

**Gender, Race/Ethnicity & Box
Office Performance:
Do Films with Female and/or Underrepresented
Protagonists Make as Much Money as
Films with White Male Leads?**

Dr. Stacy L. Smith, Dr. Katherine Pieper, Sam Wheeler
&
The Annenberg Inclusion Initiative

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The purpose of this research brief was to examine whether protagonist identity across the 200 top movies of 2021 and 2022 was related to box office performance. Put differently, does protagonists' identity matter when selling movies domestically and internationally? To answer this question, we assessed first-run live action movies theatrically released across a two-year time frame. Only films with solo leads were evaluated, to ensure the most stringent and non-confounded test (co led or ensemble films). Measures included protagonist identity by gender (male, female), underrepresented status (White, non White), production cost, marketing spend, widest point of release, and Metacritic score.

Key Findings

Across 2021 and 2022 top-grossing films, the number of solo-led movies with White males at the center (43%, $n=54$) was **far greater** than the number of solo-led movies with White females (23%, $n=29$), Underrepresented males (18%, $n=23$), or Underrepresented females (16%, $n=20$) at the center.

Looking to box office medians, films about White males **earned the most** at the domestic box office (\$20.6 million), barely outpacing films about Underrepresented females (\$20.3 million). Though, movies with White male leads generated significantly more revenue in North America than movies with White female leads (\$10.1 million) or Underrepresented male (\$17.2 million) leads. Looking at the international box office, White males (\$28.3 million) outperformed the three other identity groups (White females=\$20.5 million, Underrepresented males=\$13 million, Underrepresented females=\$7.9 million).

These numbers may cause some to argue that diversity or identity doesn't sell. We would caution against such an interpretation. Why? Our previous research suggests that movies are financially supported differently when White males are the protagonists than when females or people of color are.¹ As such, it becomes important to first establish whether the financial support movies receive differs by identity group.

In terms of budgets, stories with girls and women at the center (White females=\$15.2 million; Underrepresented females=\$22.2 million) have **smaller production costs** than do stories with boys and men at the center (White males=\$31.9 million; Underrepresented males=\$36.3 million). Matter of fact, stories with Underrepresented males at the center get the highest production resources and stories with White females get the lowest.

Differences also emerge when we examine marketing spend. Here, stories with White females (\$27.7 million) and Underrepresented females (\$26.5 million) have **significantly lower marketing budgets** than White males (\$31.9 million) and Underrepresented males (\$32.3 million).

Turning to widest point of release, movies about White females (2,240 theaters) were released **in significantly fewer theaters** in the U.S. than movies about White males (3,168 theaters), Underrepresented males (3,114 theaters), or Underrepresented females (2,905 theaters).

These findings reveal that protagonist identity in films is directly related to the financial support received from studio executives and financiers. Males often receive the most support and females the least. Consequently, it is impossible to know whether the gender of the protagonist (and/or underrepresented status) drives box office performance of films or the financial support the storyline receives. These variables are confounded.

The only way to know is to analyze box office performance and protagonist identity statistically controlling for production costs, marketing spend, and widest point of release. By doing this, we hold constant financial support and more rigorously test the relationship between protagonist identity and box office performance.

Across 6 different correlational tests, the **gender and/or underrepresented status of protagonists was not statistically related to box office performance in North America or internationally**. Female-led movies do not significantly differ from male-led movies in box office prowess domestically or abroad. The same is true by underrepresented status, with White-led films making as much money as films led by people of color. **We also found that stories with women of color at the center perform as well at the box office as stories with White males at the center, when financial support variables are controlled**. This should not be surprising as stories with Underrepresented females at the center had the highest median Metacritic score of the four identity groups evaluated.

Very clearly, White male protagonists don't sell films any differently than the three other identity groups. But, the financial support and backing of executives and greenlighting teams does. Production costs (domestic $r=.75^{**}$, international $r=.75^{**}$), marketing spend (domestic $r=.85^{**}$, international $r=.66^{**}$), and widest point of release (domestic $r=.86^{**}$, international $r=.67^{**}$, respectively) are significant and strong correlates of box office performance.

Looking more closely at support, of the 19 movies with budgets of \$100 million or more, more than half—52.6% ($n=10$) had a White male lead, while 21.1% ($n=4$) had an Underrepresented male lead, 15.8% ($n=3$) had a White female lead, and only 10.5% ($n=2$) had an Underrepresented female lead. Given that these identity groups do not correlate with box office performance, this is evidence of bias and a clear misstep by greenlighting teams to allocate resources differently to movies based on the protagonist. These choices are also not in the best interest of shareholders.

Overall, the results of this research brief are clear. Financial support drives box office success rather than the identity of the protagonist. The key role of White men in this process is as executives who favor White male actors with resources needed to be successful at the multiplex.

GENDER, RACE/ETHNICITY & BOX OFFICE PERFORMANCE

DR. STACY L. SMITH &
THE ANNENBERG INCLUSION INITIATIVE

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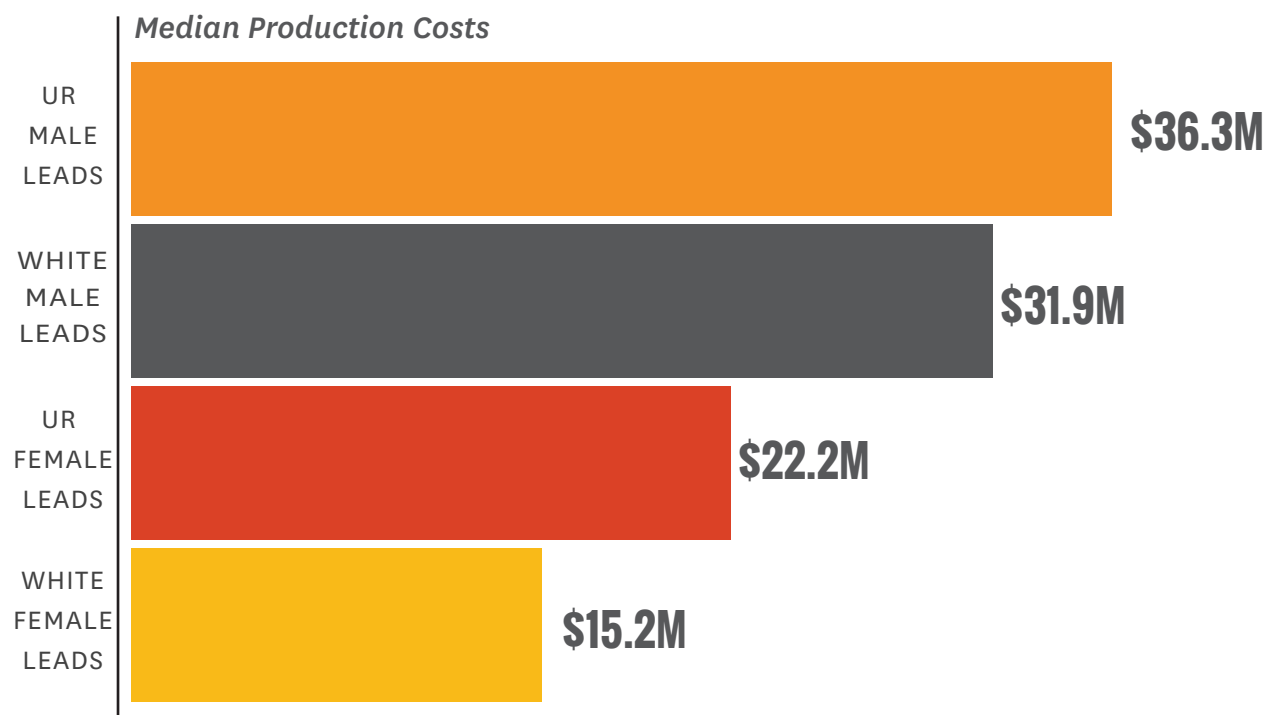
WHITE MALES STILL HAVE MORE OPPORTUNITIES IN TOP FILMS

Number of live-action, single-led, first-run, top-grossing films by gender and race/ethnicity of lead, 2021-22

TYPE OF FILM	WHITE MALE LEADS	UR MALE LEADS	WHITE FEMALE LEADS	UR FEMALE LEADS	TOTAL
NO. OF FILMS OVERALL	54	23	29	20	126
NO. OF FILMS WITH BUDGET >\$100M	10	4	3	2	19

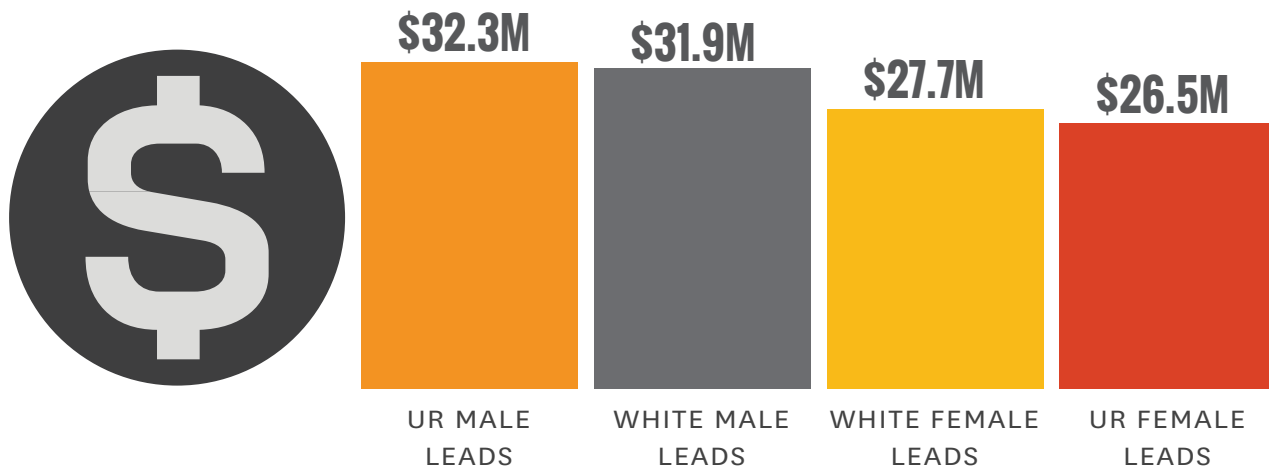
WOMEN ARE PROVIDED FEWER RESOURCES FOR PRODUCTION

Median production cost by gender and race/ethnicity of lead character



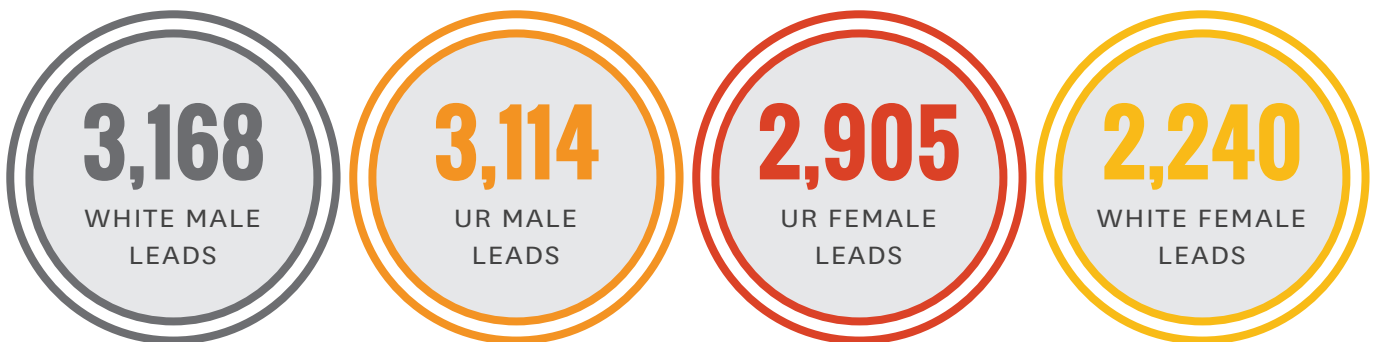
FILM PROMOTION FLUCTUATES BY LEAD CHARACTER IDENTITY

Median marketing budget by gender and race/ethnicity of lead character



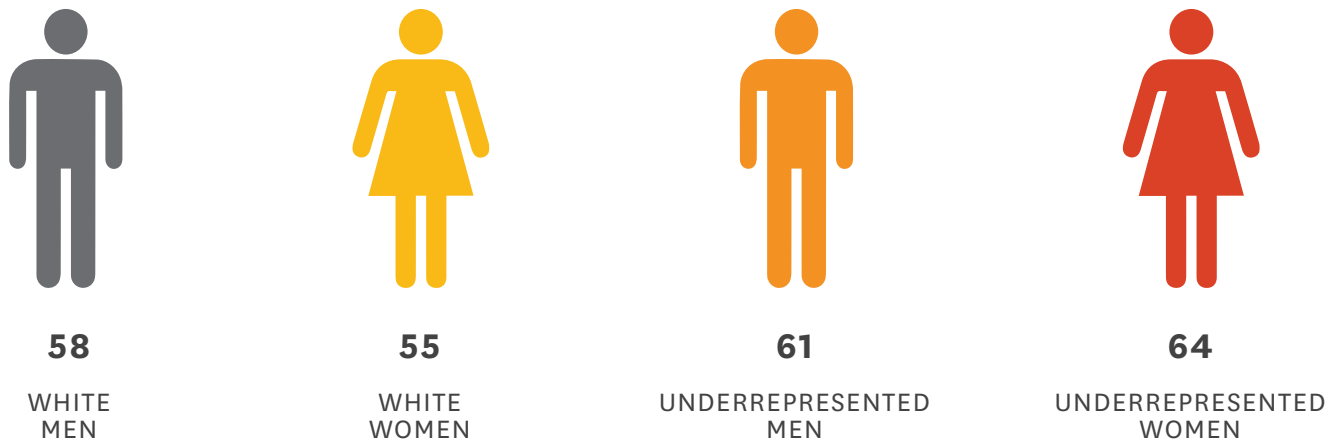
THEATRICAL RELEASE IS TILTED IN FAVOR OF MALE LEADS

Median widest point of release by gender and race/ethnicity of lead character



CRITICS FAVOR FILMS ABOUT UNDERREPRESENTED FEMALES

Median Metacritic score by gender and race/ethnicity of lead character



IDENTITY DOES NOT SIGNIFICANTLY PREDICT BOX OFFICE SUCCESS

Correlations between lead character gender, race/ethnicity, and intersectional identity and box office gross

FEMALE LEAD VS. MALE LEAD

	W/O CONTROLS	W/CONTROLS
U.S. BOX OFFICE	-.11	-.002
INTERNATIONAL BOX OFFICE	-.06	.14

UNDERREPRESENTED LEAD VS. WHITE LEAD

	W/O CONTROLS	W/CONTROLS
U.S. BOX OFFICE	-.06	-.06
INTERNATIONAL BOX OFFICE	-.10	-.12

UNDERREPRESENTED FEMALE LEAD VS. WHITE MALE LEAD

	W/O CONTROLS	W/CONTROLS
U.S. BOX OFFICE	-.08	-.01
INTERNATIONAL BOX OFFICE	-.11	.03

Control variables include production cost, marketing spend, and widest point of release

“THIS IS THE THIRD TIME THAT WE HAVE DEMONSTRATED THAT HAVING A LEAD CHARACTER WHO IS A WHITE MALE HAS NO SIGNIFICANT INFLUENCE ON BOX OFFICE PERFORMANCE.

IT IS THE WAY THAT EXECUTIVES SUPPORT MOVIES ABOUT WHITE MEN THAT DRIVES THEIR SUCCESS, NOT THE PROTAGONIST THEMSELVES.”

-DR. STACY L. SMITH

CORRELATES OF BOX OFFICE PERFORMANCE

Variables that are significantly related to U.S. and international box office gross



**THE SUPPORT FILMS RECEIVE DETERMINES THEIR BOX OFFICE PERFORMANCE,
NOT THE IDENTITY OF THE PROTAGONIST**

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Overview

The purpose of this research brief is to answer one simple question: ***Does a film protagonist's identity relate to box office performance?*** We have answered this query before, with movies from 2007 to 2018.² Now, we are updating the analysis post-COVID with two additional years: 2021 and 2022. The goal is to assess whether having a female or underrepresented (non-White) lead is related to financial performance.

If we were to look at the simple means and medians (midpoint) of U.S. and international box office, the following table illuminates a potentially damaging decision to diversify leads in motion pictures. As shown in Table 1, films with White males at the center made substantially more money at the U.S. and international box office than films led by the three other identity groups. This is true looking at the means and the medians. When it comes to the other groups, there is more volatility in financial performance depending on the market of interest (domestic, international) and the metric used.

**Table 1
Financial Performance & Identity of Protagonist by Box Office**

	White Males	White Females	UR Males	UR Females
Mean U.S. Box Office	\$81,266,924.5	\$34,340,449.9	\$40,105,918.2	\$51,851,419.5
Median U.S. Box Office	\$20,592,476.5	\$10,127,625.0	\$17,173,321.0	\$20,354,346.0
Mean International Box Office	\$109,441,679.0	\$36,129,343.2	\$58,177,600.4	\$47,308,581.4
Median International Box Office	\$28,285,018.5	\$20,553,045.0	\$13,008,516.0	\$7,952,212.0

Note: Analyses include 126 solo-led movies from 2021 and 2022. Re-releases and animated movies were removed prior to analysis. U.S. is synonymous with domestic box office and refers to North American grosses.

What is problematic about these simple descriptive statistics is that historically films have received very different support by protagonist identity. Our work has demarcated that movies with White or male leads at the center received higher production budgets, greater print and advertising spend, and were exhibited in more theaters. In contrast, Underrepresented females

received the least support for production and marketing, while White females and Underrepresented males' support fell somewhere in between.

Given this, is it impossible to know whether protagonist identity or support from financiers is driving recent box office performance. As such, the purpose of this research brief is to examine this issue. Two questions guide our analysis. First, is the lead character's identity associated with support in the form of production costs, marketing spend, and distribution density? And second, does protagonist identity correlate with box office performance once these variables are statistically controlled?

To conduct this analysis, we were interested in the 100 top U.S. movies from 2021 and 2022. We narrowed the analysis to only include movies with solo leads and those released in live-action formats. No re-releases (i.e., *Jaws*, *Spiderman: No Way Home*), animated movies (e.g., *Encanto*, *Sing 2*, etc.) or storylines with co leads or ensemble casts were included. The latter demarcations were intended to force the most stringent comparisons on U.S. box office and international gross by protagonist type. Adding films with co leads, particularly those with White males, would confound the analysis.

In the section that follows, we first overview support films received (i.e., production budget, print and advertising costs, widest point of release, critical review score) by identity group. Here, we put every solo lead into one of four categories: White males, White females, Underrepresented males, and Underrepresented females. Then, we ran descriptive statistics on these outcome measures by identity group. For all these measures and due to some skewed distributions (i.e., production costs, box office), the medians or "middle values" are reported.

Next, we conducted three financial analyses to assess the relationship between box office performance and protagonist identity: gender (male vs female leads); underrepresented status (White vs. Underrepresented leads); and intersectional grouping (White male vs. Underrepresented female leads). For skewed distributions, data were transformed prior to analysis. It is important to note that the use of the terms "male" and "female" pertain to gender labels that span all ages to account for younger and older protagonists in the sample. There were no non-binary characters portrayed as protagonists in the movies evaluated.

Results

A total of 126 theatrically-released movies from the 100 top films of 2021 and 2022 met our criteria and were evaluated for this research brief. Fifty-four films were driven by White male leads (43%), 29 by White female leads (23%), 23 by Underrepresented male leads (18%), and 20 by Underrepresented female leads (16%). Given that the breakdown of the U.S. population is roughly 30% White males, 30% White females, 20% Underrepresented males, and 20% Underrepresented females, three of the four groups evaluated were still below proportional representation.³ For all comparisons, we only describe differences of \$3 million or more for financial measures and 300 or more for distribution density. Deviations of 3 or more points for Metacritic were also noted.

Financial Support

The first variable assessed was **production costs**, which were obtained from online sources.⁴ When compared to White males (\$31.9 million), Underrepresented males (\$36.3 million) received significantly higher production budgets whereas Underrepresented females received significantly lower ones (\$22.2 million). White females (\$15.2 million) received the least amount of support for their films in 2021-2022.

Conclusion: Female-led films still received significantly less financial support than male-led films.

Table 2
Median Production Costs by Protagonist Identity

Measure	White Males	White Females	UR Males	UR Females	Total
Median	\$31,943,000	\$15,198,000	\$36,269,000	\$22,246,000	\$24,769,500

Note: Analyses include 126 solo-led movies from 2021 and 2022. Re-releases and animated movies were removed prior to analysis. UR=underrepresented or non-white leads.

Looking to marketing budgets (Table 3), we obtained the **print and advertising costs** across the 100 top-grossing films of 2021 and 2022.⁵ The results mirror the previous findings. Male driven movies – whether by White (\$31.9 million) or Underrepresented (\$32.3 million) boys and men – are supported with heftier marketing budgets than female-driven movies (White females=\$27.7 million, UR females=\$26.5 million).

Conclusion: Female-led films still received significantly lower print and advertising resources than male-led films.

Table 3
Median Print and Advertising Costs by Protagonist Identity

Measure	White Males	White Females	UR Males	UR Females	Total
Median	\$31,851,500	\$27,650,000	\$32,250,000	\$26,549,000	\$28,827,000

Note: Analyses include 126 solo led movies from 2021 and 2022. Re-releases and animated movies were removed prior to analysis. UR=underrepresented or non-white leads.

Next, we examined the association between protagonist identity and **widest point of release**.⁶ As depicted in Table 4, films led by males (White=3,168, Underrepresented=3,114) and underrepresented females (2,905) were distributed in more U.S. theaters than those led by White females (2,240).

Conclusion: Movies with White females at the center were released in fewer movie theaters than movies with males or Underrepresented females at the center.

Table 4
Median Widest Point of Release by Protagonist Identity

Measure	White Males	White Females	UR Males	UR Females	Total
Median	3,168	2,240	3,114	2,905	2,998

Note: Analyses include 126 solo led movies from 2021 and 2022. Rereleases and animated movies were removed prior to analysis. UR=underrepresented or non-white leads.

The fourth indicator we examined was **Metacritic scores**. These scores are weighted averages of critics' reviews on a scale of 0 to 100.⁷ In a few cases, the Metacritic score was not available. When this occurred, we utilized the Rotten Tomatoes score for a movie. 124 out of 126 films had a critical review score. The results of critical review scores by identity group are in Table 5. Movies led by Underrepresented girls and women (64) received higher critical review scores than movies led by White (58) or Underrepresented males (61). Films with White females at the center received the lowest Metacritic score (55).

Conclusion: Films with Underrepresented girls and women received the highest critical review scores when compared to all other identity groups.

Table 5
Median Metacritic by Protagonist Identity

Measure	White Males	White Females	UR Males	UR Females	Total
Median	58	55	61	64	59.5

Note: Analyses include 126 solo led movies from 2021 and 2022. Rereleases and animated movies were removed prior to analysis. UR=underrepresented or non-white leads

Given the above findings, the identity of the protagonist clearly **still** plays a role in a film's financial support when looking at simple statistics. In particular, the medians reveal that movies with male protagonists were given higher budgets and marketing support than films with female protagonists. Though stories with women of color at the center received the highest critical review scores, they were allocated lower production budgets and marketing dollars than their male peers.

In the next section, we move to examine correlates between these measures. The aim here is to assess what is related to box office performance that the above simple statistics may or may not illuminate.

Correlates of Box Office Performance

Here, we conduct the critical test of analyzing box office performance by protagonist identity. We present two sets of analyses in each table. The analyses will first depict the simple correlation between identity and box office performance domestically and internationally. Then,

the second test reruns the correlation but controls for production costs, marketing spend, and widest point of release.

Focusing first on gender, Table 6 reveals that the gender of the lead characters is not associated with box office performance in the U.S. or abroad. All four correlations are not significant. Thus, ***the gender identity of the lead is not related to box office performance.*** What significantly drives box office performance domestically and internationally is production costs ($r=.75^{**}$, $r=.75^{**}$, respectively), print and advertising spend ($r=.85^{**}$, $r=.66^{**}$, respectively), and widest point of release ($r=.86^{**}$, $r=.67^{**}$, respectively). ***Hence, the support films receive determine their box office performance, not the gender identity of the protagonist.***

Table 6
Correlation between the Presence of a Female Lead
with & without Financial Support Controlled

Outcomes	Female Leads w/o Controls	Female Leads w/Controls
US Box Office	-.11	-.002
International Box Office	-.06	.14

Note: The correlations between Female lead (no, yes) and box office were computed with bivariate and partial correlations. The latter controlled for production costs, print and advertising spend, and widest point of release. Skewed financial variables were transformed prior to analysis.

The same analyses were conducted for films by Underrepresented status (White vs. non White). Once again, none of the bivariate or controlled analyses revealed a significant relationship between identity and box office performance (see Table 7). Clearly, ***the racial/ethnic identity of the lead is not related to box office performance. Rather, the financial support films receive is related to box office performance in North America and abroad.***

Table 7
Correlation between the Presence of an Underrepresented Lead
with & without Financial Support Controlled

Outcomes	UR Leads w/o Controls	UR Leads w/Controls
US Box Office	-.06	-.06
International Box Office	-.10	-.12

Note: The correlations between Underrepresented lead (no, yes) and box office were computed with bivariate and partial correlations. The latter controlled for production costs, print and advertising spend, and widest point of release. Skewed financial variables were transformed prior to analysis.

Finally, we examined the relationship of having an Underrepresented female lead vs. White male lead on box office performance. The results in Table 8 reveal that there is no significant relationship between intersectional lead type and revenue at the multiplex in the U.S. or

internationally. More powerfully, *films with Underrepresented girls and women at the center make roughly the same amount as films with White boys and men at the center*. This should be no surprise as films with Underrepresented females have the highest Metacritic scores in the sample.

Table 8
Correlation between Underrepresented Female vs. White Male Leads with & without Financial Support Controlled

Outcomes	WOC Leads w/o Controls	UR Leads w/Controls
US Box Office	-.08	-.01
International Box Office	-.11	.03

Note: The correlations between intersectional lead (White male, Underrepresented female) and box office were computed with bivariate and partial correlations. The latter controlled for production costs, print and advertising spend, and widest point of release. Skewed financial variables were transformed prior to analysis.

Conclusion: The financial support films receive determine their box office performance, not the gender and/or racial/ethnic identity of the protagonist.

As there was no significant relationship between protagonist identity and box office performance, but the level of support was significantly related to box office success, we explored this further. We first identified how many films across the sample received a minimum budget of \$100 million. Of these 19 movies, we then assessed the identity of the protagonist. More than half—52.6% ($n=10$)—had a White male lead, while 21.1% ($n=4$) had an Underrepresented male lead, 15.8% ($n=3$) had a White female lead, and only 10.5% ($n=2$) had an Underrepresented female lead. In other words, White male leads were featured in more than three times as many \$100-million-plus movies as Underrepresented female leads or White female leads. Moreover, the proportion of films with White male leads with a budget of \$100 million or more (52.6%) is greater than the overall share of films with White male leads at all budget levels (43%). These findings demonstrate how different and unequal the level of support for films with White male leads is compared to films starring individuals from the other three identity groups. And yet, these films do not earn significantly more money at the box office.

Final Remarks

Our goal with this research brief was to understand whether the identity of a film's protagonist plays a role in its box office performance. By examining the statistical relationship between protagonist identity and box office (with and without controls), it is clear that the gender and race/ethnicity of the lead character were not significant drivers of financial success. However, films received different levels of support based on the identity of the protagonist. This reinforces findings from our previous work and makes it clear that distributors have hidden

behind explicit biases about casting to obfuscate the reality that the industry can sell whatever it decides it wants to.

Crucially, what the industry clearly wants to sell are films with White male leads. The number of films with White males at the center is nearly double that of every other identity group examined. These films also received significantly more support in the form of production budgets and marketing than films starring White women or women of color. White males were at the center of more than half of the most expensive films made in the last 2 years. The conclusion we must draw from this data is that greenlighting teams continue to make decisions on film slates based on biases they hold about what sells instead of relying on data-driven insights.

There are a few solutions that must be implemented to create significant change that promotes inclusion. First, studios and distributors must question why they continue to allow films with White male leads to comprise the majority of their slates. In a post-COVID reality, following a lengthy writer's strike, and in the face of recessionary pressures, decision-makers present themselves as guided by fiduciary responsibility to their shareholders and return on investment. But the data suggest otherwise—leaders greenlight content featuring White males that statistically performs no better than films with White women and women of color.

The second solution that studios must explore is to check their bias and their accounting. The differences in budgets and marketing spend allocated to films about White women and women of color are problems that decision-makers could easily uncover with a phone call to their financing departments. Additionally, greenlighting committees and top executives can consider these two questions: who do you consistently deny when they request additional budget? And why is it the people making films about women?

Lastly, these findings are a replication and extension of work we published in 2010 and 2020. For 16 years, the marketplace has demonstrated that films about women and people of color can be just as financially successful as films about White males. In contrast, the prevailing logic seems to be that films about White males can be *unsuccessful* without consequences. Isn't it time for companies to listen to the data and find out what might happen if films centered on women and people of color received support equal to what their White male counterparts receive?

It is necessary to remind readers of a few limitations to this research. First, the sample size for this report includes only live-action, solo-led films from 2021 and 2022. This was done to specifically remove the confounding influence of co-leads from the data set. Additional work should explore relationships between co-led films and box office performance. Second, we did not include the influence of other variables on box office performance. Genre, MPAA rating, competition, and other factors may play a role in these relationships. In our previous economic models, these variables have been significant, though small, predictors of box office performance. Overall, we believe it is important to replicate these findings on future samples of top-grossing films to determine if the results are consistent with the data presented in this

report. It is also important to look at the financial performance of films with leads from specific racial/ethnic groups (e.g., Black leads, Hispanic/Latino leads, Asian leads, Middle Eastern/North African leads, etc.) to determine whether there are differences in support and financial performance when leads from these communities are explored.

There will be opposition to the data and solutions offered in this report—the economic climate is dismal; executives seem to believe success is never guaranteed. But cloaking bias in the language of risk management is a convenient way to ensure that the status quo goes unchecked and inequality continues to thrive. Instead, executives can either tighten budgets for everyone (including and especially films about White males) or loosen them for historically marginalized groups. We have already seen what happens in the market when inequality drives decision-making. Why not try something else in the future?

Footnotes

1. Smith, S.L., Weber, R., et al. (2020). *The Ticket to Inclusion: Gender and Race/Ethnicity of Leads and Financial Performance Across 1,200 Popular Films*. A paper supported by ReFrame and the Annenberg Inclusion Initiative. Los Angeles, CA.
2. Smith, S.L., Weber, R., et al. (2020).
3. U.S. Census (2022). *Quick facts*. Retrieved from <https://www.census.gov/quickfacts/>
4. Domestic and international box office figures were downloaded from S&L Kagan.
5. Print and advertising spend per film was retrieved from S&L Kagan. Given that domestic and international P&A are highly and significantly correlated ($r=.80, p<.05$), we used the former as a surrogate variable for the later in analyses. See Smith et al. (2020).
6. Widest point of release was obtained from boxofficemojo.com. Because WPR domestically is correlated significantly with the number of international territories where a film was released ($r=.44, p<.05$), we used the former as a surrogate for the latter.
7. Metacritic scores are available on their website. In addition to Metacritic scores, we also examined scores per film from The Movie Database, which solicits ratings from site contributors, range from 0 to 10. Median Movie Database (TMDB) scores are provided below.

Median TMDB Scores by Protagonist Identity

Measure	White Males	White Females	UR Males	UR Females	Total
Median	7.1	7.1	6.6	6.8	7