

“Screen Tests”

by

Paul M. Sommers

June, 2002

MIDDLEBURY COLLEGE ECONOMICS DISCUSSION PAPER NO. 02-22



DEPARTMENT OF ECONOMICS
MIDDLEBURY COLLEGE
MIDDLEBURY, VERMONT 05753

<http://www.middlebury.edu/~econ>

Screen Tests

by

Paul M. Sommers

Department of Economics
Middlebury College
Middlebury, Vermont 05753
psommers@panther.middlebury.edu

Screen Tests

The temporal quality of films makes compiling lists
of the giants an especially tricky game.

— David Ansen [1]

In 1998 the American Film Institute named the 100 greatest American films of the last century. These films were chosen from a longer list of 400 movies selected by the institute. Ballots were sent to 1500 prominent Americans, among them screenwriters, directors, critics, and even President Clinton, Vice President Al Gore, and their wives. (It is not known how many of the ballots were returned or even how many votes each film received.) The criteria allegedly used to pick these feature-length films included historical significance, critical recognition and awards, and commercial success. Table 1 shows the complete list of Top 100, in order of preference, together with the year of release, original studio, running time, Oscar nominations, and Oscar wins.^{1,2}

(Table 1 about here)

The Top 100 movies span less than a century, from *The Birth of a Nation* (44) in 1915 to *Fargo* (84) released 81 years later.³ There are two movies from the 1920s, fifteen from the 1930s (1939 was the most celebrated year with five titles), twelve from the 1940s, twenty from the 1950s, eighteen each from the 1960s and 1970s, six from the 1980s, and eight from the shortened 1990s.

Ward Bond (4,11,21,23,35,96,97) appeared in more of the Top 100 films than anybody [4]. Robert Duvall (3,28,32,34,56,66) was second. James Stewart (11,29,42,51,61) and Robert DeNiro (24,32,47,79,94) starred in the most films, five each. Katharine Hepburn (17,51,97,99) is the most celebrated actress. Humphrey Bogart (2,17,23,30), Marlon Brando (3,8,28,45), and William Holden (12,13,66,80) also starred in four films each. Steven Spielberg was the most chosen director with five films (9,25,48,60,64) on the list. Billy Wilder (12,14,38,93) and Alfred Hitchcock (18,40,42,61) had four of their films on the Top 100.

The median length of the Top 100 films is two hours. The median year of release is 1960. The median number of Oscar nominations (wins) was 7 (2). Among major studio releases, United Artists and Warner Bros. are tied with 14 titles each in the Top 100. Columbia Pictures is second with 12, Paramount 11, and Universal and MGM are tied with 10 each. Surprisingly, less than half of the 69 films awarded Oscars for Best Picture (between 1927 and 1996) appear on the list.

The purpose of this brief note is to compare (a) studio releases and (b) titles by decade with respect to differences in (i) rank, (ii) the ratio of Oscar wins to nominations, and (iii) running time. All comparisons between independent samples of data are based on Mann-Whitney rank sum tests.⁴

In a series of twenty-one pairwise tests involving the seven studios with at least eight titles in the Top 100 (United Artists, Warner Bros., Columbia, Paramount, Universal, MGM, and 20th-Century Fox), the null hypothesis of equal median ranks (against the two-sided alternative) could not be rejected at customary levels of statistical significance ($\alpha = .05$). Some differences in median rank by decade (see Table 2), however, were statistically discernible. Films from the 1940s, 1950s, and 1970s were preferred to those from the 1990s (p -values were .019, .027, and .028, respectively).⁵

(Table 2 about here)

Two films in the Top 100 — *The Birth of a Nation* (44), 1915 and *The Gold Rush* (74), 1925 — predate the inception of the Academy Awards in 1927. For the ninety other films with at least one Oscar nomination (excluding special achievement awards), one can form the ratio of Oscar wins to nominations.⁶ The median ratio of Oscar wins to nominations of 20th-Century Fox releases in the Top 100 was higher than that of Warner Bros. titles (p -value = .046) and marginally higher than that of Paramount titles ($p = .058$). Otherwise, the null hypothesis (of equal Oscar win-to-nomination ratios between studios) could not be rejected. There were no discernible differences in the Oscar win-to-nomination ratio by decade in any of the twenty-eight between-decade comparisons (e.g., 1930s v. 1940s or 1950s v. 1990s).

The median length of one studio's Top 100 films was not discernibly longer (or shorter) than another studio's. However, median running times did vary by decade.^{7,8} Releases from the 1930s (median length of 102 minutes) were notably shorter than releases from the 1950s (125.5 minutes, $p = .016$), the 1960s (125.5 minutes, $p = .01$), the 1970s (126.5 minutes, $p = .005$), and the 1990s (144 minutes, $p = .012$).⁹

Top 100 films from the 1990s which ran on average almost two and a half hours were marginally longer than those from either the 1940s ($p = .059$) or the 1950s ($p = .067$).

The AFI list reveals the enduring popularity of films 40 and 50 years old. The year 1939 and the subsequent two decades produced more great classics than any similar period in movie making annals. These motion pictures not only ranked significantly higher than the best films from the 1990s, but they ran shorter than more contemporary titles. Among major studios, there were few differences, although 20th-Century Fox releases recorded higher Oscar win-to-nomination ratios than did their major competitors.

While there will invariably be disagreement over the ordering of the American Film Institute's Top 100 of the past century (and even questions about surprising omissions — Spike Lee, Ernst Lubitsch, Buster Keaton, and Greta Garbo), all of these movies evoke emotions that — unlike ranks, Oscar win-to-nomination ratios, and running times — are not easily quantified or measured.

Table 1. American Film Institute's Top 100

Oscar Rank	Title	Original Studio	Year	Time	Running Noms	Oscar Wins
1	<i>Citizen Kane</i>	RKO	1941	119	9	1
2	<i>Casablanca</i>	Warner Bros.	1942	102	8	3
3	<i>The Godfather</i>	Paramount	1972	175	10	3
4	<i>Gone With the Wind</i>	MGM	1939	222	13	8
5	<i>Lawrence of Arabia</i>	Columbia	1962	221	10	7
6	<i>The Wizard of Oz</i>	MGM	1939	102	3	1
7	<i>The Graduate</i>	Embassy	1967	105	7	1
8	<i>On the Waterfront</i>	Columbia	1954	108	12	8
9	<i>Schindler's List</i>	Universal	1993	195	12	7
10	<i>Singin' in the Rain</i>	MGM	1952	102	2	0
11	<i>It's a Wonderful Life</i>	RKO	1946	129	5	0
12	<i>Sunset Boulevard</i>	Paramount	1950	110	11	3
13	<i>The Bridge on the River Kwai</i>	Columbia	1957	161	8	7
14	<i>Some Like It Hot</i>	United Artists	1959	123	6	1
15	<i>Star Wars</i>	20th Century	1977	121	10	6
16	<i>All About Eve</i>	20th Century	1950	138	14	6
17	<i>The African Queen</i>	United Artists	1951	105	4	1
18	<i>Psycho</i>	Paramount	1960	109	4	0
19	<i>Chinatown</i>	Paramount	1974	132	11	1
20	<i>One Flew Over the Cuckoo's Nest</i>	United Artists	1975	129	9	5
21	<i>The Grapes of Wrath</i>	20th Century	1940	128	7	2
22	<i>2001:A Space Odyssey</i>	MGM	1968	141	4	1
23	<i>The Maltese Falcon</i>	Warner Bros.	1941	101	3	0
24	<i>Raging Bull</i>	United Artists	1980	119	8	2
25	<i>E.T.: The Extra-Terrestrial</i>	Universal	1982	115	9	4
26	<i>Dr. Strangelove</i>	Columbia	1964	93	4	0
27	<i>Bonnie and Clyde</i>	Warner Bros.	1967	122	10	2
28	<i>Apocalypse Now</i>	United Artists	1979	153	8	2
29	<i>Mr. Smith Goes to Washington</i>	Columbia	1939	129	11	1
30	<i>The Treasure of the Sierra Madre</i>	Warner Bros.	1948	126	4	3
31	<i>Annie Hall</i>	United Artists	1977	94	5	4
32	<i>The Godfather, Part II</i>	Paramount	1974	200	11	6
33	<i>High Noon</i>	United Artists	1952	85	7	4
34	<i>To Kill a Mockingbird</i>	Universal	1962	129	8	3
35	<i>It Happened One Night</i>	Columbia	1934	105	5	5
36	<i>Midnight Cowboy</i>	United Artists	1969	113	7	3
37	<i>The Best Years of Our Lives</i>	RKO	1946	170	8	7
38	<i>Double Indemnity</i>	Paramount	1944	107	7	0
39	<i>Doctor Zhivago</i>	MGM	1965	192	10	5
40	<i>North by Northwest</i>	MGM	1959	136	3	0
41	<i>West Side Story</i>	United Artists	1961	155	11	10
42	<i>Rear Window</i>	Universal	1954	112	4	0
43	<i>King Kong</i>	RKO	1933	105	0	0
44	<i>The Birth of a Nation</i>	Griffith	1915	159	*	*
45	<i>A Streetcar Named Desire</i>	Warner Bros.	1951	122	12	4
46	<i>A Clockwork Orange</i>	Warner Bros.	1971	136	4	0
47	<i>Taxi Driver</i>	Columbia	1976	114	4	0
48	<i>Jaws</i>	Universal	1975	124	4	3
49	<i>Snow White and the Seven Dwarfs</i>	Disney	1937	82	1	0
50	<i>Butch Cassidy and the Sundance Kid</i>	20th Century	1969	110	7	4

Table 1. American Film Institute's Top 100 (continued)

Oscar Rank	Running Noms	Oscar Wins
------------	--------------	------------

Rank	Title	Original Studio	Year	Time	Noms	Wins
51	<i>The Philadelphia Story</i>	MGM	1940	112	6	2
52	<i>From Here to Eternity</i>	Columbia	1953	118	13	8
53	<i>Amadeus</i>	Orion	1984	158	11	8
54	<i>All Quiet on the Western Front</i>	Universal	1930	130	4	2
55	<i>The Sound of Music</i>	20th Century	1965	174	10	5
56	<i>M*A*S*H</i>	20th Century	1970	116	5	1
57	<i>The Third Man</i>	Selznick	1949	100	3	1
58	<i>Fantasia</i>	Disney	1940	135	0	0
59	<i>Rebel Without a Cause</i>	Warner Bros.	1955	111	3	0
60	<i>Raiders of the Lost Ark</i>	Paramount	1981	115	8	4
61	<i>Vertigo</i>	Paramount	1958	128	2	0
62	<i>Tootsie</i>	Columbia	1982	116	10	1
63	<i>Stagecoach</i>	United Artists	1939	99	7	2
64	<i>Close Encounters of the Third Kind</i>	Columbia	1977	135	8	1
65	<i>The Silence of the Lambs</i>	Orion	1991	123	7	5
66	<i>Network</i>	MGM	1976	120	10	4
67	<i>The Manchurian Candidate</i>	United Artists	1962	126	2	0
68	<i>An American in Paris</i>	MGM	1951	113	8	6
69	<i>Shane</i>	Paramount	1953	117	6	1
70	<i>The French Connection</i>	20th Century	1971	104	8	5
71	<i>Forrest Gump</i>	Paramount	1994	142	13	6
72	<i>Ben-Hur</i>	MGM	1959	217	12	11
73	<i>Wuthering Heights</i>	Goldwyn	1939	104	8	1
74	<i>The Gold Rush</i>	Chaplin	1925	72	*	*
75	<i>Dances With Wolves</i>	Orion	1990	180	12	7
76	<i>City Lights</i>	Chaplin	1931	87	0	0
77	<i>American Graffiti</i>	Universal	1973	110	5	0
78	<i>Rocky</i>	United Artists	1976	119	10	3
79	<i>The Deer Hunter</i>	Universal	1978	182	9	5
80	<i>The Wild Bunch</i>	Warner Bros.	1969	145	2	0
81	<i>Modern Times</i>	United Artists	1936	87	0	0
82	<i>Giant</i>	Warner Bros.	1956	201	10	1
83	<i>Platoon</i>	Orion	1986	113	8	4
84	<i>Fargo</i>	Polygram	1996	97	7	2
85	<i>Duck Soup</i>	Universal	1933	68	0	0
86	<i>Mutiny on the Bounty</i>	MGM	1935	135	8	1
87	<i>Frankenstein</i>	Universal	1931	71	0	0
88	<i>Easy Rider</i>	Columbia	1969	94	2	0
89	<i>Patton</i>	20th Century	1970	171	10	7
90	<i>The Jazz Singer</i>	Warner Bros.	1927	89	1	0
91	<i>My Fair Lady</i>	Warner Bros.	1964	170	12	8
92	<i>A Place in the Sun</i>	Paramount	1951	120	9	6
93	<i>The Apartment</i>	United Artists	1960	125	10	5
94	<i>GoodFellas</i>	Warner Bros.	1990	146	6	1
95	<i>Pulp Fiction</i>	Miramax	1994	153	6	1
96	<i>The Searchers</i>	Warner Bros.	1956	119	0	0
97	<i>Bringing Up Baby</i>	RKO	1938	97	0	0
98	<i>Unforgiven</i>	Warner Bros.	1992	131	9	4
99	<i>Guess Who's Coming to Dinner</i>	Columbia	1967	108	9	2
100	<i>Yankee Doodle Dandy</i>	Warner Bros.	1942	126	7	2

*Titles in boldface denote Academy Award winners for Best Picture.

Table 2. Comparison of Ranks by Decade

<i>Decade</i>	<i>Median Rank</i>
1920s	82.00
1930s	63.00
1940s	33.50
1950s	43.50
1960s	40.00
1970s	47.50
1980s	56.50
1990s	79.50

Notes

1. The list of the AFI's Top 100 was published in most newspapers on June 17, 1998 (see, for example, *The Burlington Free Press* [3]). The name of the original studio and running times are from Case [2]. Oscar nominations and wins are from Osborne [6] and *The New York Times* [5] for *Fargo*, the most recent film on the list.
2. The 1996 cut-off meant that *Titanic*, the highest grossing film of all time, was not in the running.
3. Hereafter numbers in parentheses immediately following the name of an actress/actor or film denote the film's rank in the Top 100.
4. The Mann-Whitney test is not affected by skewness, or any other distributional peculiarity; it is a distribution-free test.
5. The p -values for the comparison of titles from the 1960s v. 1990s and the 1980s v. 1990s were .071 and .061, respectively. Here again, films from the 1990s were marginally less preferred.
6. The proliferation of Oscar-eligible categories in recent decades makes comparisons over time involving only nominations or wins alone less meaningful than comparisons involving their ratio.
7. As Leger Grindon, Professor of Film-Video Studies at Middlebury College, pointed out to me, measurement of running times is tricky, especially with silent films, such as *The Birth of a Nation*, because the projection speed (24 frames per second) was not standardized until the coming of sound. *Birth* was probably projected at 16 or 18 frames per second. In other cases, *Lawrence of Arabia*, for example, films have had footage restored or deleted for various different releases.
8. Films on the list that were voted Best Picture ran on average more than a half hour longer than all other films on the Top 100 ($p < .0001$).

Notes
(continued)

9. The p -values for comparisons of the 1930s with the 1940s (median length of 122.5 minutes) and with the 1980s (115.5 minutes) were .079 and .067, respectively.

References

1. D. Ansen, Our movies, ourselves, *Newsweek* special issue, Summer 1998, p. 12.
2. C. Case, *The Ultimate Movie Thesaurus*, Henry Holt and Company, New York, 1996.
3. M. Fleeman, Film institute picks greatest U.S. movies, *The Burlington Free Press*, June 17, 1998, p. 2A.
4. R. Kempley, American film institute's pick of the flicks, *The Washington Post*, June 17, 1998, p. D1, D14.
5. *The New York Times*, February 12, 1997, p. C9; March 25, 1997, p. A23.
6. R. Osborne, *65 Years of the Oscar*, Abbeville Press, New York, 1996.