A Study on the Consumption Pattern of OTT Services During Lockdown in Delhi NCR

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Abstract:
Background: The consumption for Over-the-Top (OTT) platforms have considerably increased during lockdown, which includes Netflix, Amazon Prime, Hotstar, YouTube search engine; as people in the lockdown were restricted at home, as everything got online. This study tries to evaluate the factors effecting numbers of hours watched during lockdown by the residents of Delhi-NCR; there have been reports on the increased OTT platforms but no proper research has been done in India to find out the variables for the same. The significance of the study is to feature the extent of OTT stages and the degree of their utilization among the individuals. This examination will help us in seeing how OTT stages have assumed control over the universe of computerized amusement during a pandemic. It will assist us with seeing how OTT has inorganically developing and slowly taking over different mechanisms of amusement.

Materials and Methods: The study included a total of 312 participants, where 143 were male and 169 were female and also 266 were from urban areas and 46 were from rural or semi-urban areas. The study has collected data from Google forms and analysis has been done by using R software, where a regression model was run to find out the variables affecting hours of OTT watched during lockdown on some independent variables.

Results: The demographic variables, age (p<0.15) and gender (p<0.05) were statistically significant variable and were important factors for determining number of hours of OTT watched during lockdown. Further, females watched less OTT than males by 3.8 hours in a week in the lockdown.

Conclusion: The OTT consumption has increased during the lockdown, it is more important for the businesses to know the real cause, so that they can specially target those people to increase their market share or achieve their targets.

Key Word: Over-the-Top (OTT), Lockdown, Emerging-Industry, Internet, Econometric Analysis.

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I. Introduction

The research deals with the changes in the consumption platform of OTT services that are over the top services. This topic belongs to an extremely vast industry and that is the entertainment industry, the industry which gives us the happiness and also make us smile and help to overcome our boredom. Entertainment is a form of activity that holds the attention and interest of the audience or gives them the happiness and the pleasure. We can take it as an idea or a task but it is more likely to be one of the activities or events that have developed over thousands of years with the purpose of getting the audience’s attention. In today world entertainment is one of the most leading industry which includes the sub-fields of theatres, films, arts, series, dance, radio, television, documentaries, reality shows etc. These days the work and over burden has made people so stressed that they try to take out sometime to watch something and get the entertainment to reduce the stress.

An over-the-top media services that is also known as OTT media services is a streaming media service which is directly offered to the people through the internet without the need to travel to a particular or specific place. The world today can be known as the world of millennia that is the generation of today’s youth. They do what their heart says and they neither listen to their elders nor their other well-wishers. The number of OTT players is rising rapidly in India and all around the world. The number of OTT players has increased from 9 to 32 from 2012 to 2018 respectively. India is the second largest subscription TV market in the Asia pacific region in terms of the number of
subscriptions in the TV household which reached a number of 154.3 million in the year 2016 and this is expected to increase to 166.9 million by the year 2021.

The technology is changing with clicks. From the banking methods to the e-wallets and what not, with one click everything is available at your door steps.

Those days are gone when the people used to make queues outside the cinema or theatres to collect the tickets to watch their favourite movies and shows. Now just with their phones they can book their tickets from anywhere whether it’s their homes, office or school.

The OTT services has been enabled by technologies advancements such as smart phones, super expeditious IP networks, innovative services etc. This premium concept lures consumers.

There are also so many benefits of the OTT services that are:
1) The OTT services are cost efficient.
2) The OTT services are convenient.
3) The OTT services have data tariff plans.

Not only is this but the time duration spent on the OTT applications incrementing day by day without any delay. This has astringent repercussions on the lifestyles of the youth, both health and vocation.

II. Literature Review

The ongoing COVID-19 crisis has forced the multiplexes to shut down. As a result, the production houses are now releasing the onto OTT platforms directly. This is a concern amongst the multiplexes as their customers might trade the theatre visit with the new online medium. INOX and PVR, both issued a public statement reacting to this issue. According to experts this is solution to a short-term need of the film industry which getting by financial difficulties. It is a win-win situation for OTT players who needs fresh content and the filmmakers who had their production ready but unable to release (Sharma, 2020).

According to Kaushal, about 80% of the new people has joined the OTT platform in the lockdown. Due, to the lockdown people have been forced to stay at home and with them being locked inside their home they have no other options left for entertainment than TV and digital. With the cinema halls and malls closed people are forced to find other platforms for content. OTT players like ZEE5 and ALT Balaji saw growth in their subscriber bases (Kaushal, 2020). The Internet is changing the trend of Indian Cinema very Fast. Reduced price of internet services lay the foundation for increase in OTT services like Netflix, Hotstar, Amazon Prime and Alt Balaji. Many ventures are producing video content solely for these OTT services. These channels are changing the way of Indian Television and Cinemas (Singh, 2020).

The timing of media consumption has produced an interesting result, that is, OTT ratings are divided into multiple categories based on age group and content. The morning time is mainly watched by the elderly, while the afternoon time is the time most watched by the middle-aged and the elderly, and the night time is for the elderly or young people. With the increasing penetration of the Internet and mobile phones, the prospects for OTT are bright. Although people have begun to invest a lot of time and money on OTT platforms, it is difficult to say that it will replace TV as the main video consumption platform (Dasgupta, and Grover 2019).

This article focuses on the deification of OTT in India, and their strategies or different ways to build and gain greater popularity. The 4 elements mentioned in this article are Focus on local content and needs -This means that OTT should pay more attention Local content is provided because people are very interested in consuming content in their native language. Supported by data in the KPMG report, which stated that 64% of Indian digital consumers prefer to consume content in Hindi, followed by Tamil Telegu and Tamil Telegu. Bengal. In order to satisfy the audience and communicate with the audience, it is very important to show more regional performances (Dixit, 2020).

This article put light on idea about the relationship of TV and OTT in Indian market and the huge scope for it. When it comes to subscription television India is the second largest market in the Asia pacific region. It is expected to observe a double-digit growth in television advertising by 2020. The digital development has led to exponential growth in the number of TV channels. The television penetration in India is 61%. All sorts of content providing or entertainment platforms have rolled their eyes towards the Indian market due to the promising scope of the Indian television market. With the relaxation in the FDI to 100% in all the area of the TV industry except the news and current affairs, all the OTT players and providers have started taking a keen interest in the Indian OTT market (TV) (Basu, 2020).

According to their research the OTT video streaming service will continue to spread its feet and it is going to have a huge impact on our traditional medium like television and Cinema Hall. The strong attachment of OTT to the audience in the lockdown period has further confirmed this fact. Smartphone penetration, International

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collaborations between media moguls and digital quality of the medium. Cost effectiveness and access liberty is also one of the reasons behind growth of streaming media in India. In other findings about the most viewers dynamic watching habits may change the watching experience and it also effect the footfalls of cinema hall all over the world. As per study shows viewers have equal way of thinking about the future of cinema hall. There may be decrease or may be not in the footfalls of cinema hall after this lockdown period get over, it all depends on the viewers also who are still in dilemma about this (Patel, Khadia, Awasya, 2020).

The OTT market is a complex space dominated by three powerful players-Netflix, Amazon Prime, Hulu-Big 3 If they focus on providing curated content to limit account sharing, get the right price and pass Improving customer relationships to reduce customer churn will cause delays. The survey shows that price is one factor determining sales of OTT services but the content also plays and important role for most of the customers. (Purdy, 2018).

According to the analysis, successfully completed the study on the emergence of OTT platforms and their future scope during the pandemic. The hypothesis that the consumption of OTT platforms has increased significantly during the pandemic has been proven correct. Because people have begun to use OTT more and more in lock-in. Facts have proved that OTT platforms have experienced tremendous inorganic growth by occupying market share of other platforms. Although researchers cannot prove that OTT will go beyond this hypothesis. This shows that even if OTT platforms cannot replace movie theatres, they will certainly create their own market segments (Parekh, 2020).

III. Material And Methods

We raised various research questions for our study which helped us to frame our objectives and hypothesis. The research questions raised were:

- How is age and gender related to consumption of OTT services?
- Does no. Of hours spent watching OTT influence the consumption pattern?
- Does no. Of connections has a role to play in understanding the consumption behavior?
- Does occupation and area of resident affect the OTT consumption pattern?
- Are consumers indifferent between cinema and OTT?

OBJECTIVES:
- To determine which demographic variables, influence the consumption of OTT platforms.
- To find how no. Of connections influence the OTT consumption pattern during lockdown
- To study how no. Of hours influence the OTT consumption pattern.
- To determine the preference of consumers between cinema and OTT.

HYPOTHESIS

- Ho: There is no significant difference on the consumption of OTT services on the basis of gender
- Ho: There is no significant difference on the consumption of OTT services on the basis of occupation
- Ho: There is no significant difference on the consumption of OTT services on the basis of age
- Ho: There is no significant difference on the OTT consumption pattern on the basis of area of residence.
- Ho: There is no significant difference in the consumer preference between cinema and OTT.
- Ho: There is no significant difference in the consumption of OTT services on the basis of no. Of hours spent on watching.

SAMPLING METHOD AND SIZE

The method of primary data collection has been used, using the snowball sampling technique. The responses were received from 330 people residing in Delhi NCR via questionnaire from the age group of 16-60+. After checking the authenticity of the data responses and filtration of the data, 312 responses were used for the analysis.

INSTRUMENTS AND METHODS USED FOR RESEARCH

The questionnaire was divided into segments like demographics (gender, age, occupation, family income and area of residence), and OTT consumption behaviour which includes questions like the OTT platform preferred, no. of hours spent and questions related to comparison of OTT platforms to cinema. The data has been analysed using MS Excel, SPSS and R.

LIMITATIONS OF THE STUDY

- Data collection was restricted to people living in Delhi NCR.
The major limitation of this study is due to time constraint and also a limited group of people has been taken as respondents. The use of questionnaire as the mode of data collection may have certain limitations.

IV. Result

Here, the first graph shows the age of the respondents. The maximum respondents lie in the age group of 21-23 years (143 respondents) constituting 45%. Of the total responses. The second graph shows the weekly hours spent by respondents on watching OTT. Here the maximum responses lie in the range 21-28 hours per week, which signifies 116 respondents (which means around 40% of the respondents) spend this much amount watching OTT on weekly basis. And the means hours spent is 25.18 hours.

<table>
<thead>
<tr>
<th>GENDER OF THE RESPONDENTS</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>143</td>
<td>45.8</td>
<td>45.8</td>
<td>45.8</td>
</tr>
<tr>
<td>FEMALE</td>
<td>169</td>
<td>54.2</td>
<td>54.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OCCUPATION OF THE RESPONDENTS</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OTHERS</td>
<td>134</td>
<td>42.9</td>
<td>42.9</td>
<td>42.9</td>
</tr>
<tr>
<td>STUDENT</td>
<td>178</td>
<td>57.1</td>
<td>57.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREA OF RESIDENCE</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RURAL/SEMI</td>
<td>46</td>
<td>14.7</td>
<td>14.7</td>
<td>14.7</td>
</tr>
<tr>
<td>URBAN</td>
<td>266</td>
<td>85.3</td>
<td>85.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>312</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

The above three graphs show the frequency of 3 demographic variables namely gender, occupation and area of residents of the respondents. Out of 312 responses, 54.2% comprise of female responses (169 responses) while there at 143 males. On the other hand, out of the total respondents, 312 respondents are students while only 42.9% of the respondents are working or employed. Most of the respondents i.e. 85.3% reside in the urban areas of Delhi NCR.
This graph shows that an appreciable number of users of OTT platforms pay honest and full subscription for the OTT services with number of devices being between 1-4. 77% of the respondents i.e. 243 out of 312 respondents fall in this category. This clear is an indication of more the number of real and honest users, more is the revenue generated by OTT producers and firms.

Here, the family income has been mentioned in thousands per month. As we can see in the graph, the maximum concentration lies in the range 25000 to 50000 rupees per month comprising around 80 responses and the mean monthly income of the responses collected is 88,600 rupees.

**Mathematical Model:** A mathematical model is a set of mathematical equations. We have used one dependent and more than one independent variable and have formed only a single equation, so we have a single-equation model. There is exact relationship between OTT consumption (dependent variable) with all the independent variables taken.

**OTT consumption**

\[
\begin{align*}
&= \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Family Income} + \beta_4 \text{Occupation} \\
& + \beta_5 \text{Area of Residence} + \beta_6 \text{Start New OTT} + \beta_7 \text{No. of Connections} \\
& + \beta_8 \text{Preferred Waiting (Always)} + \beta_9 \text{Preferred Waiting (Sometimes)} \\
& + \beta_{10} \text{Preferred Waiting (Time & Money)} + \beta_{11} \text{Movie release before OTT} \\
& + \beta_{12} \text{Before Lockdown (Weekly Hours)} + \beta_{13} \text{OTT for Entertainment} \\
& + \beta_{14} \text{Youtube for Entertainment}
\end{align*}
\]
**Econometrics Model:** An Econometrics model is similar to the mathematical model but the relationship between dependent variable and independent variables shows an inexact relationship because of the random error term which is usually present in the real world. We sometimes not include certain variables in the model because they are too small to be measured or we get less significant results if we add them. The random error term is usually denoted as $\epsilon_i$.

\[\text{OTT consumption} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Family Income} + \beta_4 \text{Occupation} + \beta_5 \text{Area of Residence} + \beta_6 \text{Start New OTT} + \beta_7 \text{No. of Connections} + \beta_8 \text{Preferred Waiting (Always)} + \beta_9 \text{Preferred Waiting (Sometimes)} + \beta_{10} \text{Preferred Waiting (Time & Money)} + \beta_{11} \text{Movie release before OTT} + \beta_{12} \text{Before Lockdown (Weekly Hours)} + \beta_{13} \text{OTT for Entertainment} + \beta_{14} \text{YouTube for Entertainment} + \epsilon_i\]

\[\ln(\text{formula} = \text{Hours Spend on OTT (Weekly)} - \ldots, \text{data} = \text{OTT})\]

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficient</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.124</td>
<td>10%</td>
</tr>
<tr>
<td>Gender (F=1)</td>
<td>-3.888</td>
<td>1%</td>
</tr>
<tr>
<td>Start New OTT</td>
<td>4.493</td>
<td>0.1%</td>
</tr>
<tr>
<td>Preferred Waiting (Always)</td>
<td>-3.665</td>
<td>10%</td>
</tr>
<tr>
<td>Preferred Waiting (Sometimes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preferred Waiting (Time &amp; Money)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Movie release before OTT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before Lockdown (Weekly hours)</td>
<td>0.8400</td>
<td>0.1%</td>
</tr>
<tr>
<td>Use for Entertainment (OTT)</td>
<td>9.511</td>
<td>0.1%</td>
</tr>
<tr>
<td>Use for Entertainment (YouTube)</td>
<td>6.298</td>
<td>1%</td>
</tr>
</tbody>
</table>

\[\text{OTT Consumption} = -1.567 + 0.124 \text{AGE} - 3.888 \text{Gender (F = 1)} - 0.009 \text{Family Income} + 1.267 \text{Occupation} + 1.438 \text{Area of Residence} + 4.493 \text{Start new OTT} + 0.291 \text{No. of connections} - 3.665 \text{Preferred Waiting (Always)} + 1.590 \text{Preferred Waiting (Sometimes)} + 2.941 \text{Preferred Waiting (Time and Money)} - 0.429 \text{Movie before OTT} + 0.8400 \text{Before Lockdown (Weekly hours)} + 9.511 \text{Use for Entertainment (OTT)} + 6.298 \text{Use for Entertainment (YouTube)} + \epsilon_i\]
The results show that the age has a positive relationship with the consumption of OTT in the lockdown, as a person gets 1 year older the OTT consumption increases by 0.124 hours in the week. The females watch OTT less than males by 3.8 hours in a week in the lockdown.

The people who started the new OTT during the lockdown were spending more weekly hours than those who did not, by 4.49 hours in a week. The people who always preferred to wait for the movie to release in the theatre watches less OTT who never waits by 3.66 hours in a week.

The people who were watching OTT before lockdown also has an impact on their consumption during lockdown, as a one-hour increase before lockdown means their consumption during lockdown increases by 0.84 hours in a week. The people who spend time OTT as entertainment is 9.5 weekly hours more than those who use other modes of entertainment like T.V. or radio.

**Normal distribution of error term**

**QQ-Plot:** A Q-Q plot is a scatterplot is made to check if the residuals are normal or not. If all the points of residuals (red points) lie in the reference line (or the blue line), we can assume normality.

We can see from the QQ-plot some of the points lie outside the reference line, so it is not exactly normal, but if we increase the sample size then we are hopeful that it will become normal.

**Histogram of residuals**

The histogram of residual is not exactly symmetric so it is not normally distributed. It is heavier on the right side, if we increase the sample size of those specific people from the left side, then we might get a normal distribution. Our distribution is close to normal distribution.

We obtained the Skewness = 0.1692 and Kurtosis = -0.1759, which means if skewness is equal to 0 then we have symmetric distribution and our skewness is close to 0. If the Kurtosis is equal to 3 then we have a normal distribution but as we obtained the kurtosis which is less than 3, so our distribution is not normal but is it is platykurtic in which the excess kurtosis value is negative.

**Shapiro-Wilk Test for normality- A formal test**

Ho: There is normal distribution in the error terms
H1: There is not a normal distribution in the error terms
Since, \( p\text{-value} = 0.04129 < 0.05 \), we will reject the \( H_0 \) hypothesis.

We can conclude same from the formal tests that the residuals are not normally distributed.

### Checking Multicollinearity

<table>
<thead>
<tr>
<th>Variables</th>
<th>VIF</th>
<th>TOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>2.5751</td>
<td>0.388</td>
</tr>
<tr>
<td>Family Income (Per Month)</td>
<td>1.1657</td>
<td>0.858</td>
</tr>
<tr>
<td>AOR (U=1)</td>
<td>1.1841</td>
<td>0.844</td>
</tr>
<tr>
<td>No. of Connections</td>
<td>1.0424</td>
<td>0.959</td>
</tr>
<tr>
<td>Preferred Waiting (Always)</td>
<td>1.5836</td>
<td>0.631</td>
</tr>
<tr>
<td>Preferred Waiting (Sometimes)</td>
<td>1.9304</td>
<td>0.518</td>
</tr>
<tr>
<td>Preferred Waiting (Time and Money)</td>
<td>1.7985</td>
<td>0.556</td>
</tr>
<tr>
<td>Gender (F=1)</td>
<td>1.2076</td>
<td>0.828</td>
</tr>
<tr>
<td>Occupation (Student=1)</td>
<td>1.9079</td>
<td>0.524</td>
</tr>
<tr>
<td>Start New OTT</td>
<td>1.0900</td>
<td>0.917</td>
</tr>
<tr>
<td>Movie release before OTT</td>
<td>1.1290</td>
<td>0.886</td>
</tr>
<tr>
<td>Before Lockdown (Weekly hours)</td>
<td>1.1408</td>
<td>0.877</td>
</tr>
<tr>
<td>Use for Entertainment (OTT)</td>
<td>3.0225</td>
<td>0.331</td>
</tr>
<tr>
<td>Use for Entertainment (YouTube)</td>
<td>2.9089</td>
<td>0.344</td>
</tr>
</tbody>
</table>

From the above table, we can see that all the VIF (Variance Inflator Factor) values are below 10, and the TOL (Tolerance) values are greater than 0.1, indicating no multicollinearity.

We also calculated the Kappa Value = 17.493. Its formula is

\[ \sqrt{\frac{\text{max (eigenvalue \( X'X \))}}{\text{min (eigenvalue \( X'X \))}}} \]

A rule of thumb is that if the Kappa value is less than 30, it means there is no multicollinearity. Hence, our data does not suffer from the problem of multicollinearity.
Check on Heteroscedasticity

Ho: There is homoscedasticity.
H1: There is heteroscedasticity.

> bptest(OTT_Model)

studentized Breusch-Pagan test

data: OTT_Model
BP = 25.717, df = 14, p-value = 0.02812

Here, p-value = 0.02812 > 0.05, we reject null.
Implying there is heteroscedasticity. Also, the residual plot is also showing a pattern, so our model suffers from the problem of heteroscedasticity.

Check on Autocorrelation

Ho: No evidence of autocorrelation
H1: There is autocorrelation

This was checked using the Durbin-Watson d-statistic. The following result was obtained:

> durbinWatsonTest(OTT_Model)

lag Autocorrelation D-W Statistic p-value
1 0.07171103 1.855745 0.222

Alternative hypothesis: rho != 0

N=315, k=14

If the value of d-stat lies in the region 0 - dl there is positive Autocorrelation, if d-stat lies the region dl - du we have Inconclusive results and if d-stat lies in the region du – 2 there is no evidence of Autocorrelation
As the d-stat lies in the region dl<d<du, the tests indicate inconclusive results.

V. Conclusion

The results show that the age has a positive relationship with the consumption of OTT in the lockdown. As age increases by 1 year the OTT consumption increases by 0.124 hours in the week. Also, the females watch OTT less than males by 3.8 hours in a week in the lockdown. It might be possible they are busy with the other household chores or with other responsibilities of the house, because in the lockdown everyone was supposed to do all their things themselves, with no maid most of the household chores were a responsibility of the females.
The people who started the new OTT during the lockdown were spending more weekly hours than those who did not, by 4.49 hours in a week. The people who always preferred to wait for the movie to release in the theatre watches less OTT who never waits by 3.66 hours in a week.

The people who spend time OTT as entertainment is 9.5 weekly hours more than those who use other modes of entertainment like T.V. or radio.

The test for normality is not satisfied maybe our sample size is still less, so increasing sample size might result in the normal distribution. Also, there is a problem of heteroscedasticity, which needs to be rectified in the future model. But other tests of multicollinearity and auto-correlation are satisfied.

The OTT consumption has increased during the lockdown, so it is essential to know which particular variable affect it the most so that the OTT companies like Netflix, Hulu, Amazon prime can specifically target those groups. And its implementation has started now, as most of the OTT platforms are giving huge discounts to the college students.

Another suggestion that we would like to give to OTT platforms is to create some age specific packages, as till now there is no age specific package.

In the future, we would like to research for the OTT consumption of the India, as this was only limited to the residents of Delhi-NCR region.

References