

THE ARTISTIC CAPACITY PROJECT

RESEARCH ON

THE CAPACITY TO PRODUCE GREAT WORKS OF THE PAST AND

THE CAPACITY TO PRODUCE NEW WORK AND DEVISED WORK & CONTEMPORARY PERFORMANCE

2015

EXECUTIVE SUMMARY

In response to a call for research issued in *The Artistic Capacity Project: Research Agenda* (Yale School of Drama, 2014), we developed measures to test two hypotheses regarding the artistic capacity of the American nonprofit professional theater field. The research showed two principal results over the last quarter century:

- The capacity to produce great works of the past has been contracting.
- The capacity to produce new work and devised work & contemporary performance has been expanding, although by a small margin.

Aside from these principal findings, we were able to make several additional observations:

- The number of productions for plays has dropped, whereas the number of musical productions has grown.
- The production capacity for modern plays and musicals—no longer new, but not yet of the past—has expanded.
- Continuation into second or third productions for new plays has declined.
- The nonprofit theater has become more homogeneous in programming.

The focus of this report is to identify trends in artistic capacity. In this report, we do not inquire into the causes of such trends or what, if anything, should be done in response.

METHODOLOGY

Economists define capacity as “the maximum level of output of goods and/or services that a given system can potentially produce over a set period of time.” Thus, the artistic capacity to produce theatrical work can best be understood by focusing on the output—in other words, the number of productions (rather than number of performances).

1. Research Population Theaters

Our approach is based on an empirical analysis of the theatrical repertoire of a representative group of 53 theaters between the years 1989 and 2014. In 2015, there are more than 9,000 nonprofit theaters in America, two thirds of which have less than \$100,000 in revenue.¹ According to Theatre Communications Group (TCG), 1,773 nonprofit professional theaters throughout the country filed Internal Revenue Service (IRS) Form 990 in 2013, the latest fiscal year for which such data is available. Because it is not possible to analyze the entire population of professional nonprofit theaters with respect to their collective producing capacity, we selected a group of 53 nonprofit theaters (hereafter referred to as “Research Population Theaters”) that serves as a representative sample. Designed to capture the diversity of American theater, the Research Population Theaters comprise a diverse spectrum of aesthetics and budget sizes, geographic regions, and organizational structures. As a group, they represent a highly visible cross-section of the American stage and provide a large proportion of the overall output. Consequently, the Research Population theaters are a statistically sufficient sample to demonstrate trends in the artistic capacities being studied.² To minimize potential selection bias, we tested our choices for the Research Population with a number of expert colleagues who were otherwise uninvolved in the research project. (The full list of theaters in the group can be found in Appendix I. The analysis of the Research Population can be found in Appendix II.) The data was collected from information on the Research Population theaters’ websites and from TCG Theatre Profiles, an online compendium of information about member theaters and their production history. We categorized a total of 9,549 productions (titles) spanning a quarter-century.

2. Defining “great works of the past”

W. H. Auden said that all great works of art “exhibit two contradictory qualities, the quality of always-ness and the quality of now-ness.” However, even dramaturgs do not agree on what constitutes the classics, or what allows a play to be incorporated into the dramatic canon. For the sake of this project, the researchers deferred to the judgment of the Research Population Theaters to determine the “greatness” of the plays they chose to produce and instead employed a straightforward “50 years” rule to define “the past.” For the purposes of this project, we categorized plays and musicals written at least 50 years prior to the point of production as great works of the past. For example, for the 1989/90 season, plays written before 1939 were categorized as “great works of the past.” For the 2012/13 season, plays written before 1962 met the criteria.

3. Defining “new work”

We are interested in the artistic capacity to produce new work, taking into consideration the risk factors involved in producing a new play or a new musical, such as the financial outlay, extra organizational support, and marketing challenges, to name a few. After considering a variety of different approaches to counting productions as “new work” in consultation with disinterested

¹ Refer to guidestar.org, an online database specializing in reporting on U.S. nonprofit companies. This conclusion was inferred by using the following filters: Category: performing art; NTEE: A65-theater; IRS code 501(c)3.

² A statistically valid sample would have been achieved with a selection of 30 theaters, but we expanded the Research Population to 53 in order to provide additional reassurance to both ourselves and readers.

experts, we adopted a “first three productions” rule to categorize new work. This definition emphasizes “newness”: a play/musical produced more than three times has developed a track record, and discounts the phenomenon of a burst in regional premieres following a Broadway hit. For instance, *Vanya and Sonia and Masha and Spike*, a play written by Christopher Durang, premiered at McCarter Theatre (Princeton, NJ) in 2012. The play subsequently transferred to Broadway in 2013 and became one of the top 10 most-produced plays among TCG member theatres in the 2013/14 season. Among our Research Population Theaters, it has been produced by Alley Theatre (Houston, TX), Berkeley Repertory Theatre (Berkeley, CA), Center Theater Group (Los Angeles, CA), Guthrie Theater (Minneapolis, MN), The Old Globe (San Diego, CA), and Trinity Repertory Company (Providence, RI). We counted the McCarter production as a “new play,” and the other regional productions as a “modern play,” since its second production was outside the Research Population Theaters, and its third production was a Broadway run.

4. Other categories

Besides “great works of the past” and “new work,” the other categories in our analysis include:

- “Devised work & contemporary performance”: productions of ensemble companies, and contemporary performance that grows out of performance art.
- “Modern plays” and “modern musicals”: plays and musicals that have had more than three productions but are less than 50 years old.
- “None of the above”: includes dance pieces, operas, circus, stand-up comedy, and other forms of live performance.

5. Some wrinkles in the categories

It is worth reiterating that after the third production of a new play/musical, all subsequent productions were categorized as “modern play/musical.” This categorization has implications that we will address in the latter half of this report.

We had to decide how to count a play/musical that was created in the past but was not discovered or produced in its time. An example that illustrates the rule we adopted is *Not About Nightingales*, a three-act play written by Tennessee Williams in 1938. It wasn’t discovered until the late 1990s, and its world premiere took place in London in 1998. The play subsequently moved to the Alley Theatre the same year. Even though the theater listed the production as an “American Premiere,” we classified it as a “great work of the past,” based on when it was written rather than when it was produced.

We also needed a rule concerning new work produced in other countries, or in non-English versions. For example, *Neva*, by Guillermo Calderón, made its English-language premiere at the Public Theater in 2013, but the play had already been widely seen on international stages. In this case, we categorized it under “modern plays,” based on the “three productions” rule.

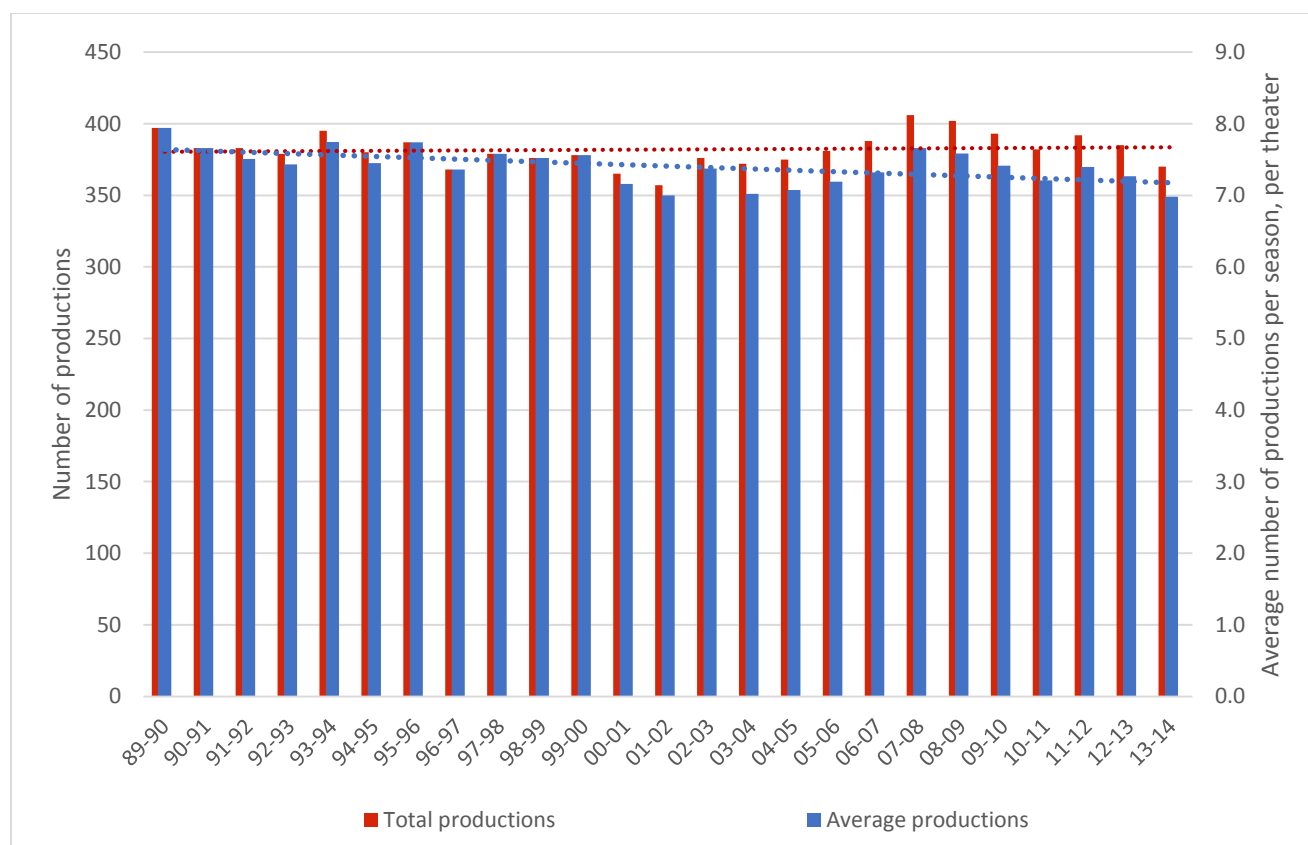
“Years” typically refers to seasons. Two Research Population Theaters changed their reporting formats from listing productions in calendar years to seasons. In the years that such a change occurred, we allocated the productions to one season and left them out of the other.

DATA ANALYSIS AND KEY FINDINGS

Overview

Graph 1 illustrates the total number of productions and average number of productions per season, per theater between seasons 1989/90 and 2013/14. Although we are interested in the collective producing capacity of the field, the average provides a valid point of comparison, since it evens out the discrepancies in the total number of Research Population theaters each season.³ Consequently, although the trend line⁴ indicates a slight increase in overall production capacity, the average suggests a contracting pattern. In 1989/90, the average production per season per theater was 7.9, while in 2013/14, it was 7.0.

Graph 1: Production History, 1989-2014



Source: Compiled by the author⁵

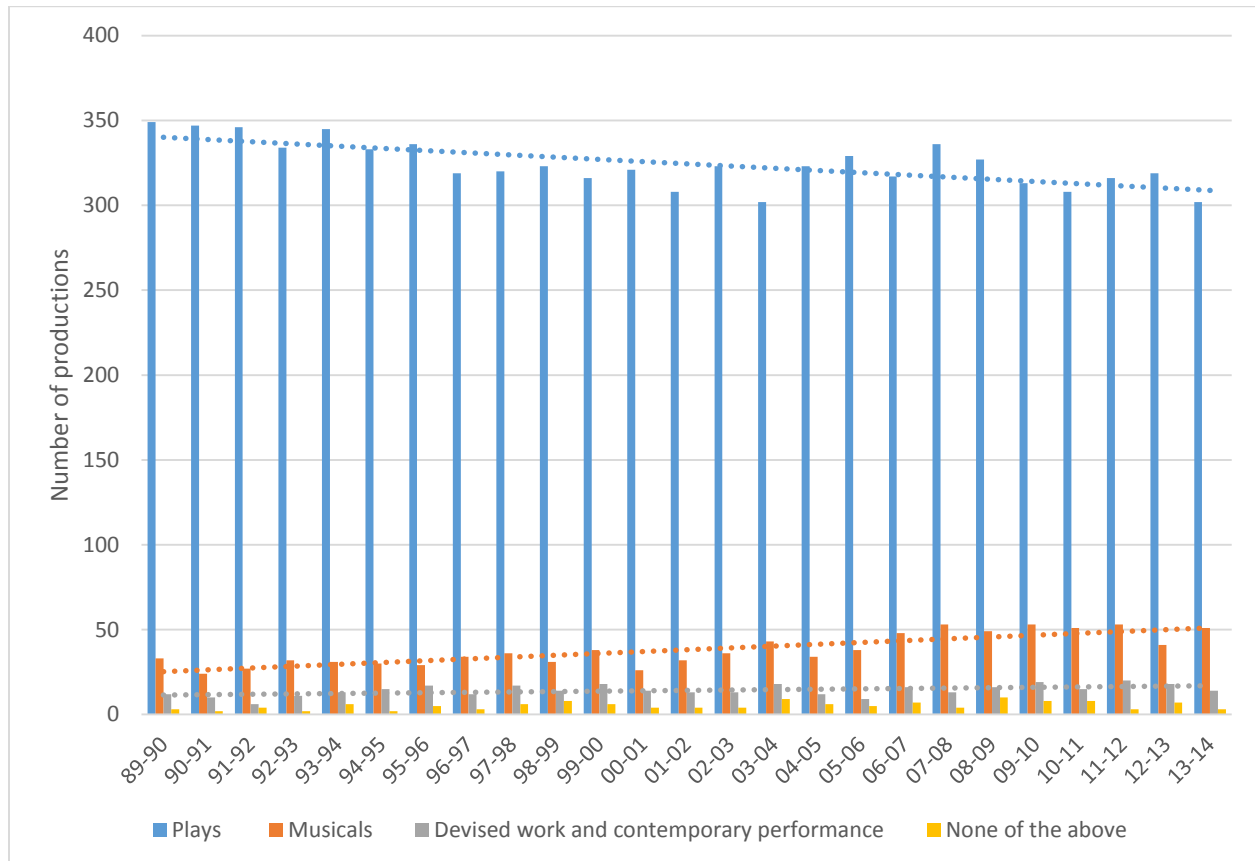
³ The number of theaters in the Research Population varies slightly from year to year. Some were founded after 1989. For some theaters, production histories for certain seasons are not publically available.

⁴ The trend line is a visual representation of the general pattern or direction of a time series data. The line is drawn based on the results of linear regression. In Graph 1, the red dotted line represents the trend of overall productions, while the blue line represents the trend of average productions. All trend lines shown in this report, unless otherwise noted, follow the same color-coded rule.

⁵ All data used in the report, unless otherwise noted, is compiled by the Author.

The trends for each type of production (plays, musicals, and devised work & contemporary performance) differ; for example, the number of plays produced has dropped whereas the number of musicals produced has grown (Graph 2).

Graph 2: Production history breakdown by type of productions, 1989-2014

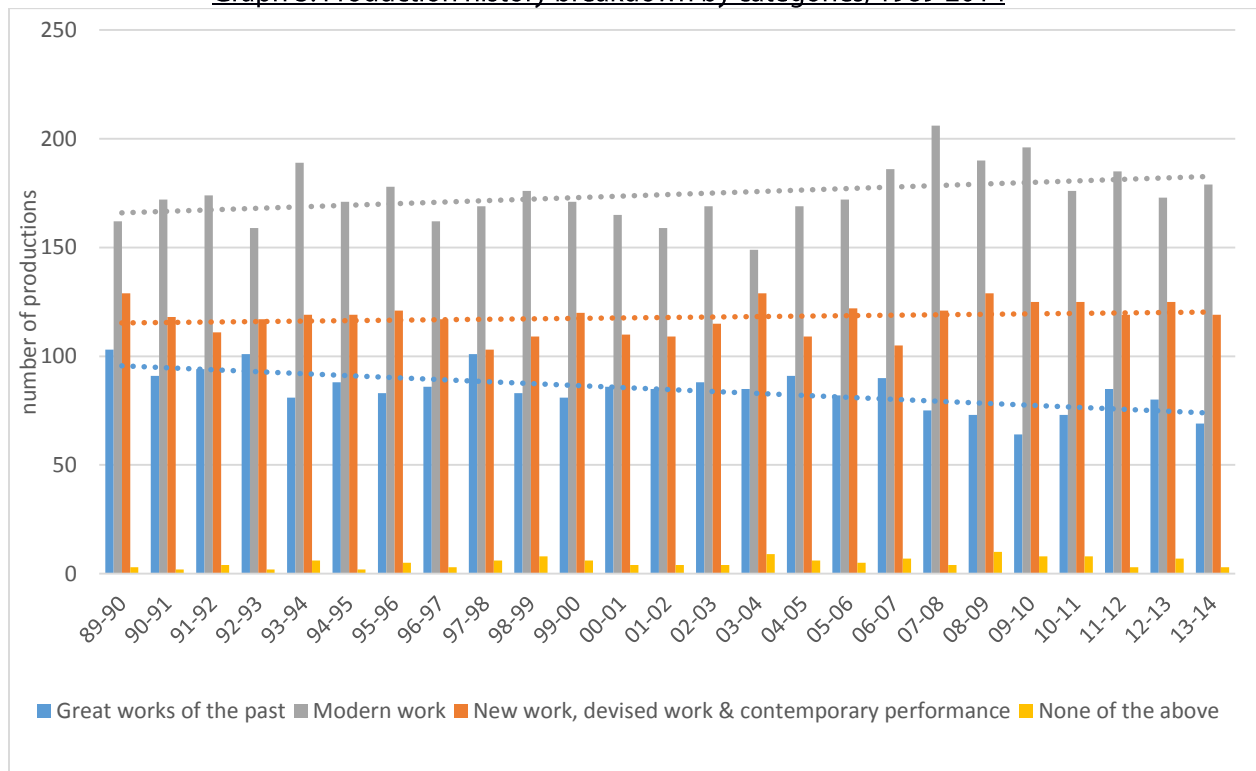


RESEARCH FINDINGS

The number of productions for plays has dropped, whereas the number of musical productions has grown.

Based on our definitions of “great works of the past” and “new work,” we analyzed the data through different lenses. Graph 6 provides an overview of changes in the number of productions for each category over the span of 25 years. It delineates an increase in the capacity to produce modern work. The latter part of this report will discuss the capacity to produce great works of the past, followed by the capacity to produce new work and devised work & contemporary performance.

Graph 3: Production history breakdown by categories, 1989-2014



Great works of the past: an aggregate of great plays and great musicals of the past

Modern work: an aggregate of modern plays and modern musicals

New work: an aggregate of new plays and new musicals

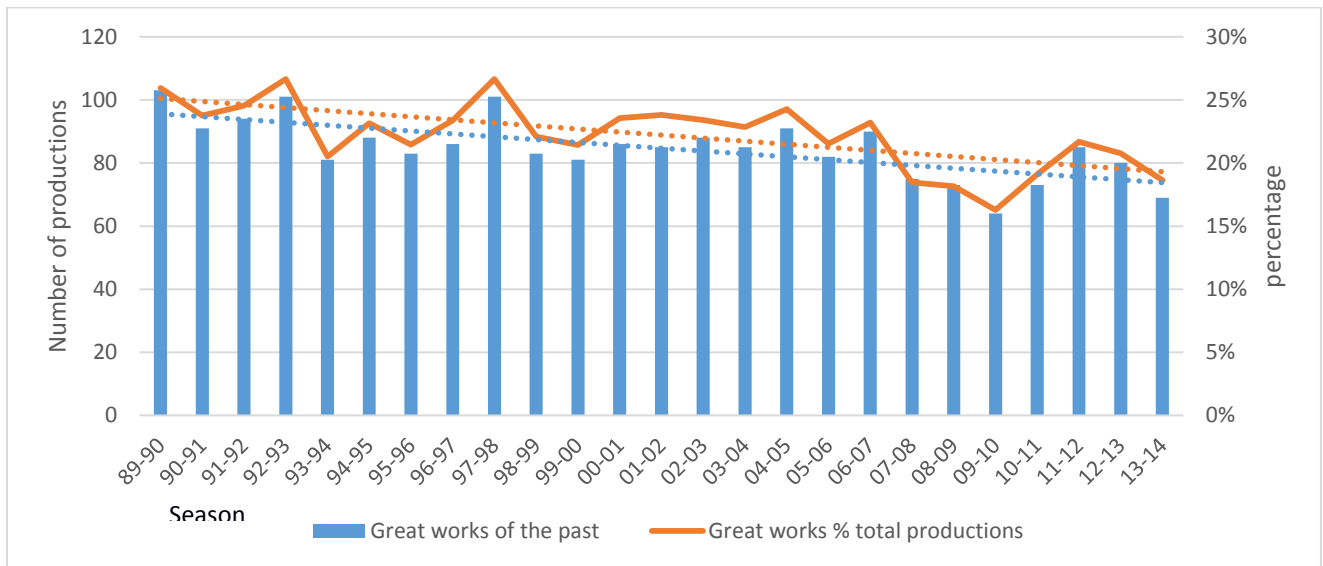
RESEARCH FINDINGS

The production capacity of modern plays and musicals—no longer new but not yet of the past—has expanded.

Hypothesis 1: The capacity to produce great work of the past has been contracting.

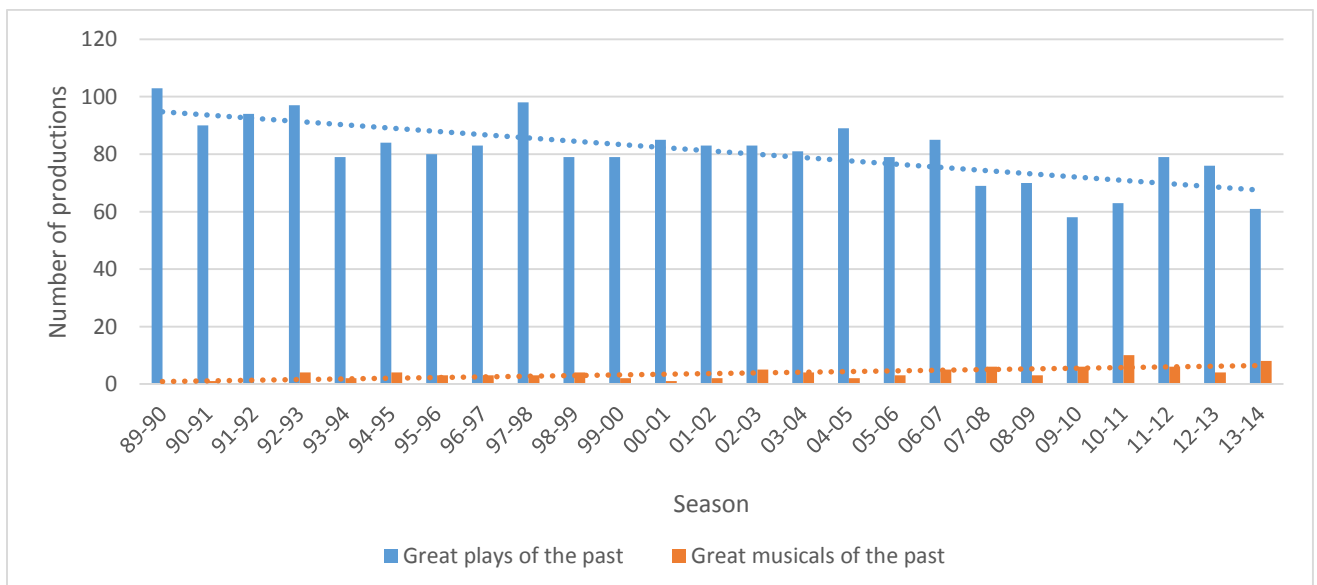
Over the 25 years under study, there have been fluctuations in the number of productions of great works of the past. For example, in the periods 1990-93, 1995-98, and 2009-12, the number was on the rise for three consecutive seasons. In general, however, we observed downward trends for both the absolute number and the percentage of total productions, as shown in Graph 4.

Graph 4: Number of productions of great works of the past, and percentage of total productions



Graph 5 suggests that the number of productions of great plays of the past has decreased at an even greater rate, whereas the number of productions of great musicals of the past has actually increased.

Graph 5: Number of productions of great works of the past, broken down into plays and musicals



Statistical Analysis

Since all dependent variables (“number of great works of the past,” “number of great plays of the past,” and “number of great musicals of the past”) and the independent variable (“year”) are continuous, and the dependent variables are normally distributed, we analyzed the relationships between each dependent variable and independent variable using the Spearman rank correlation test for association. We also used the Kruskal-Wallis test to compare the number of productions in each five-year period (89-94, 94-99, 99-04, 04-09, 09-14) and to test whether significant differences exist among these five-year periods. An alpha level of 0.05 was used as the cutoff point for statistical significance. All data were analyzed using SAS 9.4 (SAS Institute Inc., Cary, NC). (See Note 1: Statistical hypothesis testing.)

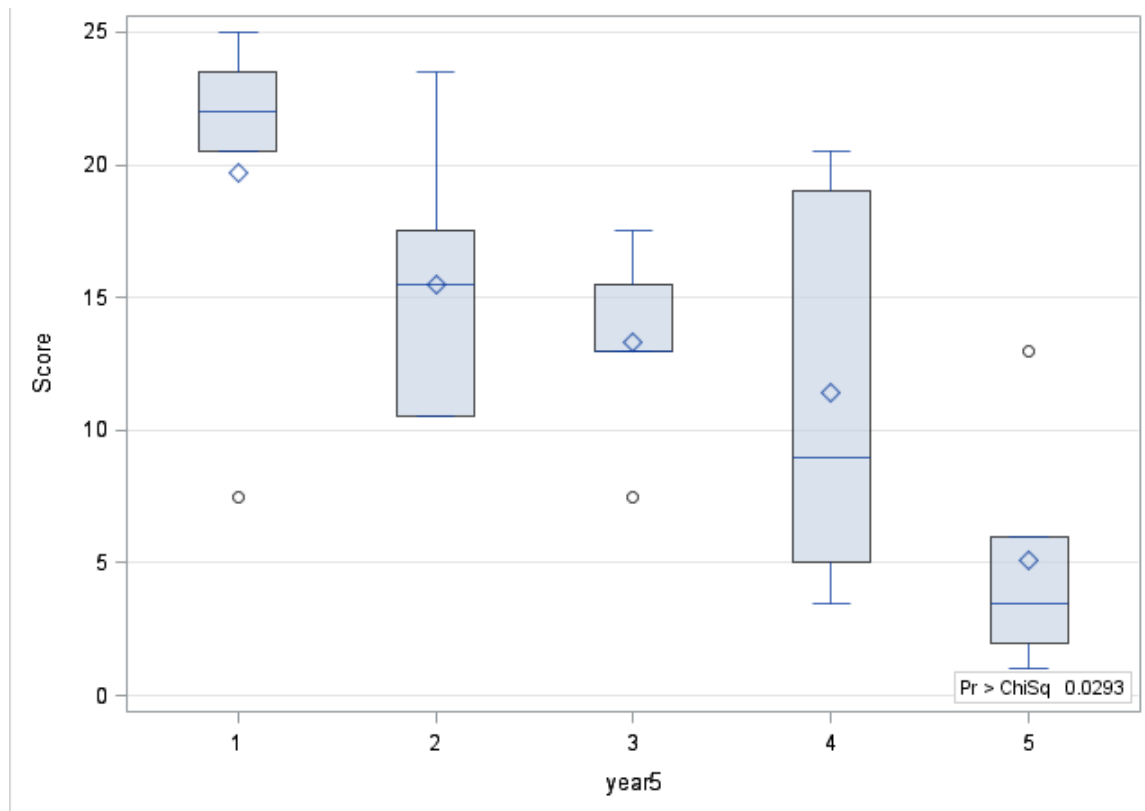
*Results from Spearman rank correlation test for association*Table 1: Results from Spearman rank correlation test for association

	correlation coefficient r_s	association with “years”	p-value	statistically significant
number of great plays of the past	-0.73585	strongly negative	< 0.001	yes
number of great musicals of the past	0.69808	strongly positive	< 0.001	yes
number of great works of the past (aggregate of plays and musicals)	-0.68298	strongly negative	< 0.001	yes

Results from the Kruskal-Wallis test

Graph 6 illustrates the number of great works of the past for each five-year period. (See Note 2: How to read the box-and-whisker plot.) We found that there are statistically significant differences among the different five-year periods ($p = 0.0293$). The strikethrough line across the box indicates the median number of annual productions of great works of the past in each five-year period. Together, these lines visually depict the decline of great works of the past over 25 years.

Graph 6: Great works of the past, Kruskal-Wallis test results



The statistical analysis reaffirms our earlier observations about the capacity to produce great works of the past.

RESEARCH FINDINGS

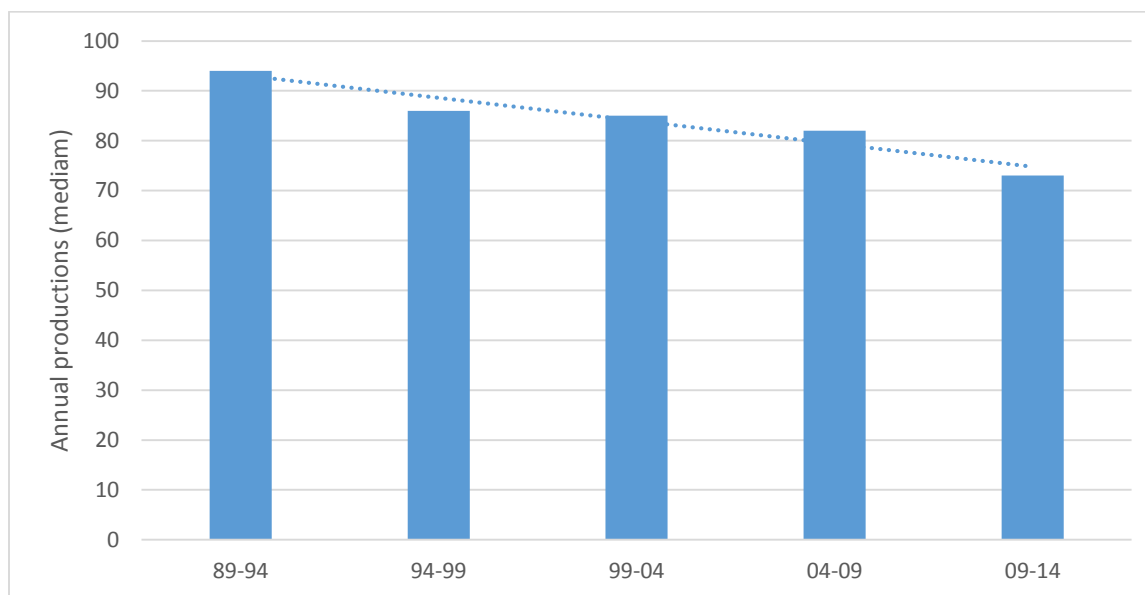
The capacity to produce great works of the past has declined. The decline in capacity largely reflects the capacity to produce great *plays*; the capacity to produce great *musicals* of the past has actually increased.

To determine a replicable artistic capacity index, we chose the median annual productions of great works of the past between seasons 1989/90 and 1993/94 as the baseline. We compared the median of any given five-year period against the baseline to find indications of a change in artistic capacity to produce great works of the past. Graph 7 depicts the median for each five-year period. The median in 1989-94 was 94, whereas in 2009-14 it was 73, representing a 22% decline.

ARTSTIC CAPACITY INDEX

The capacity to produce great works of the past has contracted by 22% between 1989 and 2014.

Graph 7: Benchmark: annual productions of great works of the past, median



Diversity of great works of the past being produced

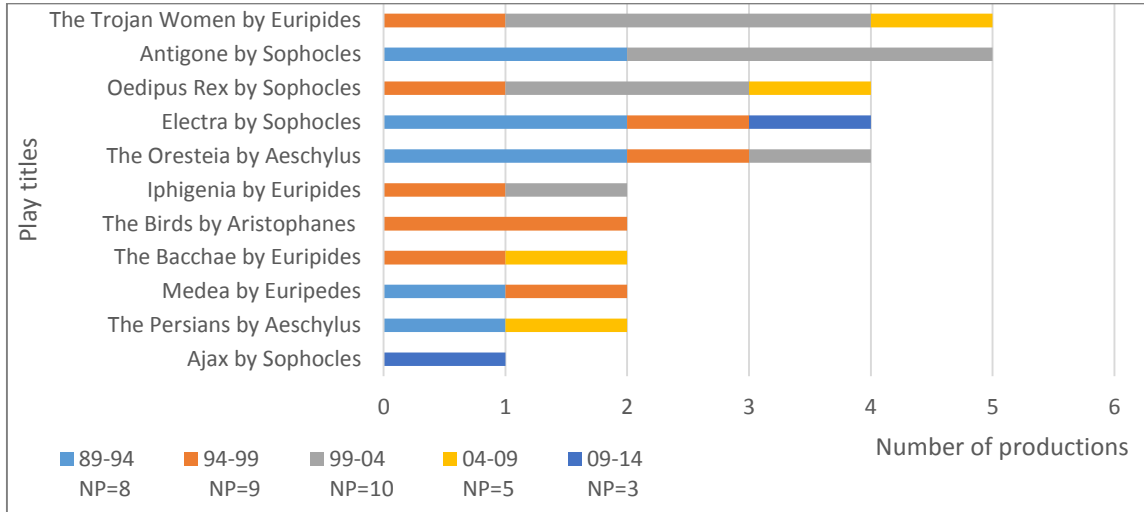
The Artistic Capacity Research Agenda (Yale School of Drama, 2014) quoted some artistic directors' concerns on the diversity of great works of the past being produced. To find data that could shed light on this issue, we counted productions of plays by (1) major Greek playwrights, (2) Shakespeare, and (3) Molière. We selected these three criteria over others (e.g., Chekhov, Ibsen, Shaw, Strindberg, Brecht, etc.) arbitrarily, to limit the scope of this secondary inquiry. We counted translations and adaptations (as long as the production retained the original title), but excluded deconstructive or radical adaptations of canonical works.

(1) Major Greek Plays

Over the 25-year period, the most produced Greek plays were Euripides's *The Trojan Women* and Sophocles's *Antigone* (five times each), followed by Aeschylus's *The Oresteia*,⁶ and Sophocles's *Oedipus Rex* and *Electra* (four times each).

⁶ There were one production of *Agamemnon*, and three productions of the entire trilogy.

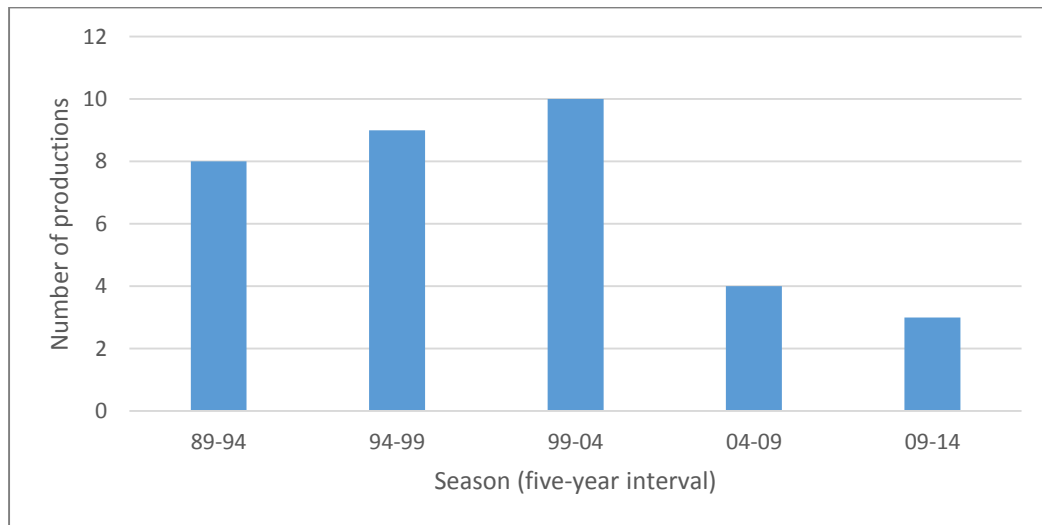
Graph 8: Number of productions of Greek plays, 1989-2014



NP: number of productions of Greek plays

Up until 2004, the number of productions of Greek plays per five-year period was on the rise. After 2004, the number decreased markedly, with five productions in 2004-2009, and only three in 2009-2014.

Graph 9: Number of Greek plays productions per five-year interval



(2) Shakespeare

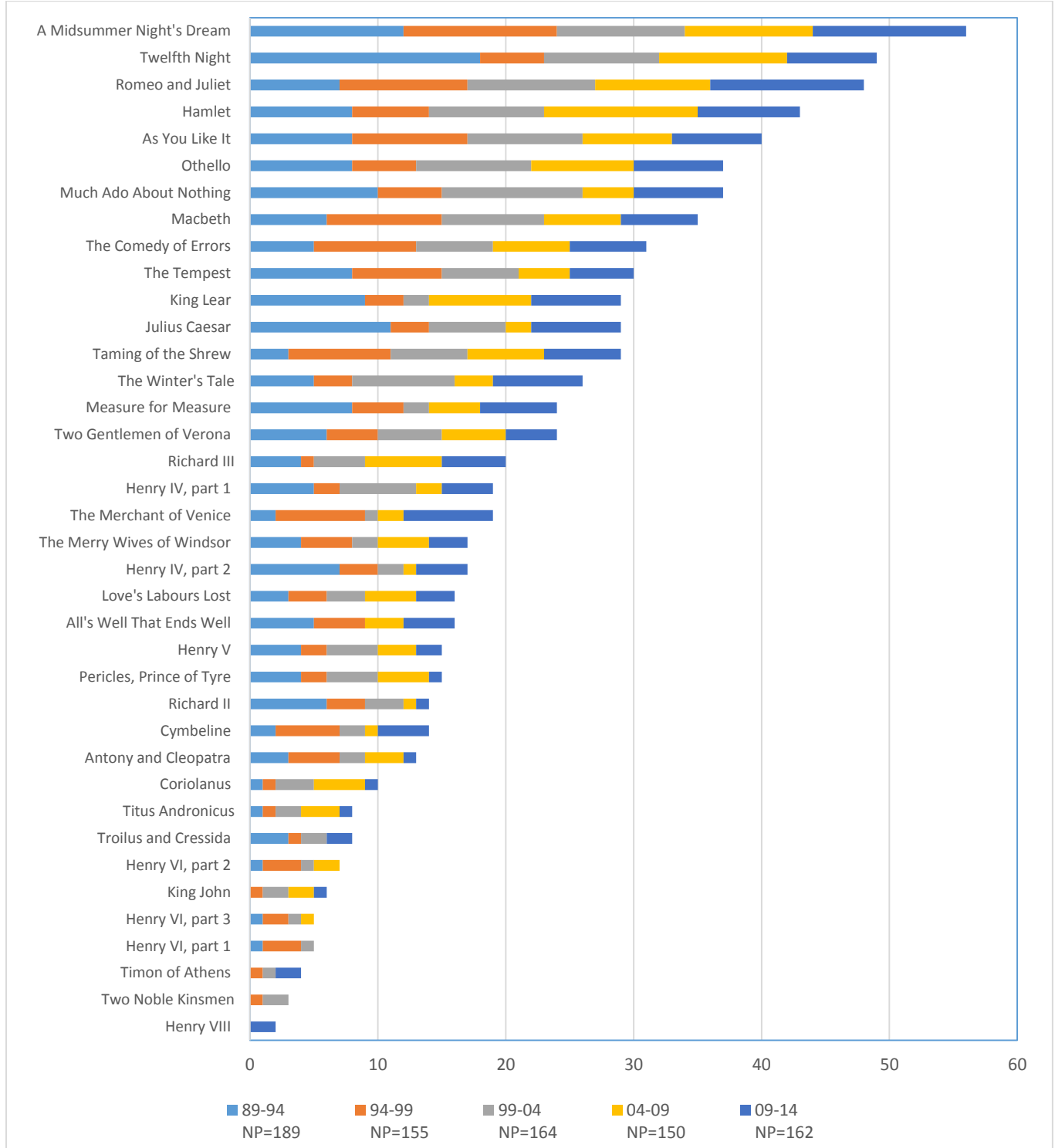
Over the 25-year period, the most produced Shakespeare plays⁷ were *A Midsummer Night's Dream* (56), *Twelfth Night* (49), *Romeo and Juliet* (48), *Hamlet* (43), and *As You Like It* (40).⁸ The least produced plays

⁷ We analyzed the thirty-six plays included in the First Folio of 1623, as well as the two co-authored plays, *Pericles*, *Prince of Tyre* and *The Two Noble Kinsmen*.

⁸ The number in parentheses indicates the number of times the play has been produced.

were *Henry VIII* (2), *The Two Noble Kinsmen* (3), *Timon of Athens* (4), *Henry VI, Part I* (5), and *Henry VI, Part III* (5). Graph 10 shows how many times each Shakespeare play was produced in each five-year period.

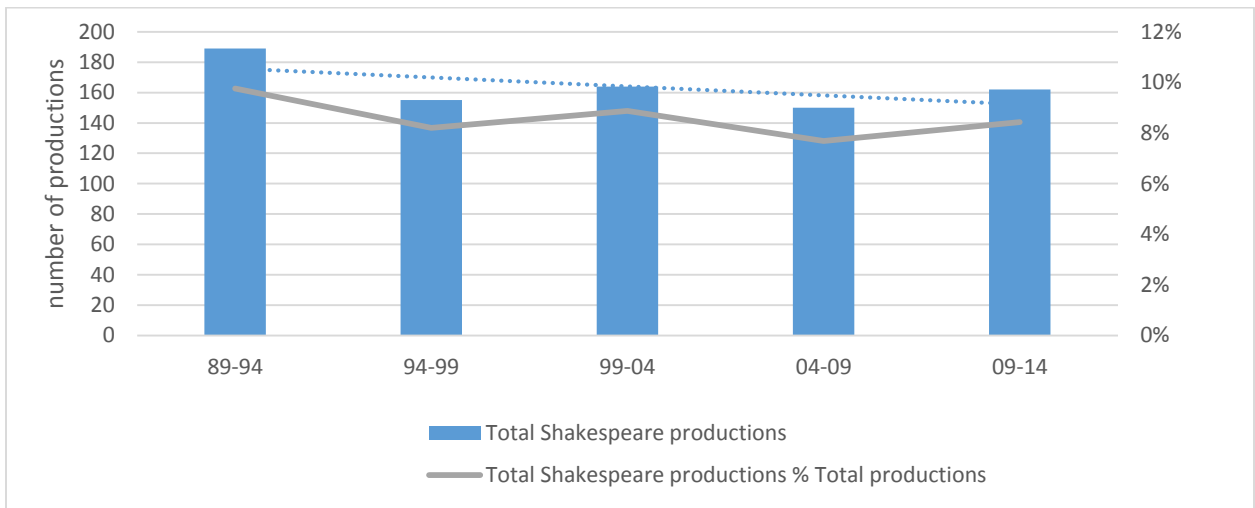
Graph 10: Shakespeare plays in production, 1989-2014



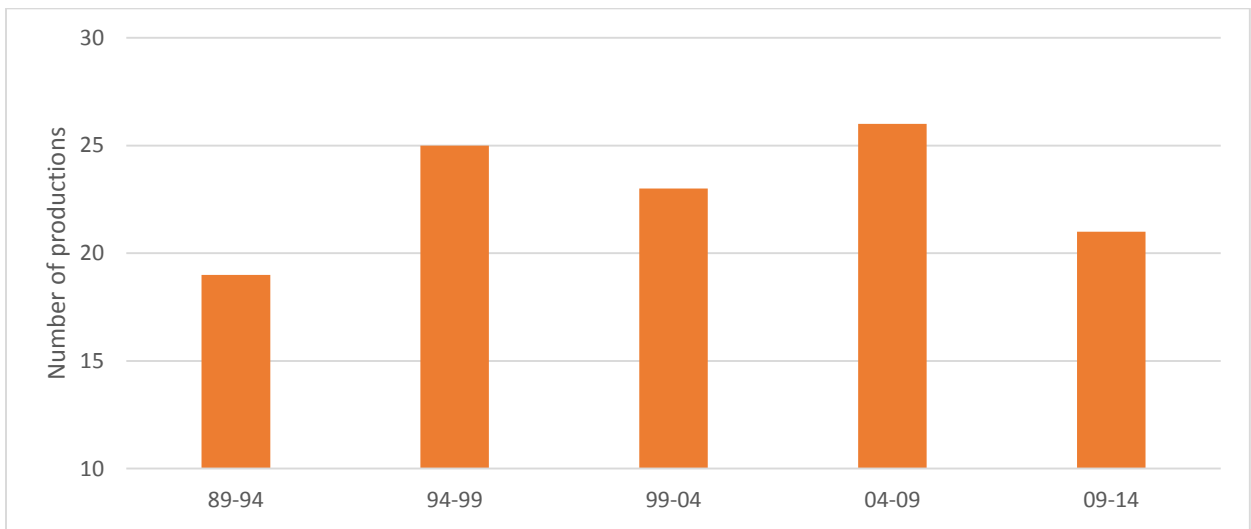
NP: number of Shakespeare productions

From 1989 to 1994, the Research Population Theaters produced 34 different Shakespeare plays, and mounted a total of 189 Shakespeare productions, which accounted for 10% of all the productions in the period. Nineteen Shakespeare plays had received fewer than five productions. The most produced plays during this period were *Twelfth Night*, which had been produced 18 times, *A Midsummer Night's Dream*, produced 12 times, and *Julius Caesar*, produced 11 times. Since 1994, Shakespeare productions in general have declined. Although the number increased in 1999-04 and again in 2009-14, it never returned to the 1989-94 level. In 2009-14, there were 162 Shakespeare productions, or 8% of the total productions of the same period. At the same time, there were more plays in the Shakespeare canon only received five or fewer productions in a five year period. In 2004-09, for example, 26 Shakespeare plays received fewer than five productions, up from 19 in 1989-04 (Graph 11-12).

Graph 11: Number of Shakespeare productions and percentage of total productions



Graph 12: Shakespeare plays produced fewer than five times *

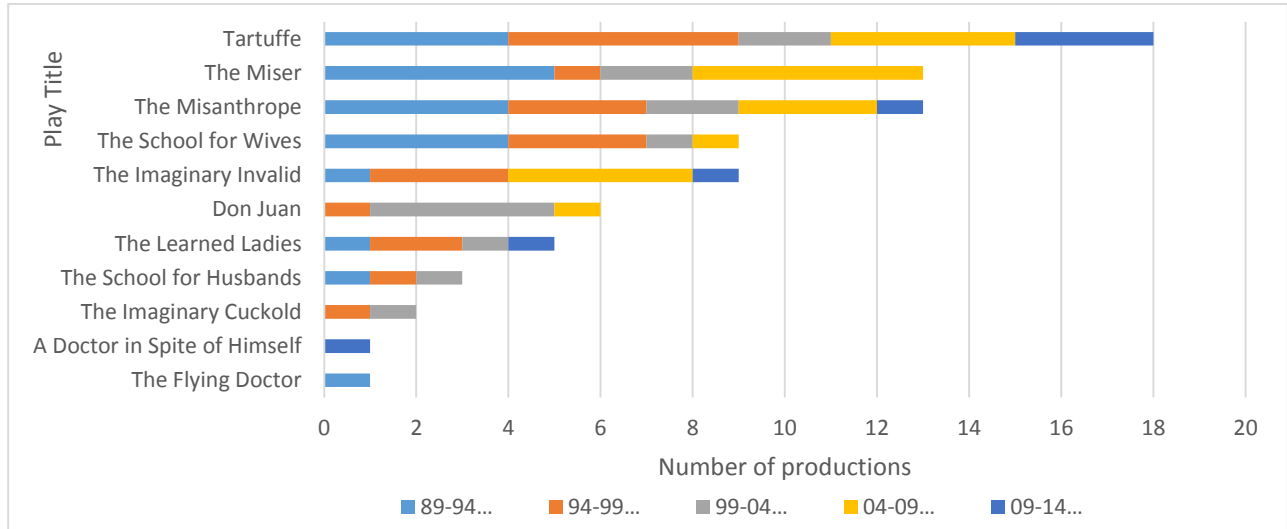


* Plays that have received fewer than five productions during the five-year interval.

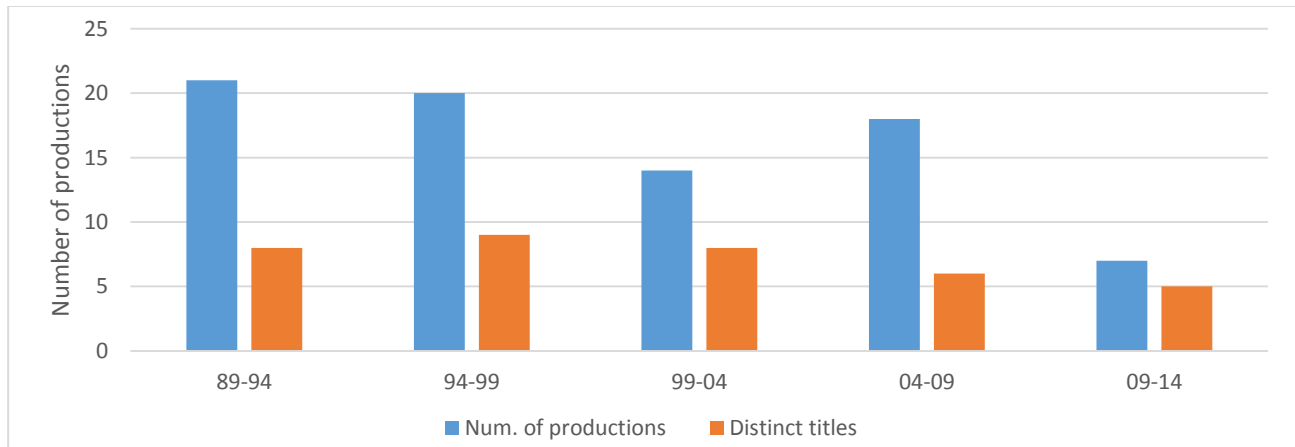
(3) Molière

Aside from a slight pickup in 2004-09, the number of productions of Molière has decreased. The number in 2009-14 was only a third of that in 1989-94. The number of distinct titles that were produced also declined; in 1989-94, eight different Molière plays were produced, whereas only five different plays by Molière were produced in the last five years of the 25-year period.

Graph 13: Molière plays in production, 1989-2014



Graph 14: Number of Molière productions and distinct titles



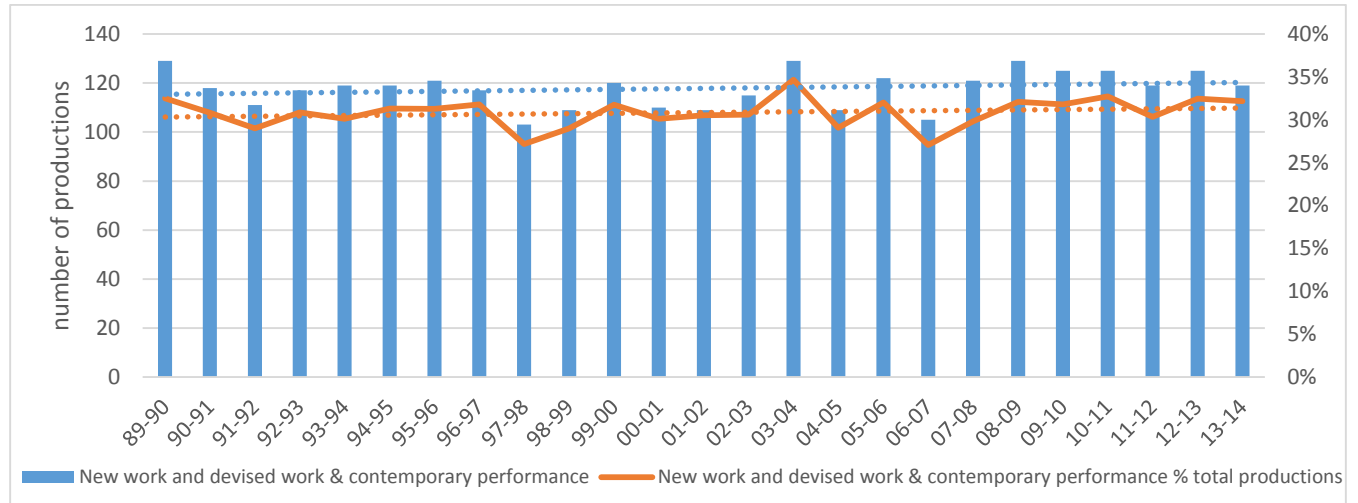
RESEARCH FINDINGS

The diversity of great works of the past being produced has decreased, and the portion of the dramatic canon being produced has contracted.

Hypothesis 2: The capacity to produce new work and devised work & contemporary performance has been expanding.

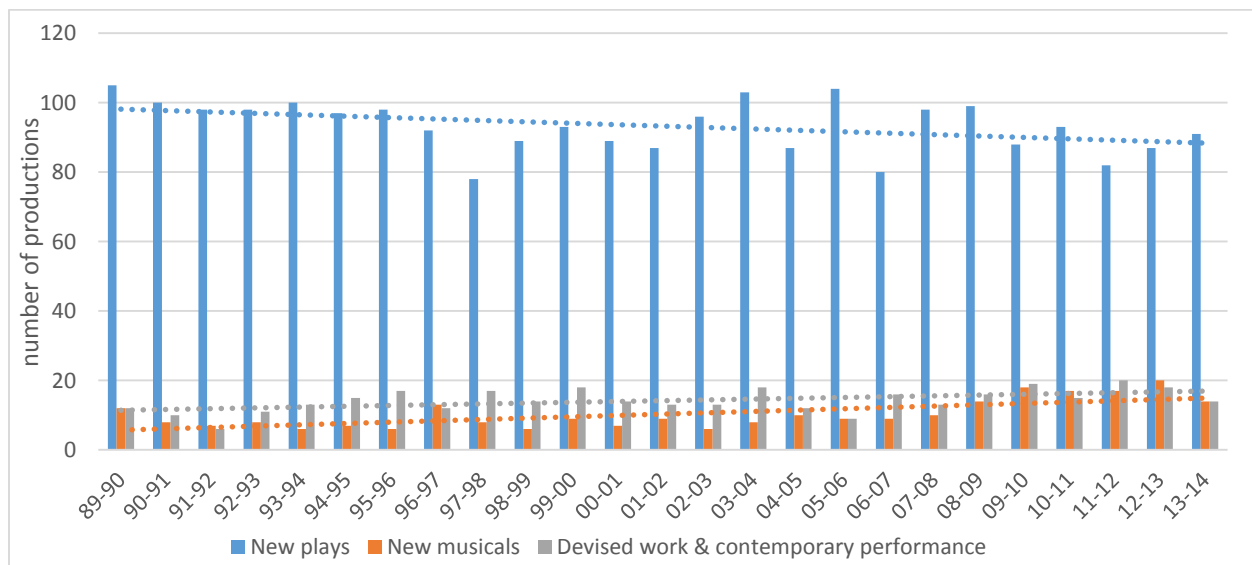
The total number of productions of new work and devised work & contemporary performance fluctuated from year to year, but the trend line in Graph 15 shows that the underlying trend was a slight increase over time.

Graph 15: Number of productions of new work and devised work & contemporary performance and percentage of total productions



Within the category of new work, there was an underlying decreasing trend of productions of new plays. On the other hand, the number of new musical productions has increased, as have productions of devised work & contemporary performance (Graph 16).

Graph 16: Number of productions of new plays, new musicals, and devised work & contemporary performance



Statistical AnalysisTable 2: Results from Spearman rank correlation test for association

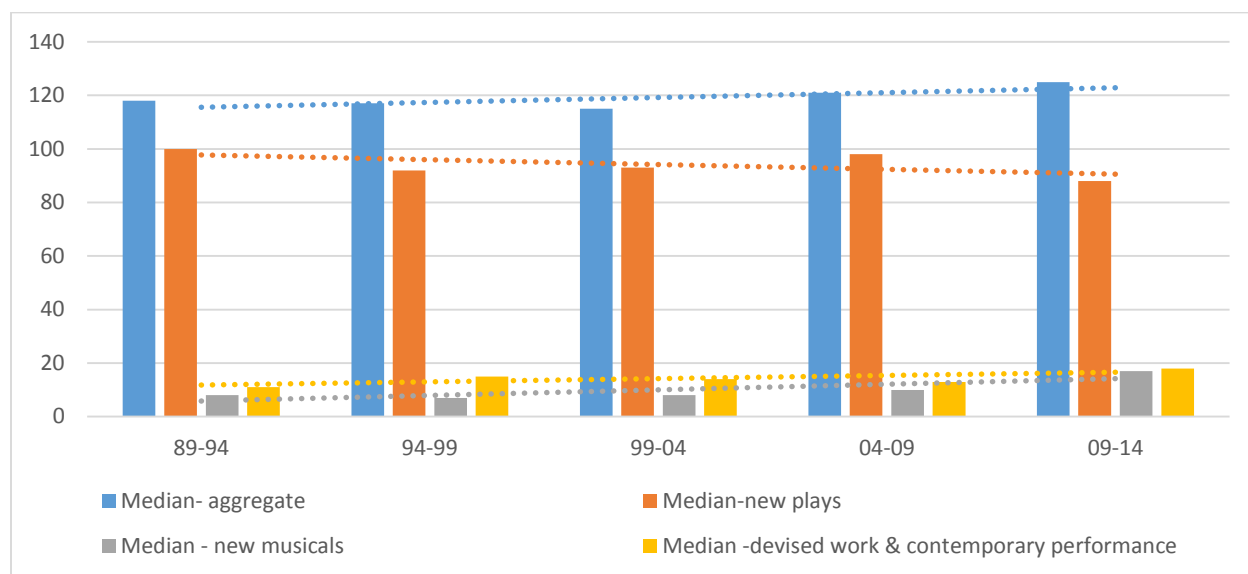
	correlation coefficient r_s	association with “years”	p-value	Statistically significant
number of new plays	-0.43952	moderately negative	< 0.05	yes
number of new musicals	0.66552	strongly positive	< 0.001	yes
number of devised work & contemporary performance	0.51749	moderately positive	< 0.05	yes
number of new work and devised work & contemporary performance	0.26159	slightly positive	>0.05	no

The results affirm our observation in the earlier part of this section.

RESEARCH FINDINGS

The capacity for producing new work and devised work & contemporary performance has been expanding, though only by a small margin. However, the capacity for producing new plays has contracted, while the capacity for producing new musicals, as well as devised work & contemporary performance, has expanded.

We chose as the baseline the median annual productions, derived from the aggregate of new work and devised work & contemporary performance between seasons 1989-90 and 1993-94. The median in 1989-94 was 118, while in 2009-14 it was 125: a 6% increase. We applied the same method to new plays, new musicals, and devised work & contemporary performance respectively. There was a 12% decrease in new play productions in 2009-14 compared to the baseline, a 113% increase in new musical productions, and a 64% increase in devised work & contemporary performance. Graph 17 illustrates these results.

Graph 17: Benchmark: new work and devised work & contemporary performance, median

ARTSTIC CAPACITY INDEX

The capacity to produce new work and devised work & contemporary performance has expanded overall by 6%. More specifically, the capacity to produce new plays has contracted by 12%, while the capacity to produce new musicals has expanded by 113%, and devised work & contemporary performance expanded by 64%.

New Play Reproduction Ratio

We were equally interested to find out how many times a new work—new plays in particular—were subsequently produced. We introduced two “new play reproduction ratios,” which measure the average number of productions a new play received in the season that it premiered (ratio—current season) and within five seasons of its premiere season (ratio—5 seasons). For example, on average, a new play in 1989-90 received 1.10 productions in the current season and 1.73 within five seasons of its premiere.⁹ The higher the ratio, the more productions a new play received. Graph 18 and Table 3 present a decreasing trend in the reproduction ratio (5-season), suggesting that there have been fewer reproductions of a new play within five seasons over the years following its premiere.

⁹ We continue to use the definition of “new play” as a play that had only been produced less than three times since 1989/90.

Graph 18: New-play reproduction ratios, current season and 5-season

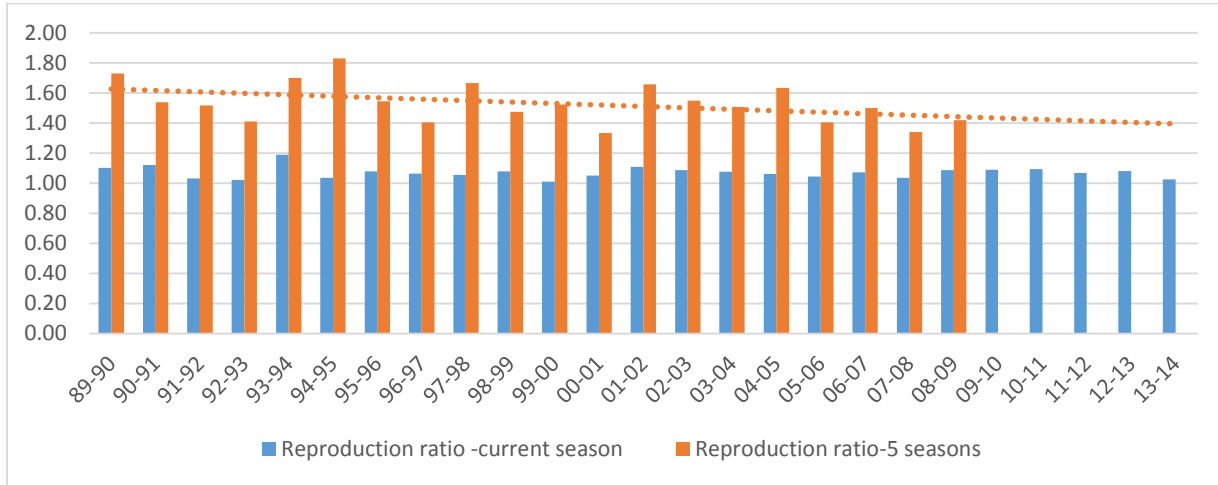
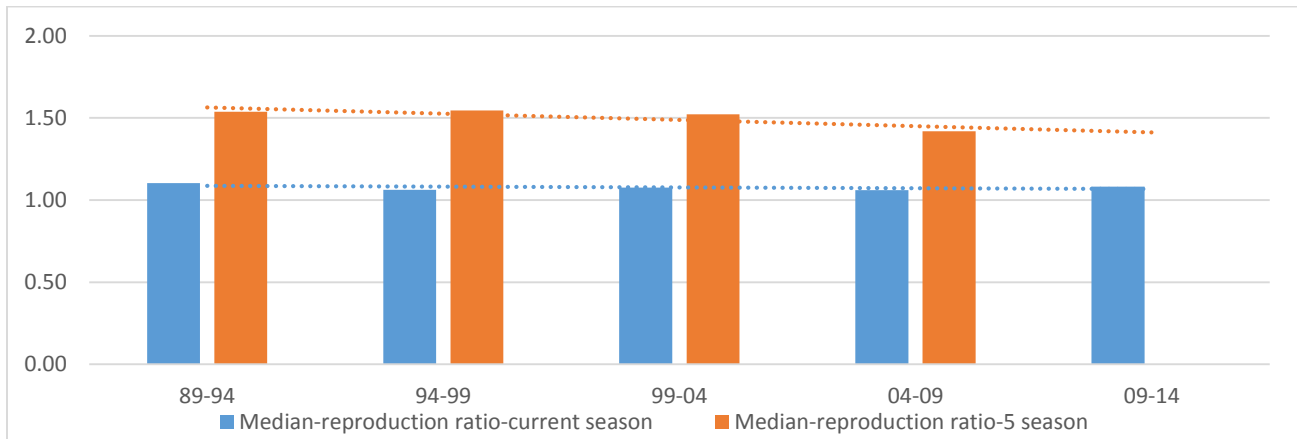


Table 3: Results from Spearman rank correlation test for association

	correlation coefficient r_s	association with "years"	p-value	Statistically significant
Reproduction ratio-current season	-0.04000	slightly negative	>0.05	no
Reproduction ratio-5-season	-0.70734	strongly negative	< 0.001	yes

The median reproduction-ratio (current season) in 1989-94 was 1.1028, while in 2009-14 it dropped to 1.081. The median reproduction-ratio (five-season) in 1989-94 was 1.54, while in 2004-09 it dropped to 1.42 (Graph 19).

Graph 19: New play reproduction ratios, median



RESEARCH FINDINGS

The number of subsequent productions of a new play beyond its first production has declined.

ADDITIONAL FINDINGS

Aside from the primary findings associated with the hypotheses that we tested, the research revealed additional significant findings.

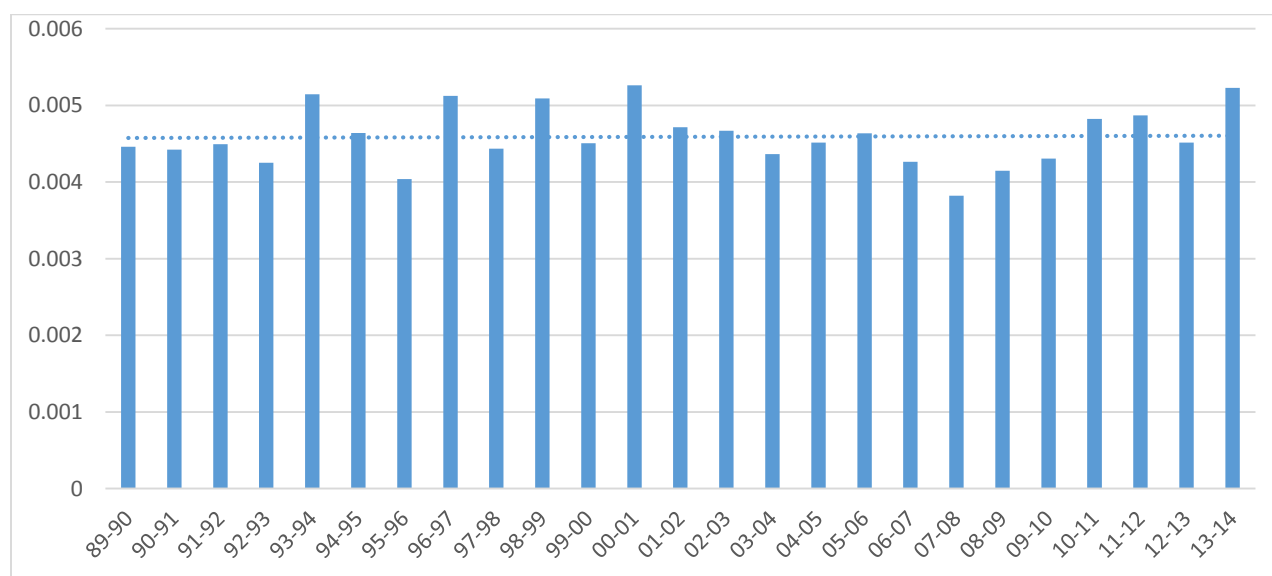
A concern raised by several artistic directors quoted in the *Research Agenda* is that American nonprofit professional theaters are becoming more homogeneous in their programming. Although this is not a formal hypothesis in the *Research Agenda*, we were motivated to delve further into the question. A quick count of distinct titles in each season in relation to total productions suggests a trend towards more diversity in the theatrical repertoire. However, it may be too soon to refute the point raised by the artistic directors, because a mere count of distinct titles is by no means a statistically sound approach to analyze artistic conformity/diversity. In fact, there are earlier studies that we can reference. In their co-authored paper, Paul DiMaggio and Kristen Stenberg demonstrated how diversity in the repertoire of American resident theaters had changed between 1971 and 1981. They introduced a new approach for measuring and identifying trends of diversity in the performing arts (DiMaggio and Stenberg, "Conformity and Diversity," 1985).

Withdrawing ourselves from the practical research method that we employed in the earlier part of this report, we have chosen instead to revisit DiMaggio and Stenberg's study and apply their methodology to assess any changes in the degree of conformity/diversity in nonprofit professional theater over the past quarter century.

(1) Herfindahl Index

To examine the concentration of the theatrical repertoire of Research Population theaters, we adopted the Herfindahl index. (See Note 3: Herfindahl index.) The more concentrated the productions are on certain works, the higher the Herfindahl index score, whereas the more dispersed the productions are, the lower the index. Graph 20 shows a slight upward trend, suggesting a higher level of conformity.

Graph 20: Herfindahl index, 1989-2014

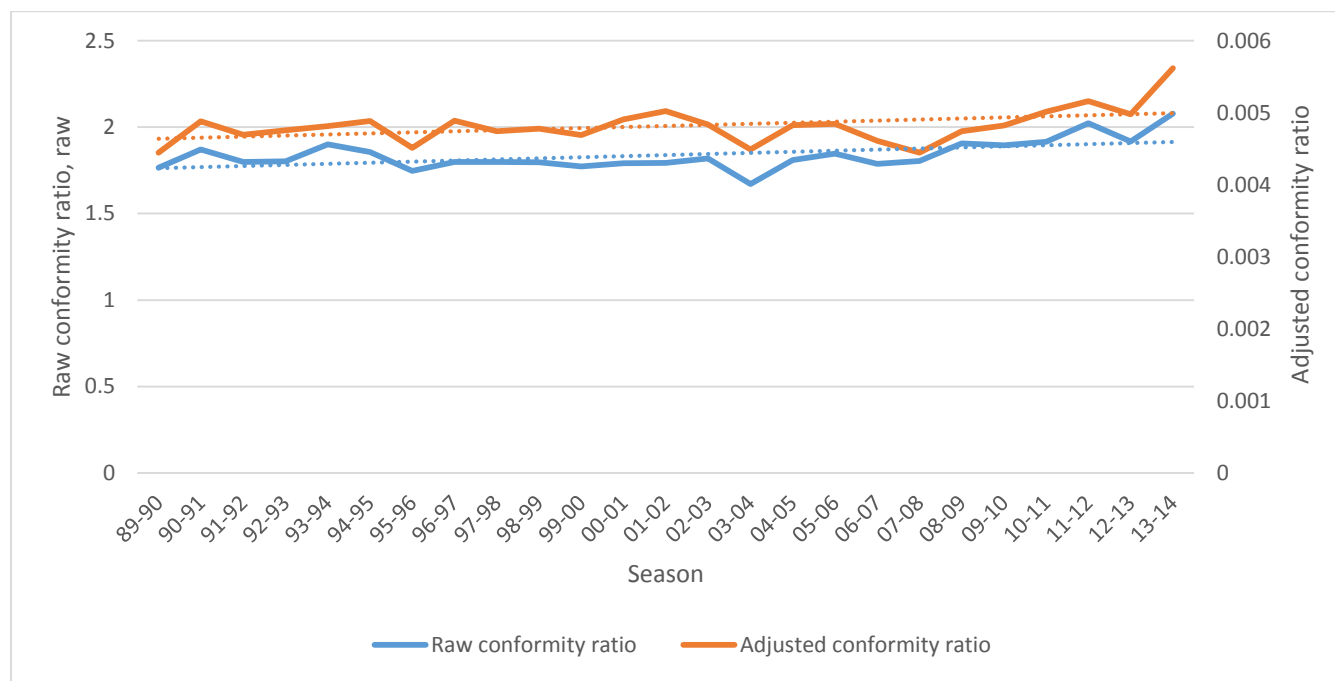


(2) Conformity ratio

The second measure of diversity is a conformity ratio. (See Note 4 on Conformity ratio calculation.) The conformity ratio differs from the Herfindahl index in that it uses the individual theater rather than the title of the production as the unit of analysis. The higher the conformity ratio, the more homogeneous the programming is; the lower the ratio, the more heterogeneous.

Charting trends over the quarter-century, both the raw and the adjusted conformity ratios have fluctuated with a slight upward trend, suggesting more homogeneity. Whether by chance or by intention, the programming of our theaters has become more alike.

Graph 21: Conformity ratio, raw and adjusted, 1989-2014



RESEARCH FINDINGS

Overall, American theaters have become more homogeneous in their programming over the past 25 years.

CONCLUSION

Based on the analysis above, we've confirmed both hypotheses proposed in the *Research Agenda*:

- (1) Between 1989-94 and 2009-14, the field's capacity to produce great works of the past has contracted by 22%. The total number of productions of great works of the past has decreased, the percentage of great works of the past in relation to the total number of productions has declined, and the diversity of great works of the past being produced has decreased.
- (2) The capacity to produce new work and devised work & contemporary performance has expanded by 6%. Within that overall result, the capacity to produce new plays has contracted by 12%, whereas the capacity to produce new musicals expanded by 113%, and the capacity to produce devised work & contemporary performance expanded by 64%. Furthermore, new plays have received fewer productions beyond the first production.
- (3) Additionally, the research revealed that American nonprofit professional theaters are becoming more homogeneous in their programming.

ACKNOWLEDGMENTS

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NOTES

1. Statistical hypothesis testing

In statistics, Spearman's rank correlation coefficient (r_s) is a nonparametric measure of statistical dependence between two variables. It varies in magnitude from -1 to 1 , with -1 indicating a perfect negative linear relation, 1 indicating a perfect positive linear relation, and 0 indicating no linear relation between two variables. Running the Spearman's rank correlation test helped us perceive changes in the number of productions for each type of theatrical production over time. In this report, we defined the value of r_s using the scale below:

r_s	0-0.2	0.2-0.4	0.4-0.6	0.6-0.8	>0.8
Degree of association	very weak	weak	moderate	strong	very strong

The Kruskal–Wallis test is commonly used to compare two or more samples that are independent. When the null hypothesis of the Kruskal-Wallis test is rejected, then at least one sample stochastically dominates at least one other sample.

2. How to read the box-and-whisker plot

We grouped the number of annual productions of great works of the past into five groups; group 1 refers to 1989-94, group 2 refers to 1994-99, and so on. The “scores” are not the actual number of annual productions of great works of the past, but have been adjusted for statistical purposes. The length of the box reflects the range of the observations. Q1 = Lower quartile; 25% of observations below it; 25th percentile. Q3 = Upper quartile; 75% of observations below it; 75th percentile. SAS adds a diamond at the mean. When there are outliers, SAS uses an open circle to denote outlying observations.

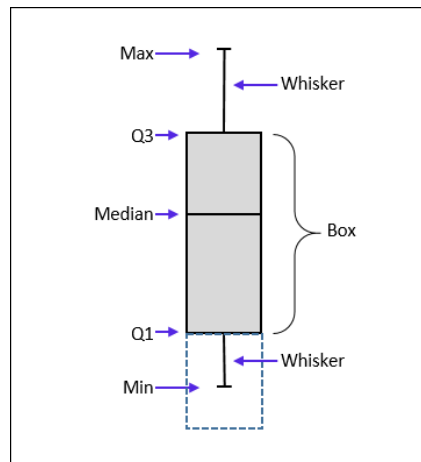


Image source: <http://blog.contextures.com/archives/2013/06/11/create-a-simple-box-plot-in-excel/>

3. Herfindahl index

Herfindahl index is a commonly accepted measure of market concentration. It is calculated by squaring the market share of each firm competing in a market, and then summing the resulting numbers. As such, it can range from 0 to 1.0, reflecting a huge number of very small firms to a single

monopolistic producer. Increases in the Herfindahl index generally indicate a decrease in competition and an increase of market domination.

In the context of theater repertoires, the Herfindahl index is “the sum of the squares of the percentage of the total number of all productions represented by the number of productions of each play produced” each season (DiMaggio and Stenberg, *Conformity and diversity*, 1985).

4. Conformity ratio calculation

We’ve calculated the conformity ratio using a two step-approach (cf. DiMaggio and Stenberg, *Conformity and Diversity*, 1985):

- (a) For each season for each Research Population theater, we constructed a conformity index. This index is the mean number of times that a play produced by a given theater was produced across all theaters, including the theater in question, in the same season. A score of 1 on the index means that no other theater produced any of the plays in that theater’s repertoire. A score of 8 means that on average, each play in that theater’s repertoire was produced by seven other theaters.
- (b) The raw conformity ratio is the mean of the conformity indices of all active theaters during that period.
- (c) Since the total number of productions in each season is different, in order to conduct inter-temporal comparisons, we adjusted the raw conformity ratio by dividing it using the total number of productions in that particular season, which produces the adjusted conformity ratio.

APPENDIX I

List of Research Population theaters

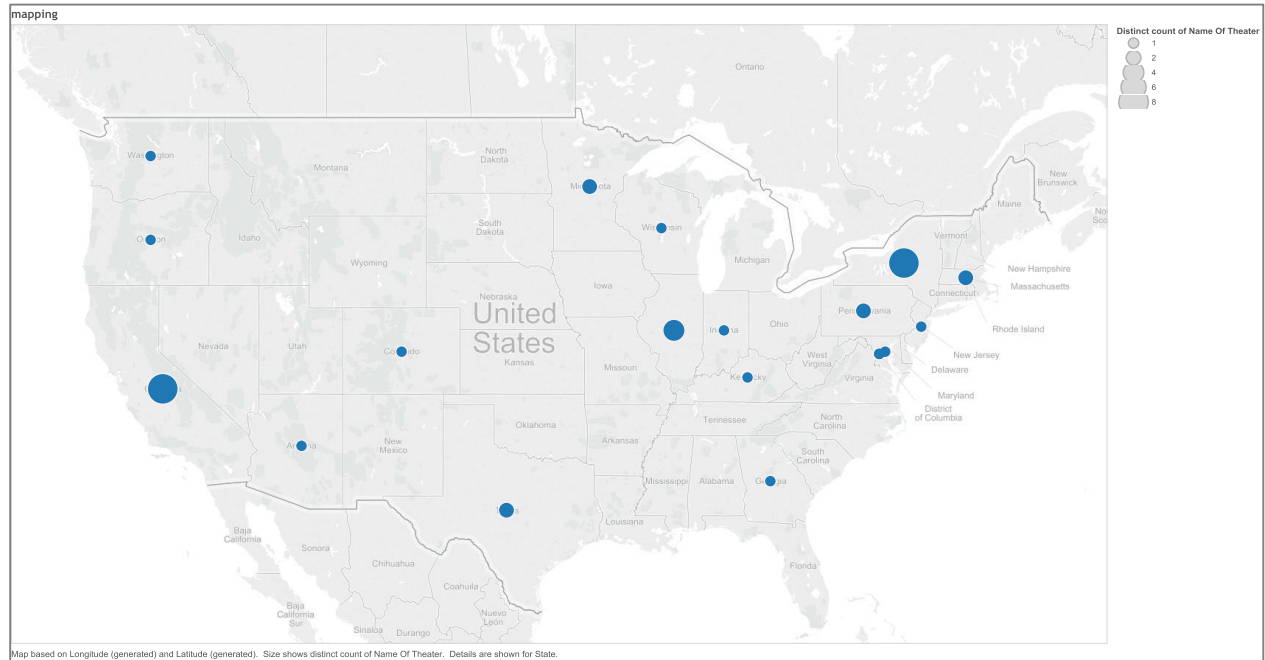
A Contemporary Theatre
The Actor's Gang
Actors Theatre of Louisville
Alabama Shakespeare Festival
Alley Theatre
Alliance Theatre
American Conservatory Theatre
American Repertory Theatre
Arena Stage
Arizona Theatre Company
Berkeley Repertory Theatre
Center Stage
Center Theatre Group
Children's Theatre Company
The Civilians
Court Theatre
Dallas Theatre Center
Denver Center Theatre Company
Elevator Repair Service
Goodman Theatre
Guthrie Theatre
Huntington Theatre Company
Indiana Repertory Theatre
La Jolla Playhouse
Mabou Mines
Magic Theatre
Manhattan Theatre Club

McCarter Theatre Center
Milwaukee Repertory Theater
New York Theatre Workshop
The Old Globe
Oregon Shakespeare Festival
Pan Asian Repertory Theatre
PCPA Theaterfest
Penumbra Theatre Company
Pig Iron Theatre Company
Ping Chong and Company
Public Theater
Roundabout Theatre Company
San Francisco Mime Troupe
Seattle Repertory Theatre
Shakespeare & Company
Shakespeare Theatre Company
South Coast Repertory
Steppenwolf Theatre Company
Theatre for a New Audience
Theatre Rhinoceros
Trinity Repertory Company
Victory Gardens
Williamstown Theatre Festival
The Wilma Theater
Woolly Mammoth Theatre Company
The Wooster Group

APPENDIX II

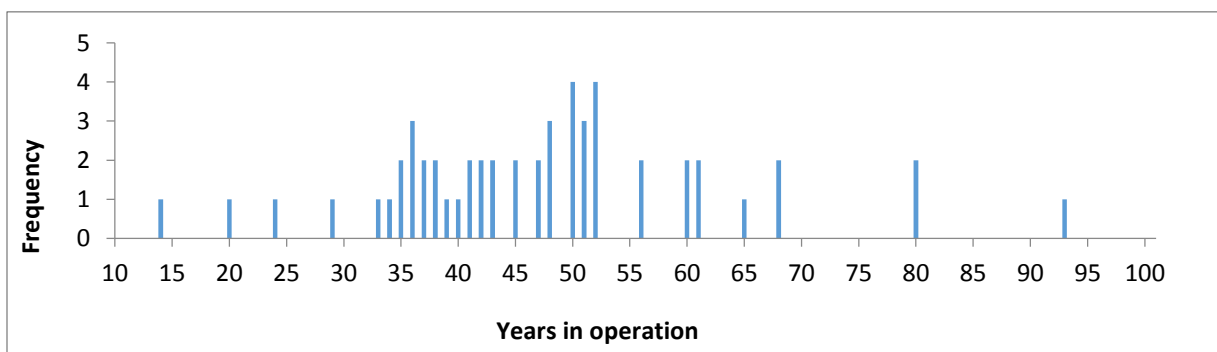
Analysis of the Research Population

Geographic distribution of the Research Population theaters



Size of the circle corresponds with the number of the Research Population theaters located in a given state
Graph generated by: Tableau

Distribution of years of operation (average: 47 years)



Distribution of budget size in FY 2013 (median: \$8,740,586)

