Where did we go right?: The effect of theatre choice on Broadway success

Tanayott Thaweethai

Abstract

Broadway theater is a billion dollar-per-year industry, with the lion's share of profits coming from well-known, long-running shows and properties, such as *The Phantom of the Opera*, *The Lion King*, and *Wicked*. While it is almost every Broadway producer's dream to produce a show that attracts audiences for years, the vast majority of shows close after only a few weeks or months, usually failing to recoup their capitalization costs, which can range from anywhere between 3 to 75 million dollars. Consequently, producers are interested in identifying factors that contribute to a show's success or failure. However, trends are challenging to study, as there are no easily downloadable datasets available online for public use that contain information about Broadway shows. We provide a web scraping algorithm that organizes data from the Internet Broadway Database for all plays and musicals produced on Broadway for the past 37 years (n=1,334). We then fit a logistic regression model where we define success for a production as running for at least 300 performances. Our analysis is focused on the effect of which of the 41 Broadway theatres a production calls its home on success. Despite small sample sizes for some individual theatres, we find that even when controlling for type of show (play vs. musical) and number of Tony nominations accrued, productions that take place at the Belasco Theatre tend to have shorter runs, whereas productions at the Helen Hayes Threatre and the Palace Theatre tend to be more successful.

Introduction

According to the Broadway League, the national trade association for the Broadway industry, in 2016, Broadway shows had $1.367 billion in grosses with a total attendance of 13.25 million[1]. The five longest-running Broadway shows are extremely well-known entities: *The Phantom of the Opera* (12,358 performances since January 1988 and counting), *Chicago* (8,683 performances since November 1996 and counting), *The Lion King* (8,286 performances since November 1997 and counting), *Cats* (7,485 performances between October 1982 and September 2000), and *Les Misérables* (6,680 performances between March 1987 and May 2003)[2]. Not only were these shows extremely profitable while on Broadway, each production has launched touring and regional productions around the world. But for every long-running Broadway show, there are hundreds and hundreds of shows that fail miserably on Broadway and only make it through a few weeks of performances before closing. Between January 1, 2017 and October 15, 2017, 28 plays and musicals opened on Broadway (excluding solo shows and special concert performances). As of October 15, 2017, only 9 remain open, and only 5 of those have not yet announced a closing date and are expected to still be open by January 2018[2]. Indeed, many consider Broadway to be an extremely unpredictable business. In the Tony award-winning musical *The Producers* (2001), two Broadway producers try to get rich quick by raising money to produce a Broadway flop. Despite producing a musical they believe will certainly fail spectacularly due to its offensive and crass

[1] "Statistics - Broadway in NYC | The Broadway League." https://www.broadwayleague.com/research/statistics-broadway-nyc/. Accessed 15 Oct. 2017.
[2] "IBDB | The Official Source For Broadway ...." https://www.ibdb.com/. Accessed 15 Oct. 2017.

content (it's titled *Springtime for Hitler: A Gay Romp with Adolf and Eva at Berchtesgaden*), the show ends up being a smash success, leaving the producers asking in song (of course): "Where Did We Go Right?"

The Producers captures the fickle nature of Broadway, which is by all accounts a risky and expensive game. It can cost anywhere from a few million dollars[3] to tens of millions of dollars[4] to book a theatre and put on a show. Typical Broadway musical production costs are $600,000 to $700,000 a week.[5] It is estimated that only 1 in 5 shows recoups its initial investment[6]. Investors, producers, and theatre artists all have a vested interest in understanding what factors influence a show's success on Broadway. There is some evidence that adapting well-known movies for the stage, or hiring a well-known TV/film actor can improve a show's chances of success[6]. However, there are numerous exceptions to this so-called 'formula' to success. The 2016 Tony-award winning musical *Hamilton*, which is based on a 832-page biography and featured no stars in its cast, is the most successful musical Broadway has seen in years[7].

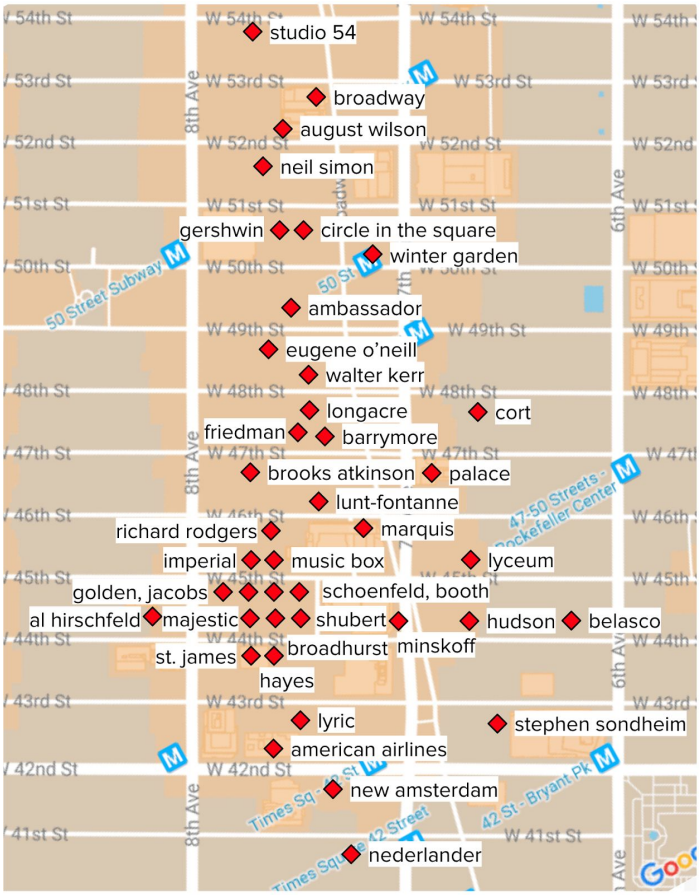
Very little quantitative research has been published studying the impact of various factors on the success of Broadway shows. This is partially due to the fact that data is not made very readily available, and some elements are particularly hard to quantify. For instance, information about the source material for all Broadway productions is not well-documented besides on each show's individual Wikipedia articles or in press releases, and such information is only available for more recent productions. However, one factor that may be easier to consider is the theatre in which a show is performed. There are currently 41 Broadway theatres, all of which are located in the Theater District and Lincoln Center along Broadway in Midtown Manhattan, New York City (see Figure 1). By definition, a Broadway theatre must have at least 500 seats. Only plays and musicals performed on Broadway are eligible for Tony Awards[8]. When producers want bring their show to Broadway, they have to wait for a theatre to become available, which happens when shows close. While bigger houses will be more expensive to rent, smaller houses put a lower ceiling on your potential grosses. Big and splashy shows might do better in larger houses, whereas smaller and more intimate productions might alienate attendees sitting in the rear balcony. Most theatres fall towards the middle. Producers spend a lot of time thinking about which theatre is best for their show, and they have to decide whether they want to take a theatre when it becomes available, but the timing also has to work with everyone they want to cast and hire to work on the production. Some producers are highly superstitious about which theatre to choose, and some theatres seem to have bad luck. For

---

[3] "'Significant Other' to End Its Run on Broadway - The New York Times." 7 Apr. 2017, https://www.nytimes.com/2017/04/07/theater/significant-other-to-end-its-run-on-broadway.html. Accessed 15 Oct. 2017.
[4] "'Spider-Man' to Close on Broadway - The New York Times." 18 Nov. 2013, http://www.nytimes.com/2013/11/19/nyregion/spider-man-to-shut-on-broadway.html. Accessed 15 Oct. 2017.
[5] "'The Lion King' Is Broadway's First $1 Billion Show - Business Insider." 16 Oct. 2013, http://www.businessinsider.com/the-lion-king-is-broadways-first-1-billion-show-2013-10. Accessed 15 Oct. 2017.
[6] "No business like show business - The Economist." 16 Jun. 2016, https://www.economist.com/news/business/21700674-our-analysis-art-and-science-creating-hit-show-no-business-show-business. Accessed 15 Oct. 2017.
[7] "'Hamilton' Inc.: The Path to a Billion-Dollar Broadway Show - The New ...." 8 Jun. 2016, https://www.nytimes.com/2016/06/12/theater/hamilton-inc-the-path-to-a-billion-dollar-show.html. Accessed 15 Oct. 2017.
[8] "ASK PLAYBILL.COM: Broadway or Off-Broadway—Part I | Playbill." 8 Feb. 2008, http://www.playbill.com/article/ask-playbillcom-broadway-or-off-broadwaypart-i-com-147549. Accessed 15 Oct. 2017.

instance, the Neil Simon Theatre, hasn't seen a hit (defined loosely) since *Hairspray* in 2003[2]. The Richard Rodgers Theatre, currently the home of *Hamilton*, has housed eleven Tony-winning Best Plays and Musicals in its time[9]. The Circle in the Square Theatre didn't have its first Tony-winning Best Musical until 2015 (*Fun Home*)[10]. So, a question on many producers' minds is: does the theatre you pick influence a show's chances of success?

Figure 1: Geographic locations of the 41 Broadway theatres
(not pictured: Vivian Beaumont Theatre at Lincoln Center at W 65th St)



Methods

Data

We use information from the Internet Broadway Database (IBDB), the official database for Broadway theatre information published by The Broadway League, the national trade association for the Broadway industry. IBDB provides records of productions from the beginnings of New York theatre until today[2].

---

[9] "Facts & Trivia - History from the Tony Awards - TonyAwards.com - The ...." https://www.tonyawards.com/en_US/history/facts/index.html. Accessed 15 Oct. 2017.
[10] "Tonys 2015: 'Fun Home' concludes offbeat ... - Los Angeles Times." 8 Jun. 2015, http://www.latimes.com/entertainment/arts/theater/la-et-cm-tonys-main-20150608-story.html. Accessed 15 Oct. 2017.

While the information is public, IBDB provides no API or easily downloadable datasets for analysis. We developed a web scraper in R using the package Rvest[11] and the Google Chrome extension SelectorGadget[12] to scrape individual IBDB entries for the following covariates: title of production, theatre, first preview date, opening date, closing date, number of previews, number of performances, number of Tony award nominations, number of Tony award wins, category (i.e., play vs. musical, original vs. revival, whether the show was performed in repertory), and lead producer. We collected data on shows that opened between since 1980, loosely considered by some to be the 'modern era' of Broadway theatre. After scraping IBDB, our dataset includes 1,334 plays and musicals that opened between January 1, 1980 and October 15, 2017.

The data cleaning process, beginning with converting the raw information from the internet into a data frame suitable for analysis in R, was intensive. IBDB pages for productions performed in repertory (that is, productions running concurrently in the same theatre, often with the same cast, alternating performances) are not formatted uniformly, and so information for these shows (22) were entered manually. Many theatres have changed their names over the years, and others have closed, so we have to match theatres with their current names in order to group them together appropriately.

Outcome

There are many outcomes we could consider in our model, as success is quite difficult to define. We might consider the outcome to be a continuous variable defined by the number of performances. However, *Spider-Man: Turn Off The Dark* (2011), the most expensive musical in Broadway history with a capitalization of $75 million, failed to recoup its initial investment despite running for 1,066 performances over 2.5 years.[4] On the other hand, the 2017 revival of the musical *Sunday in the Park with George* starring Jake Gyllenhaal recouped its initial investment after only 56 performances.[13] Recoupment instead seems like a good outcome to use, but such information is not always published, and when it is, it can only be found in press releases and news articles, not in any online database. Further, the musical *Thoroughly Modern Millie* (2002) ran for 903 performances over two years failed to fully recoup its investment before closing but was followed by a hugely profitable on tour in the U.S. and in the U.K.[14] Would it be fair to call *Thoroughly Modern Millie* a flop? One might also consider the number of Tony awards won to be a useful outcome, but this too is a limited definition of success. The musical *Mamma Mia!* (2002) won 0 Tony awards but ran for 5,758 performances over 14 years and was hugely financially successful[2]. The much lesser-known musical *Passion* (1994) won 4 Tony awards but ran for only 280 performances[2].

In building a model for success, we also may not want to use the total number of performances as an outcome because of the great number of extreme outliers. Also, shows that are currently open are still accumulating performances. We could consider shows that are still running to be censored and perform a survival analysis where time to event is the number of performances, but then we would have to tackle

---

[11] "Package 'rvest'." 17 Jun. 2016, https://cran.r-project.org/web/packages/rvest/rvest.pdf. Accessed 15 Oct. 2017.
[12] "SelectorGadget: point and click CSS selectors." http://selectorgadget.com/. Accessed 15 Oct. 2017.
[13] "Jake Gyllenhaal-Led SUNDAY IN THE PARK WITH GEORGE Will Get ...." https://www.broadwayworld.com/article/Jake-Gyllenhaal-Led-SUNDAY-IN-THE-PARK-WITH-GEORGE-Will-Get-Cast-Recording-20170420. Accessed 15 Oct. 2017.
[14] "'Millie' set to close; new 'Shop' topliner – Variety." 13 May. 2004, http://variety.com/2004/legit/news/millie-set-to-close-new-shop-topliner-1117904892/. Accessed 15 Oct. 2017.

the issue of dependent censoring. We might instead consider a binary outcome based on whether a production reaches a certain number of performances in order to avoid the influence of outliers. To investors, there likely isn't too much of a difference between a show that runs ten performances and 100; because of running costs, the capitalization costs aren't being recouped in either case. Shows that sell well will typically recoup within nine months. Every Broadway show puts on eight performances per week, which equates to 8*52=416 performances per year, and so 3/4 of that would be around 300 performances. Therefore, we will build a logistic regression model with a threshold of 300 performances for the outcome. In our dataset, 81.3% of productions fail to reach this threshold, which is consistent with the notion that 4 out of 5 shows fail to recoup.

Predictors

Plays almost always have shorter runs than musicals, so we would definitely want to control for this variable. We would also like to control for how "good" a show is. Since quality is obviously subjective, the best we can do with our data is to use the general consensus of the American Theater Wing to give us a measure of quality. We use nominations as opposed to wins as there are 4-5 times as many nominations given out as awards, and so we have more information for more productions if we don't restrict ourselves to who won. We will also include theatre as a categorical variable, as theatre is our main predictor of interest. Many long-running shows end up moving theatres during their run, but we just use the theatre at which a show opens in this analysis.

Results

Descriptive statistics

In Figure 2, we display the number of plays vs. musicals by year. While at any given point in time, there are more musicals than plays running on Broadway, plays tend to have shorter runs and therefore there is higher turnover, resulting in a higher number of plays produced on a yearly basis. In Table 1, we calculate the nuber of shows that opened at each of the 41 theatres. The 'closed' count refers to shows that opened in Broadway theatres that have since been demolished or have closed down. We also append the number of seats to each theatre's name.

Figure 2: Number of musicals vs. plays that opened on Broadway, by year

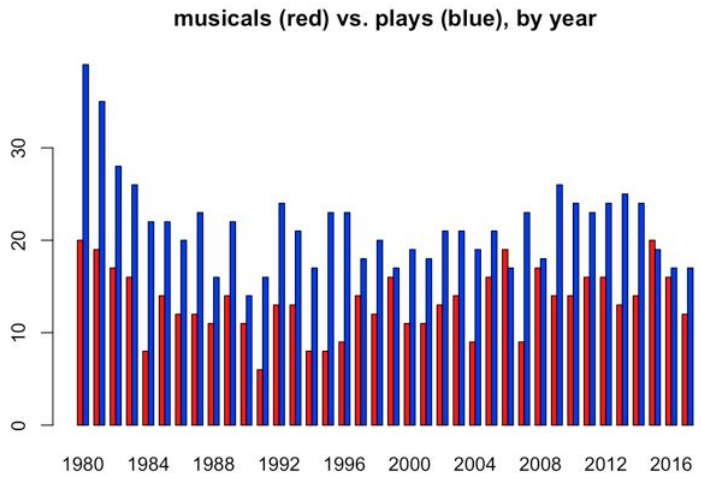


Table 1: Number of productions (plays and musicals), by theatre

Theatre (capacity)	Count	Theatre (capacity)	Count	Theatre (capacity)	Count
1. closed (NA)	96	15. Longacre Theatre (1091)	41	29. Studio 54 (1006)	23
2. Circle in the Square Theatre (840)	64	16. John Golden Theatre (805)	39	30. Gershwin Theatre (1933)	19
3. Samuel J. Friedman Theatre (650)	56	17. Walter Kerr Theatre (945)	39	31. Broadway Theatre (1761)	18
4. American Airlines Theatre (740)	50	18. Belasco Theatre (1018)	37	32. Minskoff Theatre (1710)	17
5. Brooks Atkinson Theatre (1094)	50	19. Helen Hayes Theatre (597)	37	33. Imperial Theatre (1443)	15
6. Lyceum Theatre (922)	48	20. Al Hirschfeld Theatre (1424)	34	34. Palace Theatre (1743)	15
7. Music Box Theatre (1009)	48	21. Neil Simon Theatre (1467)	31	35. Ambassador Theatre (1125)	14
8. Cort Theatre (1084)	47	22. R. Rodgers Theatre (1400)	29	36. Lyric Theatre (1938)	11
9. Booth Theatre (766)	46	23. Eugene O'Neill Theatre (1066)	28	37. Shubert Theatre (1460)	9
10. Gerald Schoenfeld Theatre (1079)	46	24. Marquis Theatre (1612)	27	38. S. Sondheim Theatre (1055)	9
11. Vivian Beaumont Theatre (1080)	45	25. St. James Theatre (1709)	27	39. Winter Garden Theatre (1526)	9
12. Bernard B. Jacobs Theatre (1078)	44	26. August Wilson Theatre (1228)	26	40. N. Amsterdam Theatre (1747)	3
13. Ethel Barrymore Theatre (1096)	43	27. Lunt-Fontanne Theatre (1519)	24	41. Hudson Theatre (970)	2
14. Broadhurst Theatre (1186)	42	28. Nederlander Theatre (1235)	24	42. Majestic Theatre (1645)	2

To get a sense of the distribution of the number of performances, we can compute the deciles for total performances, split by plays in musicals in Table 2. 50% of all musicals reach 136 or fewer performances, with 90% reaching fewer than approximately 1,000 performances. Plays have a lower median number of performances (73 vs. 136), with 90% of all plays reaching fewer than 300 performances.

Table 2: Deciles of number of total performances, by play and musical

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Plays	0	13	33	52	61	73	93	116.1	151.2	277	1,299
Musicals	0	14	39	62.4	93.6	136	217.8	407.3	611.8	977.4	12,358

Exclusion criteria

There are 1,334 plays and musicals in our dataset that opened between January 1, 1980 and October 15, 2017. We exclude productions that opened in theatres that have since closed or are no longer operating

(96 productions), leaving us with 1,238 productions. We also exclude shows that are currently open that have not yet reached the 300 performance mark (5 productions), leaving us with 1,235 productions. We also exclude all productions mounted by not-for-profit theatre companies (Roundabout Theatre Company, Manhattan Theatre Club, and Lincoln Center), as these productions are overwhelmingly not-for-profit limited runs (194 productions), leaving us with 1,041 productions to use in our analysis.

Reference level (theatre)

We have to select a reference group for the theatre. We might select for our reference the theatre that has the median success rate for the shows it has housed. In Table 3, we calculate the success rate (i.e., the proportion of shows that reach 300 performances) for each theatre among the 1,041 productions used in our analysis model. The Neil Simon Theatre and the August Wilson Theatre have approximately the median success rate; we choose the Neil Simon Theatre as our reference since it has the greater number of total productions (31 vs. 26).

Table 3: Proportion of shows that reach 300 performances and total number of productions, by theatre

Theatre	Rate	Total	Theatre	Rate	Total
1. Cort	0%	42	21. August Wilson	23.1%	26
2. Hudson	0%	2	22. B. B. Jacobs	23.8%	42
3. Friedman	0%	13	23. Helen Hayes	24.3%	37
4. Studio 54	0%	2	24. Lunt-Fontanne	26.1%	23
5. Beaumont	0%	7	25. Marquis	29.6%	27
6. Belasco	3.2%	31	26. S. Sondheim	33.3%	6
7. Ambassador	7.1%	14	27. Al Hirschfeld	35.3%	34
8. Longacre	7.3%	41	28. Gershwin	36.8%	19
9. Lyceum	7.3%	41	29. Eugene O'Neill	37.0%	27
10. Circle in the…	7.8%	64	30. St. James	40.7%	27
11. Barrymore	12.5%	40	31. Minskoff	41.2%	17
12. Music Box	12.5%	48	32. R. Rodgers	41.4%	29
13. Nederlander	12.5%	24	33. Broadway	44.4%	18
14. B. Atkinson	12.7%	47	34. Winter Garden	44.4%	9
15. Booth	16.7%	42	35. Majestic	50.0%	2
16. Broadhurst	19.5%	41	36. Lyric	54.5%	11
17. Golden	21.1%	38	37. Shubert	62.5%	8
18. Schoenfeld	21.4%	42	38. Imperial	66.7%	15
19. Walter Kerr	22.2%	36	39. Palace	66.7%	15
20. Neil Simon	22.5%	31	40. N. Amsterdam	100%	3

Model Fit

We present the results of our logistic regression in Table 4.

Table 4: Results of a logistic regression with binary outcome of whether a production reached 300 performances. The reference level is a musical produced at the Neil Simon Theatre. The theatres are sorted by ascending odds ratio point estimate.

Predictor	OR	95% CI	p-value
(Intercept)	0.098	(0.034, 0.281)	0.000
Play	0.454	(0.281, 0.731)	0.001
Tony Nominations	1.534	(1.432, 1.644)	0.000
Cort Theatre	0.000	(0.000, Inf)	0.977
Hudson Theatre	0.000	(0.000, Inf)	0.996
Samuel J. Friedman Theatre	0.000	(0.000, Inf)	0.989

Studio 54	0.000	(0.000, Inf)	0.995
Vivian Beaumont Theatre	0.000	(0.000, Inf)	0.991
Belasco Theatre	0.111	(0.01,1.198)	0.070
Ambassador Theatre	0.185	(0.013, 2.618)	0.212
Lyceum Theatre	0.444	(0.078, 2.546)	0.362
Nederlander Theatre	0.453	(0.077, 2.658)	0.380
Longacre Theatre	0.493	(0.088, 2.752)	0.420
Music Box Theatre	0.525	(0.118, 2.328)	0.396
Ethel Barrymore Theatre	0.535	(0.114, 2.511)	0.428
August Wilson Theatre	0.559	(0.114, 2.747)	0.474
Circle in the Square Theatre	0.569	(0.129, 2.513)	0.457
Brooks Atkinson Theatre	0.779	(0.189, 3.210)	0.730
Majestic Theatre	0.782	(0.014, 42.306)	0.904
Broadhurst Theatre	0.794	(0.190, 3.321)	0.752
Booth Theatre	0.978	(0.226, 4.222)	0.976
Marquis Theatre	0.994	(0.230, 4.291)	0.994
Broadway Theatre	0.996	(0.205, 4.828)	0.996
Walter Kerr Theatre	1.013	(0.246, 4.174)	0.986
Winter Garden Theatre	1.068	(0.150, 7.605)	0.948
Al Hirschfeld Theatre	1.088	(0.269, 4.394)	0.906
John Golden Theatre	1.115	(0.271, 4.581)	0.880
Stephen Sondheim Theatre	1.144	(0.084, 15.668)	0.920
Gershwin Theatre	1.159	(0.247, 5.450)	0.852
St. James Theatre	1.185	(0.283, 4.955)	0.816
Gerald Schoenfeld Theatre	1.211	(0.313, 4.689)	0.781
Shubert Theatre	1.475	(0.166,13.131)	0.727
Bernard B. Jacobs Theatre	1.550	(0.410, 5.854)	0.518
Eugene O'Neill Theatre	1.560	(0.352, 6.917)	0.559
Lunt-Fontanne Theatre	1.579	(0.368, 6.784)	0.539
Richard Rodgers Theatre	1.791	(0.418, 7.675)	0.433
Imperial Theatre	1.897	(0.330, 10.907)	0.473
Minskoff Theatre	2.571	(0.546, 12.114)	0.232
Helen Hayes Theatre	3.073	(0.815, 11.587)	0.097
Lyric Theatre	4.069	(0.719, 23.026)	0.112
Palace Theatre	5.294	(0.992, 28.258)	0.051
New Amsterdam Theatre	1.7×10^7	(0.000, Inf)	0.993

The odds ratios can be interpreted as follows: Holding constant the type of production (musical vs. play) and the number of Tony nominations received, the odds of making it to 300 performances for a production housed at the Belasco Theatre are 0.111 times the odds of making it to 300 performances for a production housed at the Neil Simon Theatre.

As expected, we see a strong negative association between the odds of making it to 300 performances and being a play vs. a musical (OR=0.454, 95% CI: [0.281, 0.731], p=0.001), as well as a strong positive association for each additional Tony nomination a show receives (OR=1.534, 95% CI: [1.432, 1.644], p<0.001). However, things get a lot murkier when considering specific theatres. Three theatres with odds ratios approaching statistical significance are the Belasco Theatre (OR=0.111, 95% CI: [0.010, 1.198], p=0.070), the Helen Hayes Theatre (OR=3.073, 95% CI: [0.815, 11.587], p=0.097), and the Palace Theatre (OR=5.294. 95% CI: [0.992, 28.258], p=0.051).

Discussion

Even with data covering 37 years, we still have very small sample sizes for some theatres (see Table 1) and a great number of levels for our predictors, so it is not surprising that most p-values are so large. We might want to refine our sample to exclude theatres that do not have enough data, but we also would not want to throw away data. Our analysis is also biased to show us stronger “harmful” effects for theatres that have housed more productions, because in order for them to house more productions, productions need to close more quickly. We could restrict to the last 20 productions in each theatre, but 13 theatres

still don't have a history of 20 productions even when we look back to 1980. Some theatres like the New Amsterdam Theatre seem to be extraordinarily strongly associated with success, but we have to keep in mind the productions that have been housed there: (1) *The Lion King* (1997): 8,286 performances, (2) *Mary Poppins* (2006): 2,619 performances, and (3) *Aladdin* (2014), 1,490 performances. Also, a key shortcoming of this analysis is that we do not know whether shows are limited runs; that is, shows that must close due to availability of the actors (usually film/TV stars). As mentioned earlier, the 2017 revival of *Sunday in the Park with George* starring Jake Gyllenhaal recouped its entire investment in 56 performances, but was a strictly limited engagement that only played for two months[13]. One would have to consider every single show in the database and dig deep into archives of press releases to figure out which shows were limited runs and which were open-ended commercial runs.

The key accomplishment of this project is the development of the web-scraped IBDB dataset, which sets the stage (pun not intended) for future analyses in many different directions. The Broadway League also publishes weekly grosses for Broadway shows[15]. Luckily, this information is more easily extracted. However, grosses only give us one angle into a show's finances; some shows are astronomically more expensive than others to run. We would also like a better way to control for the quality of a show. Tony nominations may not be the best proxy; some believe that the American Theatre Wing, the body of individuals who vote for the Tonys, favor shows that are still running in April when nominations are decided. Therefore, Tony nominations may actually be affected by the number of performances, and so this may not be the best covariate to include in a model. There are some review aggregator sites (e.g., didhelikeit.com[16]) that can be used to assess show quality, but information from this website is not readily downloaded. It would also be helpful to obrtain information about a show's creative team and stars (i.e., number of Tony/Emmy/Academy/Grammy awards the director, composer, writer and lead actors/actresses have won) and assess whether these factor influence a show's success. We would also like to consider whether a show's source material (original idea, book, movie, TV show, cartoon strip, biography, real-life event) can be used to predict success. Some find that shows that successfully transfer to Broadway after a successful Off-Broadway or Off-Off-Broadway run tend to do better, but there is no centralized database for non-Broadway New York theatre. As we begin to incorporate more covariates, It may be necessary to implement machine learning methods to tease apart which predictors are the most important when building models.

[15] "Grosses - Broadway in NYC | The Broadway League." https://www.broadwayleague.com/research/grosses-broadway-nyc/. Accessed 15 Oct. 2017.
[16] "Did He Like It?." http://www.didhelikeit.com/. Accessed 15 Oct. 2017.