

iResearch Entertainment Show White Paper

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PART ONE

Project Backgrounds

Project
Backgrounds

Entertainmen
Market

Viewership
Prediction



Project Backgrounds-Company

Simei Media

- Simei Media Co., Ltd., established in 2000, is a content-focused media group. With the goal of “Panorama, Accuracy and Communication”, Simei provides customers with comprehensive marketing services with brand management and advertising creativity, entertainment content marketing, all-media planning and agency, public relations promotion to effect monitoring and improves the brand value of the customers.
- As a model of international thinking and local tactics in the industry, Simei Media not only serves many well-known Chinese and foreign brands for a long time, but also is committed to constantly striving to enhance the influence of Chinese brands.



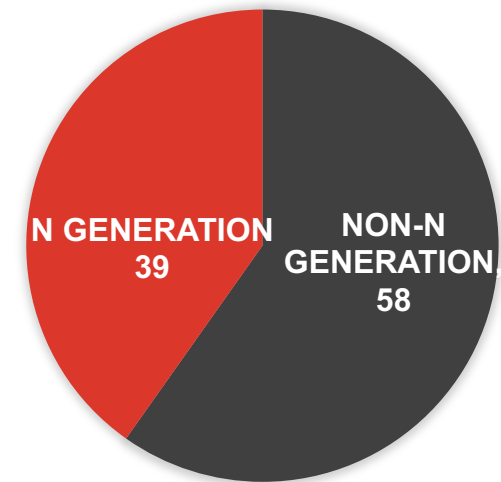
iResearch

- iResearch , founded in 2002, is committed to providing professional data, information and consulting services that make it easier for customers to gain insight into the market and anticipate the future.
- iResearch is based on 16 years of research and accumulation in the Internet field; providing customers with diversified big data solutions based on intelligence + data + services, covering market competition monitoring, consumer insight, marketing decisions, enterprise refinement operations and data Sharing and other services.
- The iResearch system has been researching the Chinese Internet industry since 2003. It has published more than 1,500 Internet research reports covering Internet, mobile internet, e-commerce, internet finance, internet marketing, and network services.

Variety Show Market-**N Generation shows are the main market**

- From October 2017 to October 2018, 97 shows finished, there were 39 series shows, which is 40%. These TV shows started early and the production level is relatively mature. At present, Zhejiang TV's "Running Man" series has been broadcast to the sixth season this year; Dongfang TV's "Extreme Challenge" series is the fourth season; The "N-generation" TV Series, regardless of ratings, viewership, popularity, and topics. It is obvious that these old-fashioned shows caused the decline ratings due to the lack of innovation and serious traces of scripts.
- At the same time, the network tv shows has developed rapidly in the past two years. Tencent Video's "Tucao Conference" and iQiyi's "China New Rap" have developed two seasons, the program production is getting better and better, and a number of loyal audiences have also been harvested. The network variety creation forms are diverse, and the content is novel and younger and more energetic than "N-generation" TV series.
- The new cultural program "National Treasure" launched by CCTV has received a good response, it has aesthetic appreciation and historical narration. "I am an actor" launched by Zhejiang TV is surprisingly popular these days. Viewers have been tortured by young actors who lack of acting. The acting evaluation shows combined the current social hot topics, thus attracted much attention.

**“N GENERATION” SHOWS VS.
“NON-N GENERATION” SHOWS**

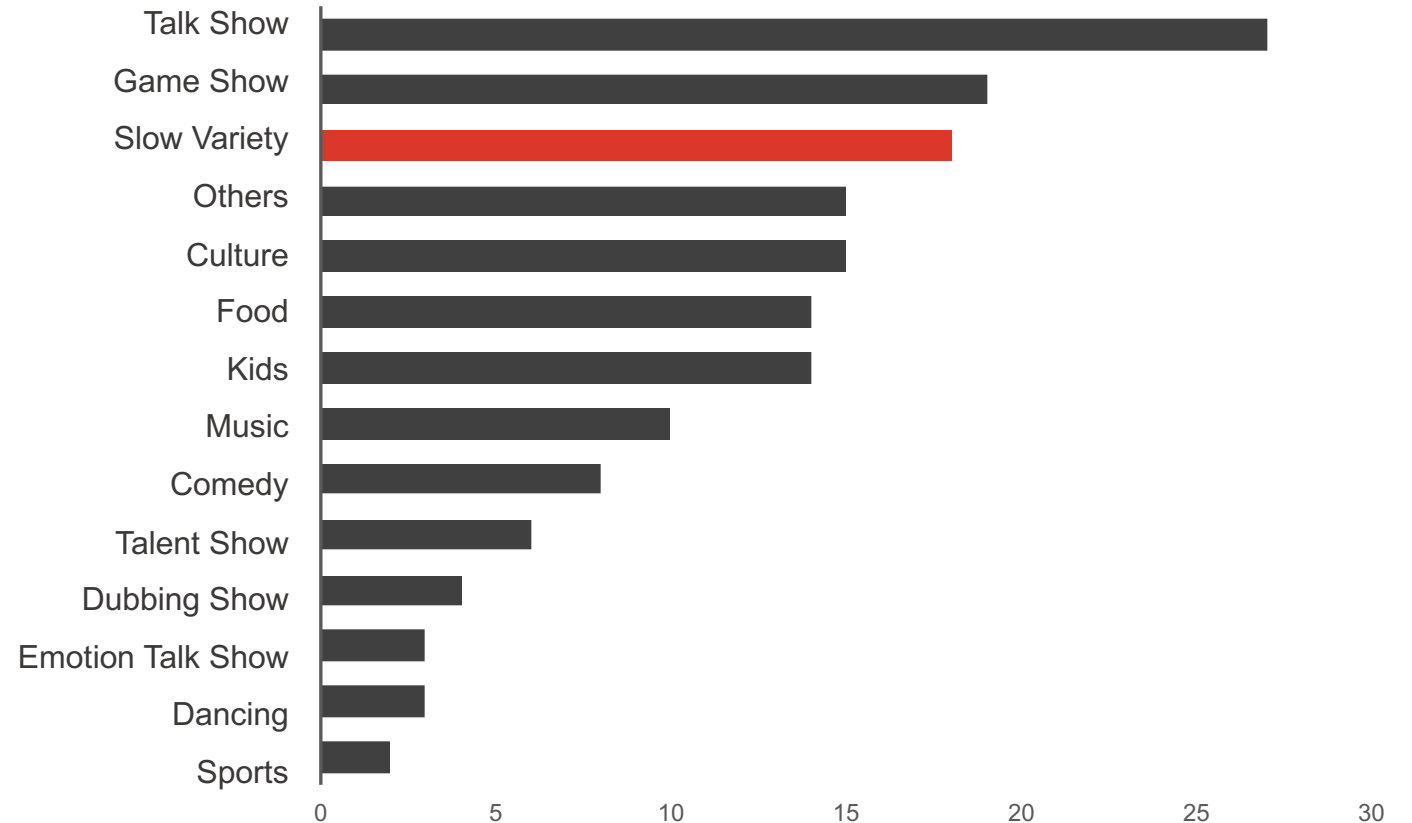


Note: Extracted entertainment shows data from Oct. 2017 to Oct. 2018 from IResearch Database.

Variety Show Market-Innovation of Show Types

From 2017 to 2018, China's variety market experienced boom in these years. Some major variety shows, such as "extreme Challenge 4", "Running Man 2" . "N generation" is still the center of hot topics. At the same time, the network variety shows also expressed a strong vitality. Some online variety shows such as "Produce 101", "Idol trainees" and "China's New Rap" are popular among young people. Variety shows not only grow in number, but also the innovation of content. "yearning for life", "three yards" and other slow variety arts stand out, showing the audience warmth and romance of pastoral life. The popularity of cultural programs such as "National Treasure" and "readers", which showed the Chinese traditional culture, has also continued to rise, and the audience can enrich cultural knowledge in addition to leisure.

2017-2018 Variety Show Types Ranking

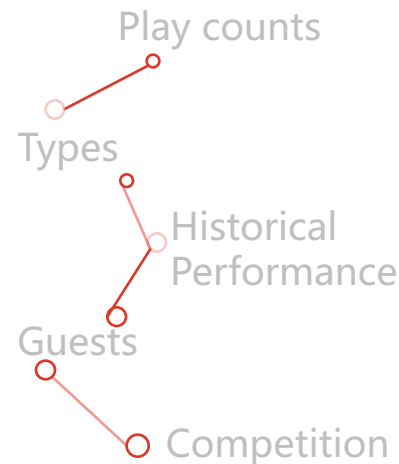


The Meaning of Predicting Viewership

- With the increasing number of variety shows, more and more brands choose to sponsor variety arts in order to enhance brand awareness, so as to increase sales. When brand sponsors consider whether to sponsor a program, the first consideration is the popularity. The higher the ratings, the greater the exposure of the brand, which means the higher possibility of increasing sales. Therefore, it is very important for a sponsor to predict the possible viewing of an upcoming variety show.
- Research has established a set of reasonable methods to predict the viewership of the show by its own database. Considering the types of the show, the historical performance of the program, the guests effect, the broadcast time of the program, the competition of variety show and so on, the multiple regression statistical method is used to infer the possible viewership of the show in order to provide a strong basis for sponsors to make decisions.

PART TWO

Predictive Variable Processing

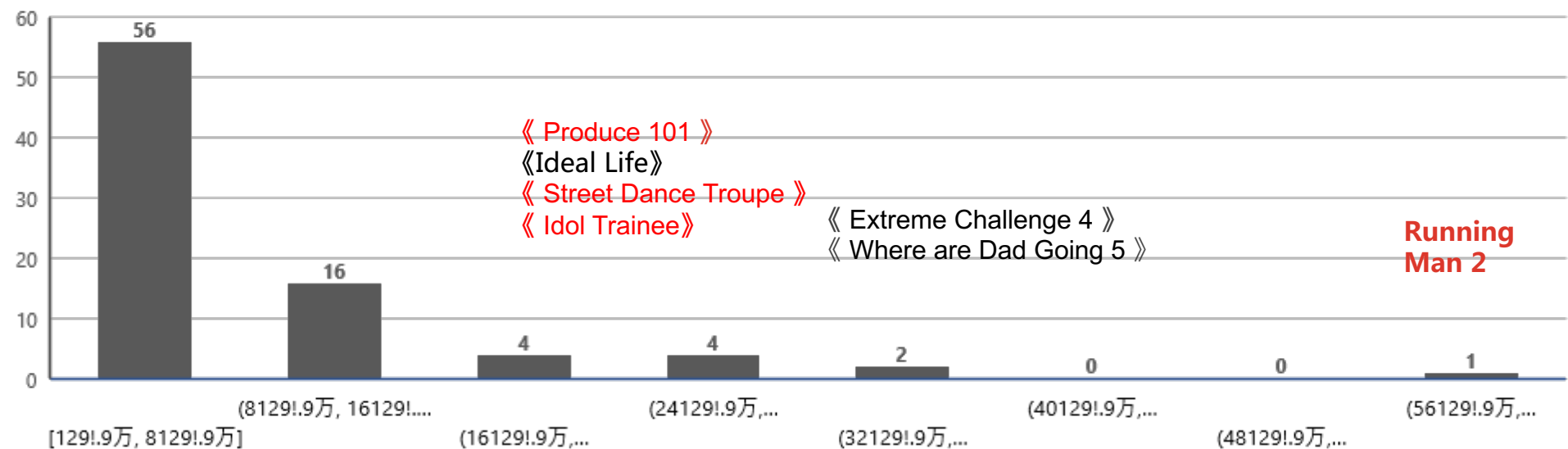


Predictive Variable Processing-Dependent Variable

- **Sample: 83 quarterly broadcasts in the IResearch database, broadcast from October 2017 to October 2018.**
- **Viewership :** the average amount of a single episode during the broadcast period of each show, ensuring that the show of different broadcast periods are still comparable.
- 20 shows received an average of more than 10 million play counts per episode, occupied 24%. "Running Man 2", "Extreme Challenge 4" and "Where are Dad Going 5" are in the top three. Net variety shows presented huge potential, "Produce 101", "Idol Trainee", "Street Dance Troupe" single episode ratings are in the top ten.

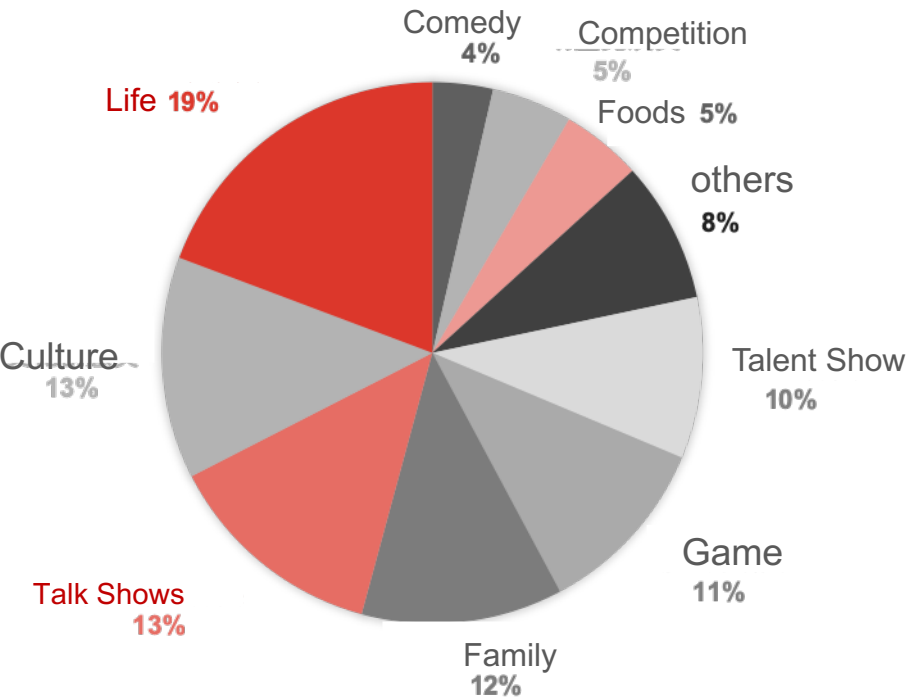
Min Play Counts	Median Play Counts	Avg Play counts	Max Play Counts
129867	4495539	7901467	60766357

Histogram of Average Play Counts for Every Episode

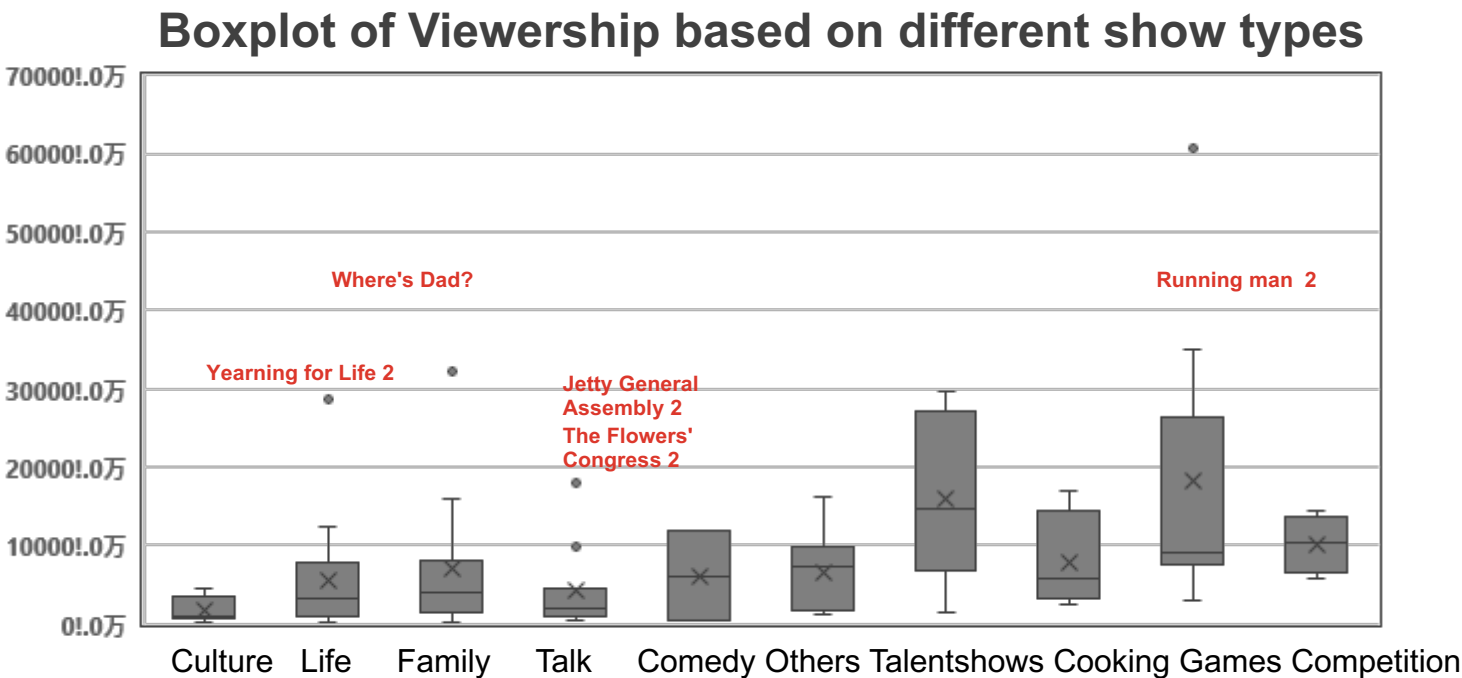


Entertainment Shows Viewership Prediction Data Processing – Show Types

- **Sample:** 83 completed quarterly broadcasts in the iResearch database from October 2017 to October 2018.
- 83 programs are divided into 10 categories based on their contents and playing forms. In the past two years, life observation and other slow versatile arts such as "yearning for life", "three courtyards", "happiness trilogy" and other programs are loved by the audience, which means the new programs are emerging. At the same time, due to the corresponse for radio and television bureau, more and more cultural creativity programs such as National Treasure, "Long Readers" and so on began to emerge.
- It can be seen from the histogram that the selection of TV shows, comprehensive games and star rehearsal programs are significantly higher than that of cultural creative programs and life observation programs. "Yearning for Life 2" shows bright performance in slow versatility, much higher than programme category average viewing level.



Note: Other programs include scientific knowledge and machine sports.

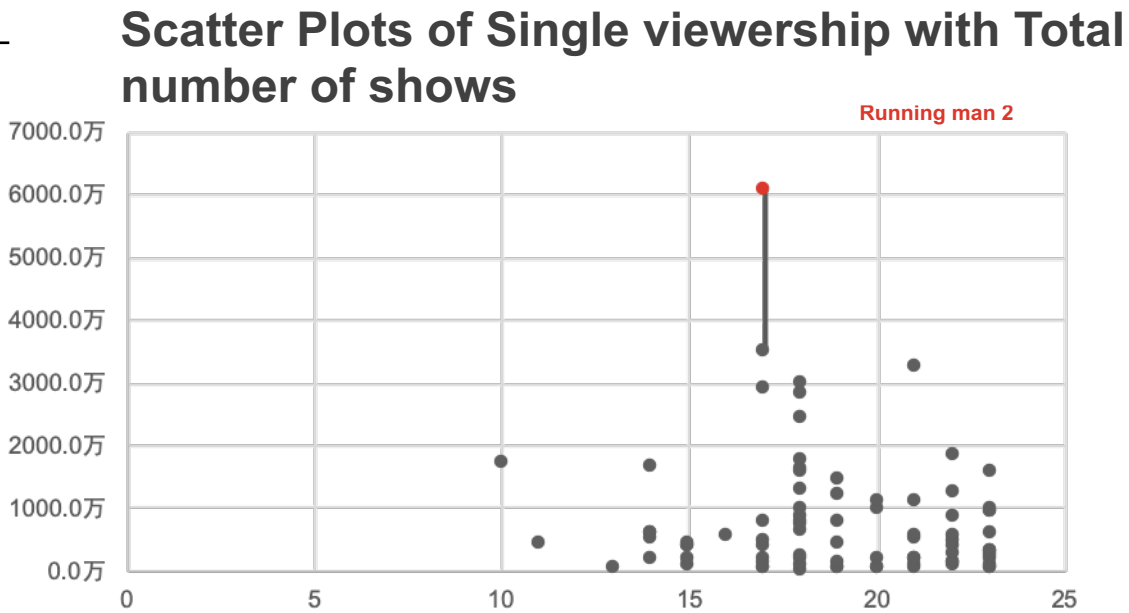
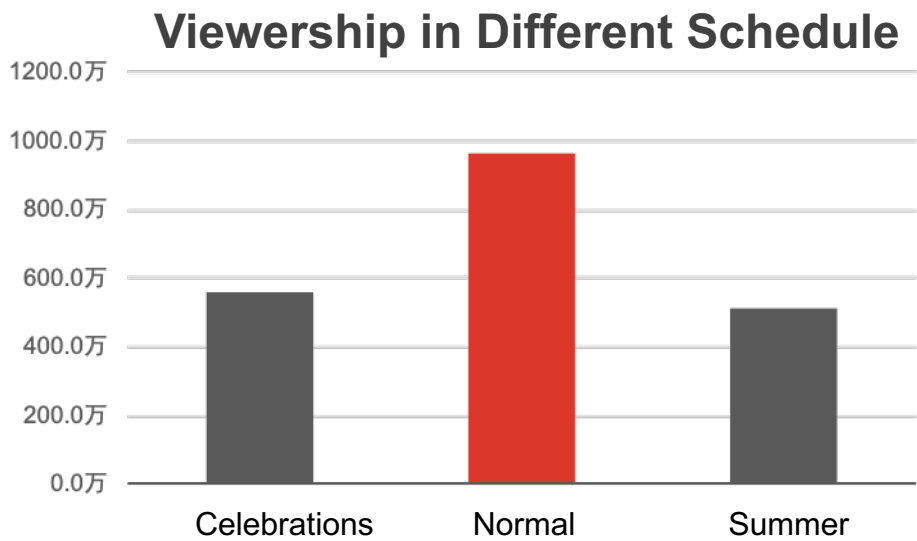


Entertainment Shows Viewership Prediction Data Processing - Competitive Factors

- **Sample: 83 completed quarterly broadcasts in the iResearch database from October 2017 to October 2018.**
- On average, the number of shows played on normal days are higher than summer and celebrations
- From the scatter chart, we can see that there is no obvious relationship between the total number of shows and the viewership in a specific period.

Time Period	Show Schedule	Number of Shows
Early July to early September	Summer	14
End of November to early March of the following year	Year of celebration	20
Early March to late June, early September to late November	Normal	49

Total number of shows per week during Running Man 2 is playing			
Minimum amount of plays	Median	Average amount of shows	Maximum amount of play
10	17	19	23



Entertainment Shows Viewership Prediction Data Processing - Guests Factors

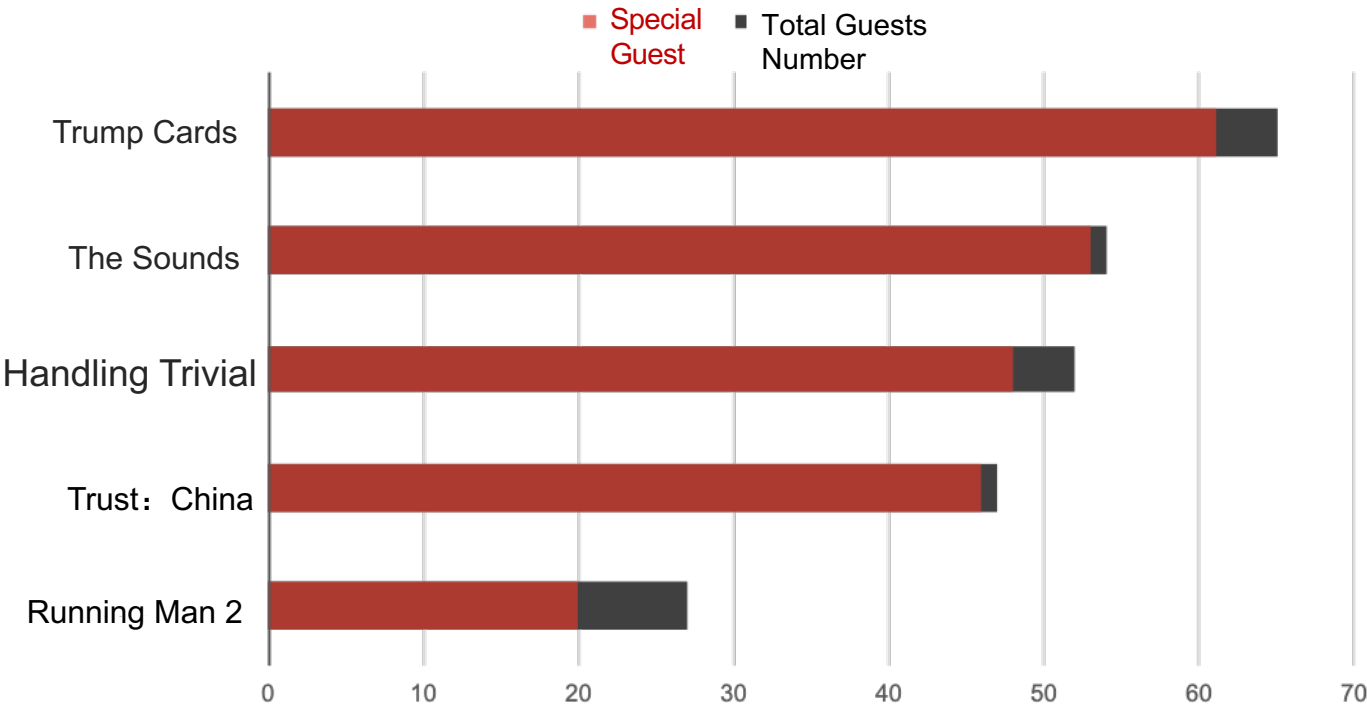
- Sample: 83 completed quarterly broadcasts in the iResearch database from October 2017 to October 2018.
- Among the 83 shows, the average number of invited guests per show was 23, which included both fixed and flying guests. More and more shows use a number of fixed guests plus a large number of flying guests mode, which can attract more attention.
- In this paper, the ranking stars are from Baidu index and Sina Weibo index, which used to reflect the popularity of the star, and we give different weights for fixed guests and flying guests.

Different stars have different number of fans and hot topics, so this paper adopts Baidu index and Weibo index to measure the influence of a star.

Baidu Index is based on Baidu's massive Internet users behavior data, which can reflect Baidu users' search behavior.

Sina Weibo Index: Weibo is the main platform of star activity. Sina Weibo Index weighs the comprehensive index of star reference, reading and interaction, which can reflect the star's popularity on Weibo.

Guests Number Top 5



Entertainment Shows Viewership Prediction Data Processing - Historical Performance

(1) "N-Generation" Shows

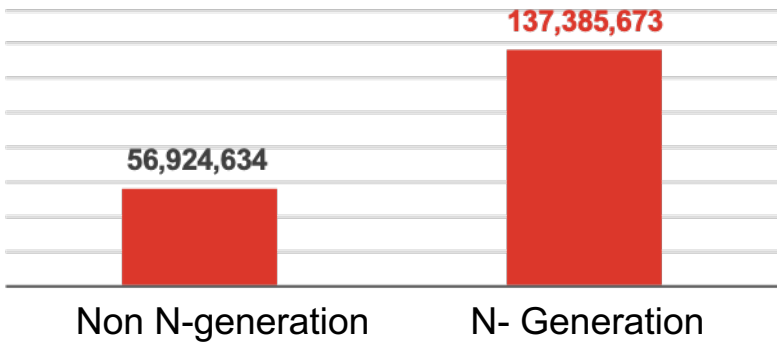
- In the closing season of October 2017 to October 2018, Top 5 are still the "N Generation" TV shows. Since its launched in 2014, Running man has been in the leading position in a variety of arts programs with its excellent production team and a team of stars. But because of the increasing number of other shows in recent two years, the audience shunts obviously, even these popular shows , the ratings also dropped compared with the past.

Finalization of the Quarterly Broadcasting Series TOP3

Running Man season 2	NO.1
Extreme Challenge 3	NO.2
New Chinese singer 2	NO.3

The finals of the season broadcast of the variety of art programs, the first five are all the "N generation", but some online shows "Creation 101", "Idol Trainer" and so on are also popular and attracted many audience .

N-Generation Vs. Non N-Generation Viewership



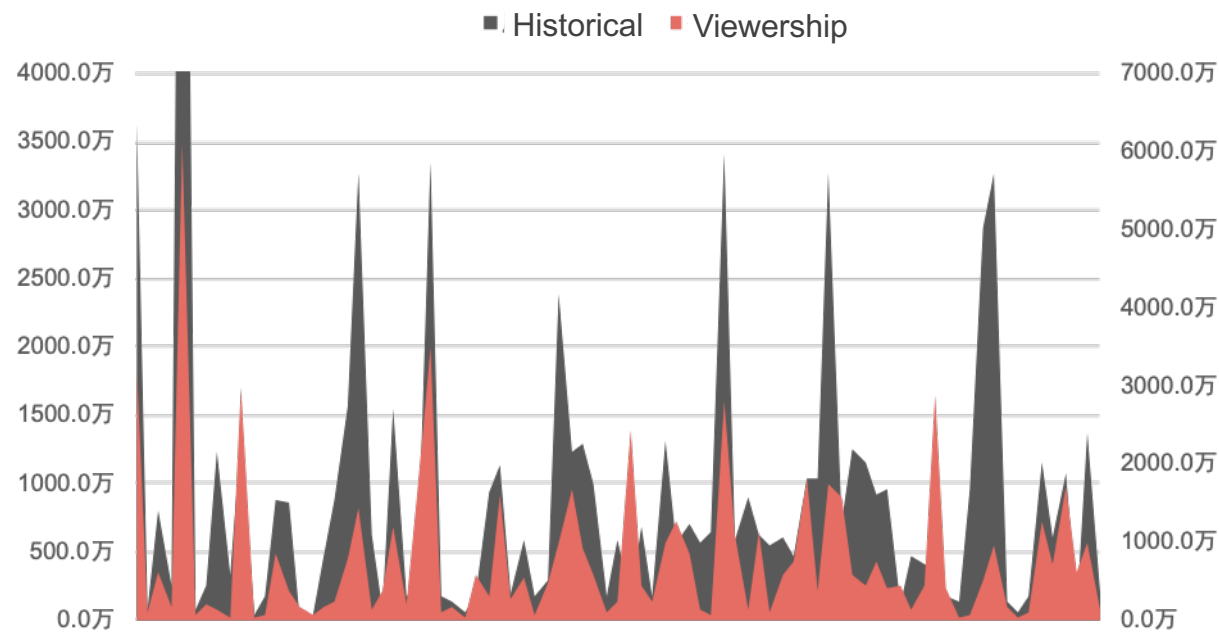
The average viewing rate of the “ N Generation” show is significantly higher than that of the “Non -N Generation” program. " N Generation” show is still the hottest and has a large number of loyal audiences.

Entertainment Shows Viewership Prediction Data Processing - Historical Performance

(1) "N-Generation" Shows

- Sample: 83 completed quarterly broadcasts in the Ari database from October 2017 to October 2018.
- The historical performance of the " N Generation" shows can be shown by viewership of the previous seasons. When the performance of the previous season is good, the performance of this season is very high. As a result, the historical performance of shows with N generation can be measured by the viewership of previous shows.

Viewership with Historical Performance



The Test of the Correlation between the Quarterly Broadcasting Volume and the Previous Quarterly Broadcasting Volume

		Relativity	
		Historical broadcasting	Broadcast quantity
Historical broadcasting	Pearson correlation	1	.767**
	Significance (two tails)		.000
	Number of cases	83	83
Broadcast quantity	Pearson correlation	.767**	1
	Significance (two tails)	.000	
	Number of cases	83	83

** .At 0.01 grade (double tail), the correlation was significant.

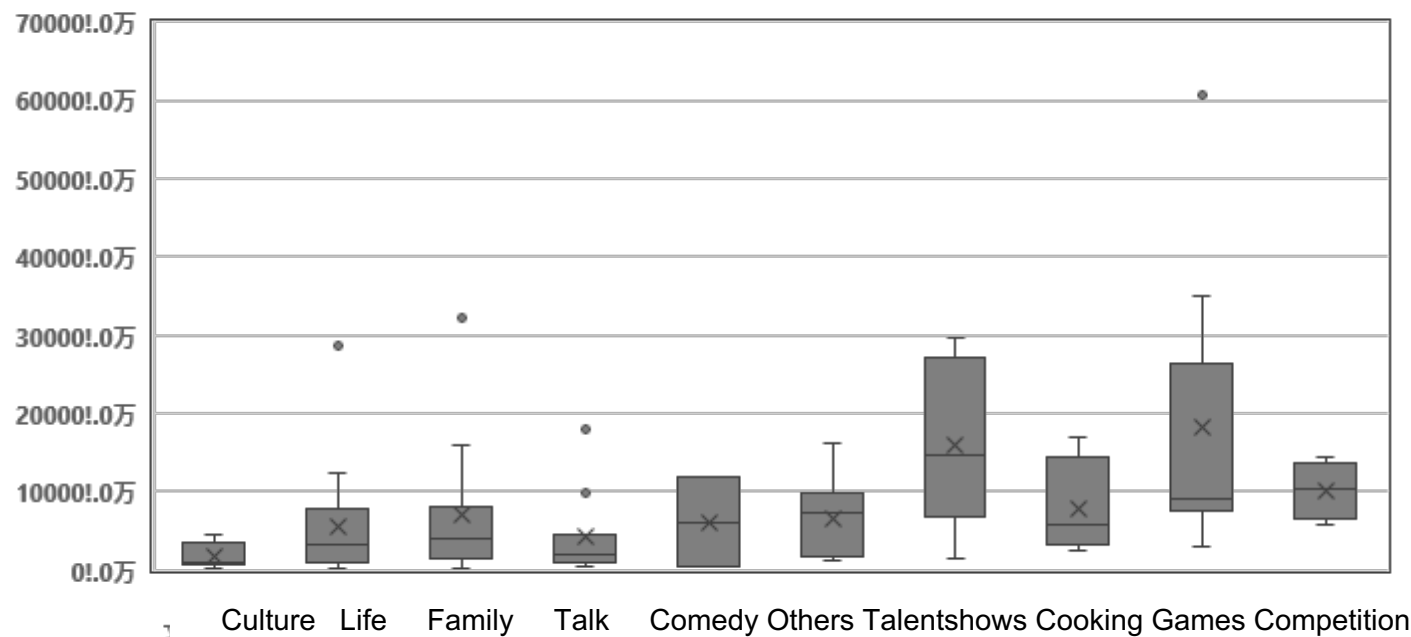
Entertainment Shows Viewership Prediction Data Processing

- Historical Performance

(2) non N-generation

- Some programs are broadcast for the first time, and no historical program data is available. As a result, it is possible to take into account the viewing of similar programs that have been done by its production team as a historical representation of the program. If the program has no history data, and the production team is the first production, you can refer to the previous average.
- Once again, there is a clear gap between watching different types of programs except for some extreme programs, and this data is considered as a historical representation of the program.

Boxplot of Viewership based on different show types



Multi- TV Platform Variable Processing - Play Platform Influence

- **Sample: April 2017 - June 2018 per video platform**
- The monthly broadcast amount of each show can reflect the influence of the platform on some extent. The higher the average number of monthly broadcasts, the more loyal members and audiences, the more likely it will be to be seen. Using the data available in the iResearch database to calculate the influence of each platform, Tencent video has the highest influence because it has the highest monthly average amount of broadcast, the second is Eichi, Youku. These three play platforms account for 95.4% of the total. Other platforms such as Mango TV, Sohu video and so on account of only about 1% of the amount of broadcast, the influence is much lower than the first three platforms.

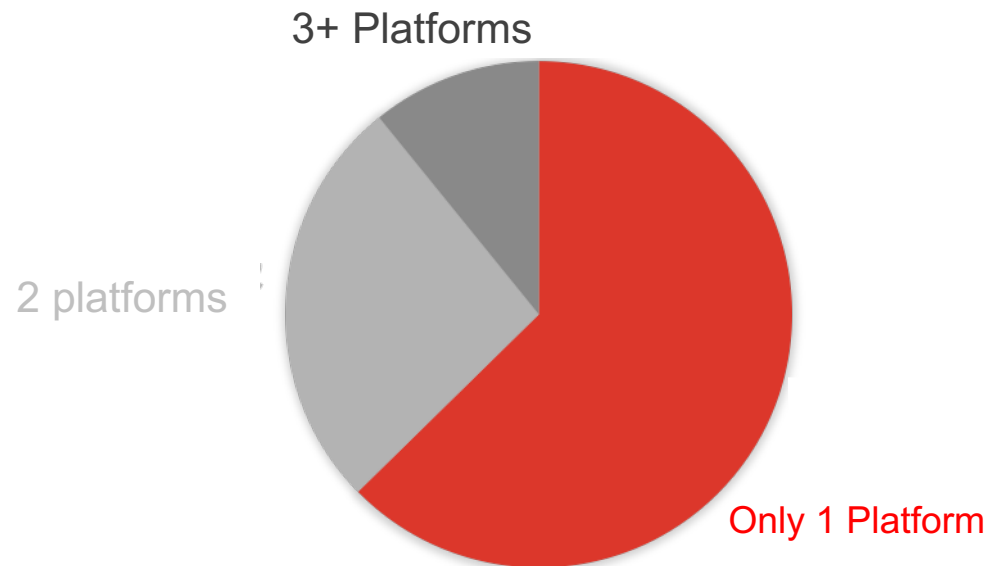
Play Platform Impact Ranking

Playback platform	Influence ranking
Tencent video	NO.1
iQiyi	NO.2
Youku	NO.3
Mango TV	NO.4
Sohu video	NO.5
Cohesion video	NO.6
LeTV video	NO.7
Trendy video	NO.8

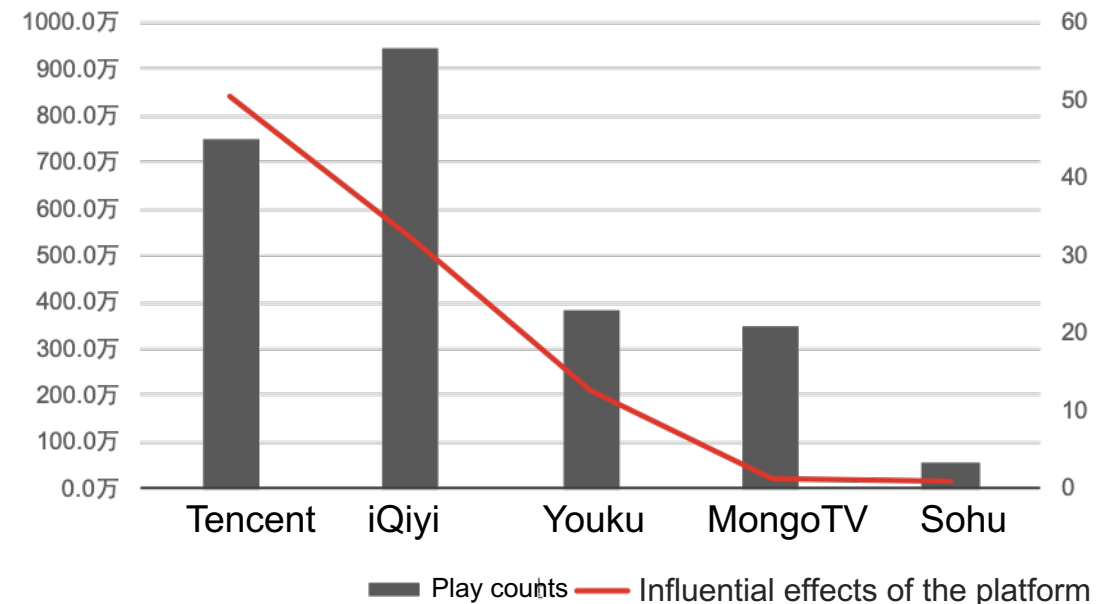
Multi- TV Platform Variable Processing - Play Platform Influence

- **Sample: 83 completed quarterly broadcasts in iResearch database from October 2017 to October 2018.**
- The number of viewers who choose to watch a variety of shows on Internet is increasing because of the limited time, location and popularity of mobile devices. At present, the main network video broadcasting platforms are iQiyi, Tencent video, Youku and Mangol TV. Because of the limitation of copyright, the multi-media shows are not broadcast on all platforms, the model considers that the broadcasting platform may have some influence on other shows.
- Of the 83 programs, 52 were broadcast on a platform, 22 on two platforms, and only 9 on all platforms. In solo programmes, the lower the influence of the platform, the worse the solo programme is.

Broadcasting Platforms Numbers

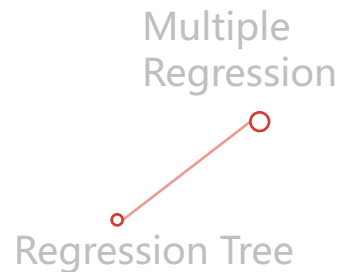


Influence of the Platforms with Viewership for Single Platform Show



PART THREE

Viewership Prediction Model



Viewership Prediction Model - Linear Regression

- Correlation analysis: Correlation analysis of variables, there is a significant correlation between broadcast volume and Baidu index, Weibo index, and program historical performance. The correlation coefficient is higher than 0.4, and the correlation with competition and platform is not high. The coefficients are all less than 0.2.
- In the linear regression model, in order to ensure the normality of the residual and the homogeneity of the variance, the dependent variable, historical performance and Baidu index are all logarithmized.

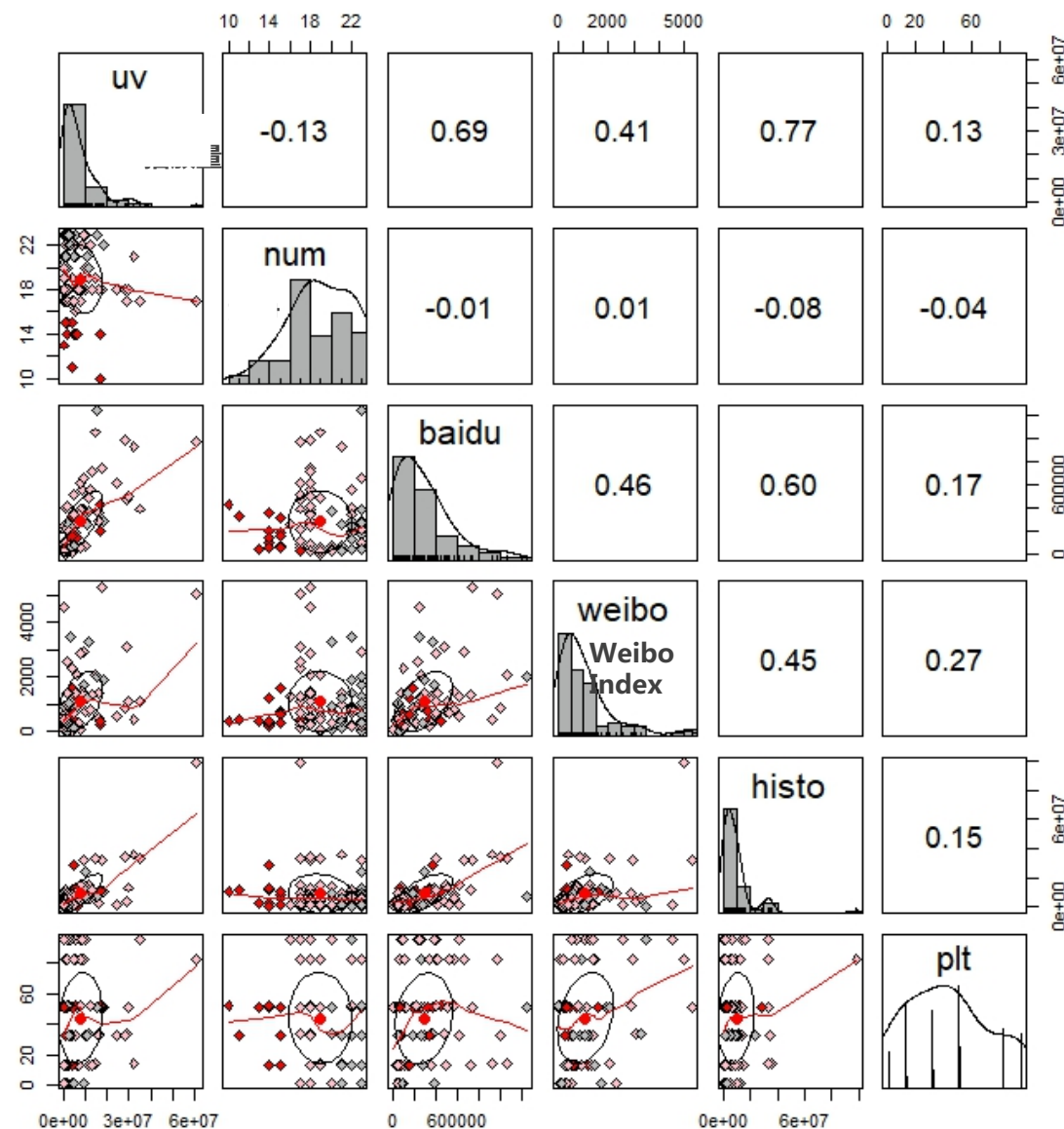
Adjusted
R2 : 0.556

Regression Model for Viewership

	Non-standard Coefficient		Standard coefficient		
	B	Standard error	Beta	t	significance
(Instance)	1.926	1.326		1.453	.150
Inhist	.416	.091	.388	4.587	.000
Inbd	.565	.099	.484	5.720	.000

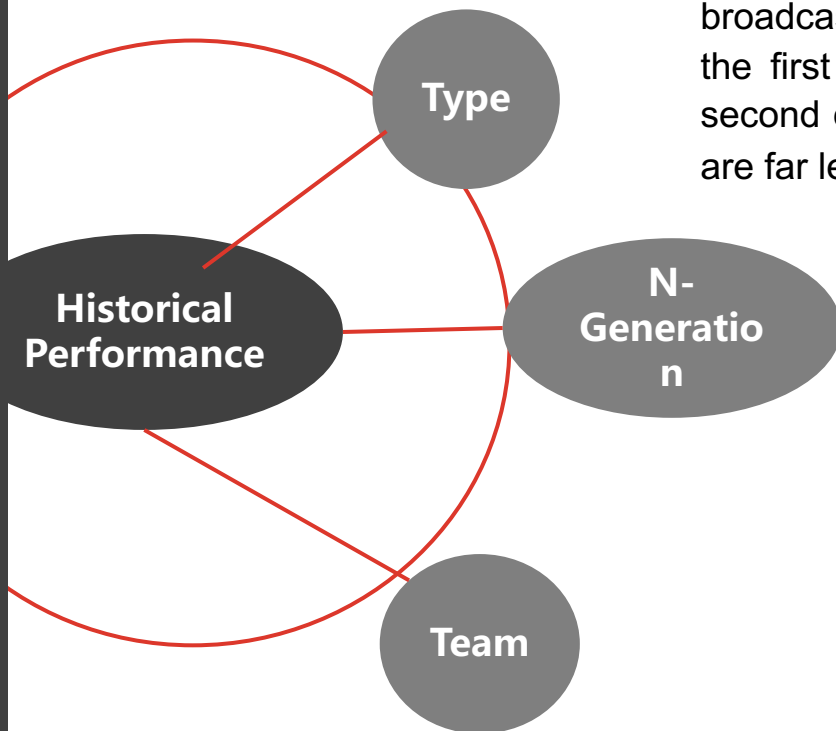
	2.5%	97.5%
intercept	-0.82	4.27
Historical performance logarithm	0.25	0.6
Baidu Index Logarithm	0.37	0.76

Regression results: The adjusted R-square of 0.556 indicates that the explanatory power of the model is above 50%. The viewing of the program is only related to the historical performance of the program and the star effect of the current program. The fixed star Baidu index factor, the program's historical performance is 1% higher, and the program performance of the program is increased by 0.416%. Similarly, when the program's historical performance is consistent, the current star effect is increased by 1%, and the program performance is increased by 0.565%. The confidence intervals for the regression coefficients of the variables at 95% confidence are [0.25, 0.6], [0.37, 0.76]

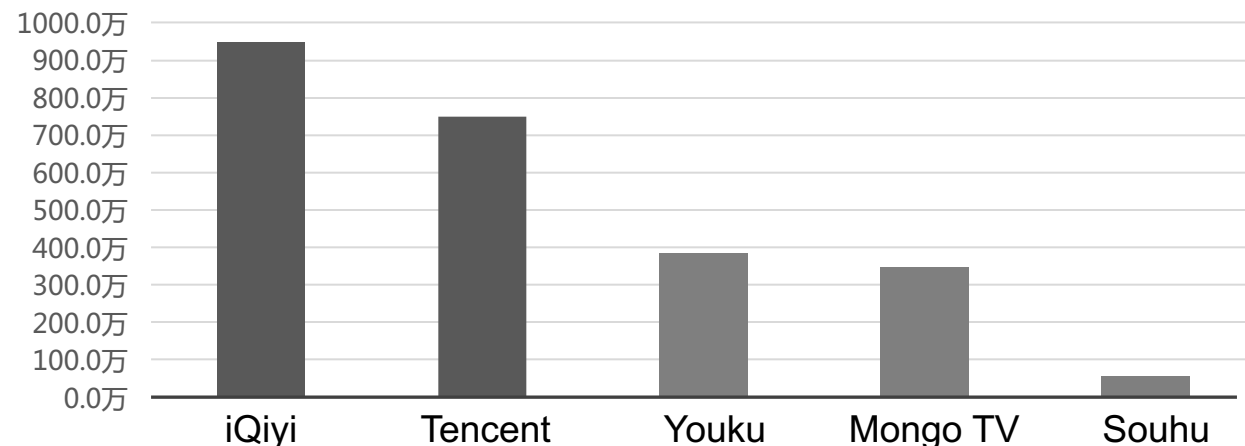


Rating Prediction - Linear Regression

- The historical performance of the program takes into account the type, the "N generation", the production team and other factors, which has a strong reference value for the upcoming variety show, and reflects the possible rating of the program to a certain extent. The star effect in the current period is another major contributor to the viewing of the program.
- When a program is completely innovative, there are fewer data to refer besides the invited guest, so the viewership has uncertainty. For example, CCTV's "Letter China", even if many guests are invited, but the ratings are still not optimistic, and "National Treasures" has considerable ratings. For the first production of a production team, the program is too novel, the only thing that can be referenced at this time is the invitation factor and the influence of the broadcast platform. Once again, it can be found that the iQiyi and Tencent platforms belong to the first echelon. The average broadcast volume of the program is higher than that of the second echelon's Youku and Mango TV, while the remaining platform average single episodes are far less than the top four.

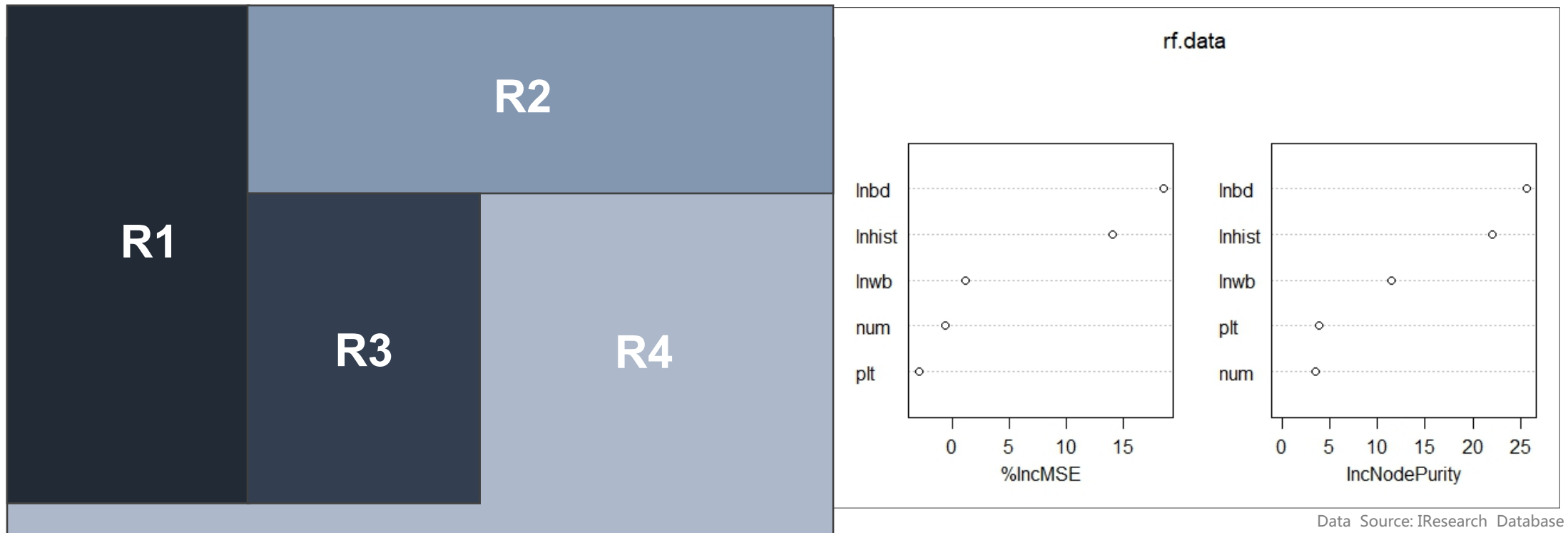


Comparison for Average Play Counts on Different Platforms



Rating Prediction – Regression Tree

- In addition to the method of multiple linear regression, the Regression Tree can also be adopted. According to a certain method, the hyperplane composed of independent variables is divided into mutually disjoint planes, and the program to be predicted is placed in the region whose characteristics meet the requirements. Then, the regression can predict the possible average value of the program.
- The prediction results show that the Baidu index for stars and the historical performance of the program are the two most important variables for predicting the ratings. The results are consistent with the methods used previously. Therefore, when measuring the possible viewing of a program, we should focus on the guest lineup of the program invitation, the historical performance of the program, the type of program, and the production team of the program.



PART FOUR

SUMMARY

Summary

In the past two years, the variety market has been very very hot, showing a blowout trend. In order to attract the attention of the audience and win the market, constantly innovating is necessary. At the same time, sponsors also value the variety market and more and more brands start to sponsor variety shows. The ratings of variety shows are not completely random, but there are traces to follow, using appropriate experience and methods to make a reasonable prediction of the ratings of the upcoming variety shows, which is not only feasible for the producers of the show, but for brand sponsorship to make valuable decisions.

- Via quantify historical performance the “N-generation” program and the current star level, the rating of this program can be estimated. In general, the better the performance of the program is, the higher the production ability is, maintaining a high level of rating; for programs that do not have "N generation", referring to the historical data, and the performance of production team, can bring an approximate estimate of the program ratings.
- For completely innovative programs——new production teams and new types or directions, you should mainly refer to the star level and the upcoming video platform. Different platforms have different daily average visits. Generally speaking, Tencent Video, iQiyi, the platforms with large users base, will increase the probability to receive higher ratings.