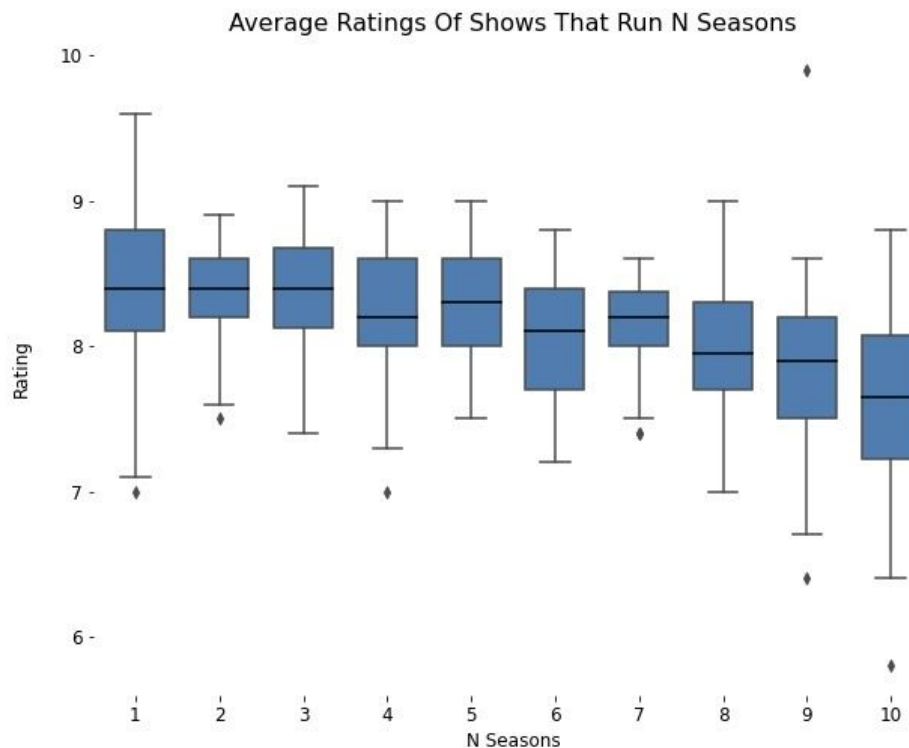
Considering the overall trend of quality as shows span more seasons, if *That '70s Show* were to continue past season 8, it is unlikely that the trend would improve. Rather, we would expect it to get worse, especially when taking into account it's worse-than-average current trend and the necessary changes that would have to be made to accomodate the loss of Kutcher and Grace.

A Shifting Market

The last thing we think that contributed to the show's demise was a changing market. Of the years *That '70s Show* ran, the number of sitcoms that made up the top 30 most viewed shows of that year declined sharply. In 1998, sitcoms made up 10 of the top 30 shows, while in 2005, sitcoms made up only 3 of the top 30, reaching an all time low of 2 in 2004. Meanwhile, dramas increased in popularity in the same time period, increasing from 9 to 17 of the top 30 shows of the year. Additionally, while not featured in this chart, *That '70s Show* also concluded at the very beginning of the reality television boom of the 2000's. With all this in mind, it is clear that the market for That '70 Show had shifted during the time the show had run

Distribution of Episode Counts Of Top 30 Shows
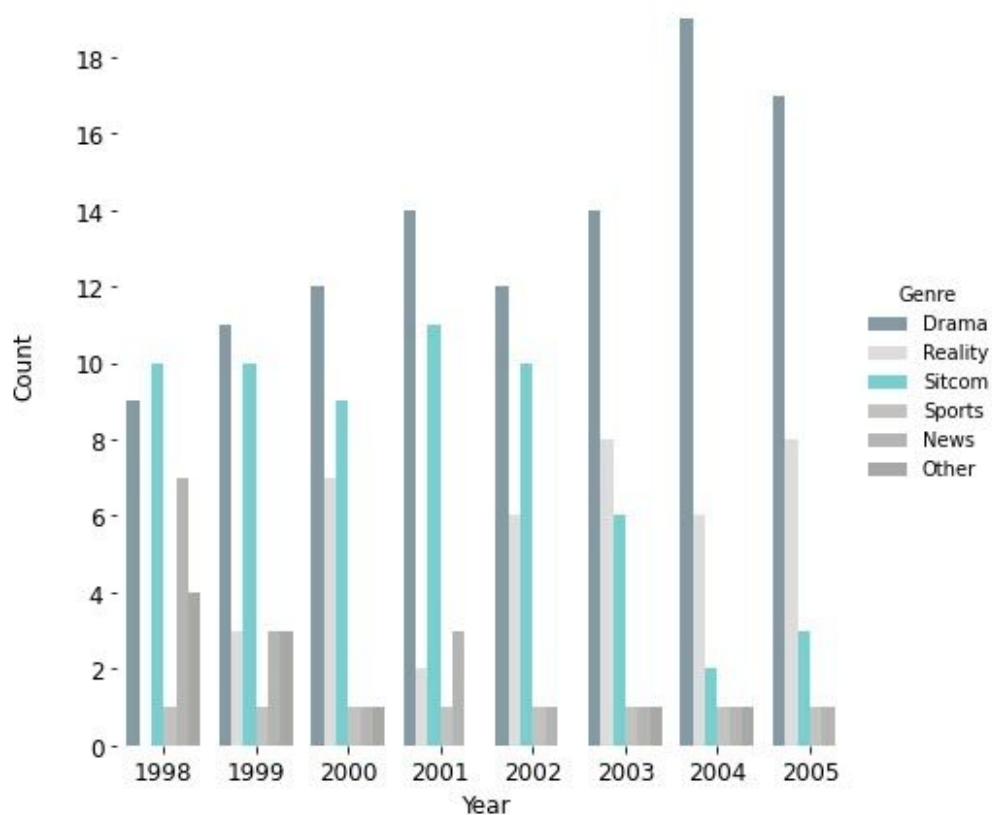
To highlight this point, in the years 2005 - 2006 (the final year of That '70s Show), the shows Grey's Anatomy, Supernatural, Criminal Minds, Hell's Kitchen, and Keeping Up With The Kardashians all premiered, and all would go on to surpass 15 seasons. Notably, none of these shows are sitcoms.

The Value Proposition

Considering all of the previously discussed factors, put yourself into the shoes of an executive at Fox choosing whether to continue production of *That '70s Show* past season 8, or to create an all new show for the same time slot. Continuing with *That '70s Show* would mean accepting the fact that the show likely does not have much life left, even had the two actors not departed. The show also has seen a steady decline in quality that, considering our analysis of other, similar shows, does not look likely to improve. Furthermore, since both Kutcher and Grace left in the same season, it's probably safe to assume that it was time for contracts to be renewed. The core actors and long running writing staff would all be poised to receive a significant pay raise, which would likely lock them into another two season contract, adversely raising the cost of show production. On top of it all, the sitcom was a format that had fallen out of favor in the show's run.

Taking all of this into account, along with the risk of having to adapt the show to work without Kutcher and Grace would be a significant gamble. The alternative is much more appealing: piloting a new show without big name stars for cheaper, with a concept that would fit the shifting demand for current (at the time) television. It's clear that factors beyond the show's internal troubles had a hand in its eventual cancellation.

Extension: Why Do Shows Stick Around?

All of this begs the question, what helps shows last a long time? We did not do direct analysis involving what exactly makes a show last a long time, nor are we sure that finding a definitive answer is even possible. Longevity is also not the same thing as quality. Good shows often do not make it far for various reasons. In this sense, creating a successful show is truly attempting to hit a moving target. For example, a show like *M*A*S*H* was incredibly successful in it's time, but would not work during wartime or more politically turbulent times, and matching content to the state of the world is certainly non-trivial.

However, we did notice a few things that could potentially be factors in how long a good show can last. We think a successful show made on a non-major network has the ability to last longer than one on a major network. Non-major networks offer more content flexibility (more raunchy content is allowed on cable), as well as allowing for additional flexibility in production

schedules (many of these networks don't require a season every year). This can be seen on our trajectory chart with *It's Always Sunny In Philadelphia.*

We also think that the ability to be syndicated is a huge boon for a successful television show's longevity. Syndication is when a television show is designed to be resold after its initial run. Since the shows are usually resold to smaller networks with less dedicated viewership, these networks are usually looking to purchase shows with low continuity lock-out. As such, many of the longest running television shows are written with isolated storylines that are able to engage anyone regardless of prior knowledge of the show. A great example of this are crime dramas. While the characters may have interpersonal relationships that span past the length of an episode, there are always new characters and storylines that are introduced and resolved within the span of the episode.

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