

## Exploring factors affecting consumer expenditures on media

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### Abstract

Previous studies on consumer expenditures on media especially focus on the relationship between consumer expenditures on media and Gross National Income (GNI) based on the Principle of Relative Constancy (PRC) from macroeconomic aspect. Researches on consumer expenditures on media from macroeconomic aspect contribute to the understanding of media structure and development of media industry but it is not applicable to microeconomic aspect since it would lead to the ecological fallacy. In order to understand consumers' expenditures on different media products, this study attempts to examine how the income of the audience, time spent on media and attitude influence consumers' expenditures on media. This study reveals that income variable is positively correlated to consumer consumption on newspapers and internet but not magazines and television once other variables are controlled. The study also explores the significance of different media products with reference to their economic characteristics.

**Keywords:** *Consumer expenditures; Media spending; Principle of relative constancy; Media consumption attitudes.*

### Introduction

Since the emergence of popular press, expenditures of advertisers have become an outstanding share of the gross income of media industries. Therefore consumers' expenditures spent on media have become a highlight of the related researches. Advertising revenue of traditional media has become unsustainable after the popularity of new media as

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it is occupying the market of traditional media. The proportion of consumption expenditures spent on media is increasing amazingly in media industries as time goes by. For example, McCombs (1972) found that total consumer expenditures on media in 1968 in the United States' media organizations occupied 48% of the total revenue of media industries, while the amount of advertising spending summed up to 52%. In 1992, American media consumption expenditures accounted for 58% of the total revenue and only 42% was the advertising spending. That is, the income of media industries in the United States has gradually reduced their dependence on advertisers, and shifted towards media buying of consumers.

Previous studies on media buying of audience have focused on the relationship between consumption expenditures on media with Gross National Income based on the Principle of Relative Constancy (PRC) from macroeconomic aspect (Duane, 1994; Dupagne, 1996; McCombs., 1972; McCombs & Son, 1986; Wood, 1986; Wood & O'Hare, 1991). The core of the PRC is that the changes of media consumption expenditures depend on the changes at macro-economic level.

This study is significance for the following: firstly: it is to conduct the survey of media consumption expenditure from microscopic aspect based on Guangzhou citizens and overcome the limitations of per capita cultural entertainment consumer spending provided by government. Secondly, media institution pays more attention to the needs of the advertisers and their attitude rather than audience because it relies on advertising revenue. However, media institution should transform to audiences as their consumption expenditure plays more important role in the revenue of media institution. Since McCombs's (1972) original statement of the principle,

the idea that a constant proportion of disposable income or gross economic revenues is spent on media, has gained some support but also invited considerable criticism. Due to the introduction of new media like the VCR and cable TV, consumer expenditures on media have increased in both absolute value and proportion of the entire national income, which challenged the PRC. Wood (1986) questioned the descriptive accuracy of the consumption expenditures of the PRC, noting in particular that McCombs' correlation coefficients were afflicted by serial correlation. A few years later, Wood and O'Hare (1991) produced evidence that consumers spend more on cable and the VCR than would have been predicted by the PRC. Despite the lack of predictive accuracy of the PRC, Wood and O'Hare found that during the "video revolution," the PRC sustained as a long-term historical generalization. However, Demers (1994) concluded that the PRC is not valid when applied to longitudinal studies. It is argued that the share of national income devoted to advertising increases primarily because society is becoming more complex.

Researches on consumer expenditures on media from macroeconomic aspect contribute to the development of media industry structure but it is applicable to microeconomic aspect since it would lead to the ecological fallacy and be hard to distinguish consumer spending on different media products. In previous researches, based on a national survey of 767 U.S online adults, Chyi (2012) evaluated user paying intent for different newspaper formats for the amount they are willing to pay, as well as user responses to various payment models being considered by the industry and found out the print edition outperforms other formats (Web & "apps") in terms of usage, preference, and paying intent, and is perceived as the most valuable platform. Chyi (2012) explored the status and

influencing factor of willingness to pay and the concept which is correlated to consumption expenditures spent on media from microscopic aspect. However, few studies focused on factors affecting on consumer expenditures on media from microeconomic aspect.

In order to understand the consumers' expenditure on different media products, this study attempts to examine how the income of the audience, time spent on media, and audiences' attitude toward media influence consumption expenditures spent on media from microscopic aspect. This study also intends to know which media products belong to normal product or inferior product category.

This study selected Guangzhou, a city of Southern China, as an interview place as it is one of the earliest cities to embrace reform and open up in China. This phenomenon not only promoted Chinese economic development but also contained a large number of relatively open media. In addition, previous empirical studies on consumer expenditures on media are mostly conducted in the United States, or some European countries, paying little attention to Asian or socialist countries. As an Asian and socialist city, Guangzhou is chosen as an interview place, which would expand the region of the research in consumer expenditures on media.

### **Consumer expenditures on media and income**

It is argued that consumer expenditures on media refer to one's total payment for media including consumer goods or services such as books, home video, internet, newspapers, magazines, box office, recorded music and video games etc. Payment depends on the income of consumers which constrains consumers' ability to pay. Therefore, income and consumption expenditures spent on media are correlated but the correlation depends on different media products.

In micro-economics, normal goods are any goods for which demand increases when income increases and falls when income decreases but price remains constant. This term does not necessarily refer to the quality of the good but an abnormal good would clearly not be in demand except for possibly lower socioeconomic groups. On the contrary, an inferior good is a good that decreases in demand when consumer income rises. In economics, the distinction between normal goods and inferior goods depends on the relationship between its consumption quantity and income rather than quality.

It employs income elasticity of demand to analyze the relationship between consumption quantity and consumer income in economics which measures the responsiveness of the demand for a good to a change in the income of the people demanding the good, *ceteris paribus*. It is calculated as the ratio of the percentage change in demand to the percentage change in income. A negative income elasticity of demand is associated with inferior goods; an increase in income will lead to a fall in the demand and may lead to changes to more luxurious substitutes. While a positive income elasticity of demand is associated with normal goods; an increase in income will lead to a rise in demand. The hypothesis of relative constancy corresponds to unit elasticity ( $e=1$ ) case. It will make a great contribution to the field of media economics when estimating income elasticity for various media and classifying them as inferior ( $e<0$ ), necessity ( $0<e<1$ ) or luxury ( $e>1$ ) goods.

There are few studies on what kind of media products actually belong to inferior, necessity or luxury goods category. According to media economics textbooks, it takes black and white television as inferior good. In 1970s, the color television set was replaced with the

income increase among poor which finally led to the falling demand for the black and white television. However, most media products are assumed to be normal goods. Brooks (2008) discussed a 9% decline in DVD sales in the third quarter of 2008 in the context of the economic crisis negatively affecting consumer income. But there are also some studies which argued that some media products do not belong to normal goods. Based on the data of the survey carried out by Pew research centre, Chyi and Yang (2009) found out consumer expenditures for internet news decreased as consumers' income increased while other conditions remained same. That is, internet news is an inferior product for the audience. However, Chyi only focused internet news rather than internet which not only provides news but also other communication, such as entertainment, expression, etc. Therefore, if we do not confine the usage of internet media products to internet news, the use of the Internet can be seen as normal goods according to the principle of the microeconomics that income determines demand.

### **Consumer expenditures and Time spent on media**

Time spent on media is one aspect of using media and money is another aspect. Audience has to pay for the media consumption unless it is free of charge but they have to spend time on media whichever media they use. Few researches examine the relationship between consumer expenditures and time spent on media. For example, McCombs (1972) discusses time spent on media in the PRC study. The approach of processing time spent on media in the PRC introduces the concept of "opportunity cost". The opportunity cost of any action is simply the next best alternative to that action - or put more simply, "what would you have done if you didn't make the choice that you

did". The concept of opportunity cost changes according to different environment for example, when television just appeared, what is the opportunity costs of watching TV actually come from? May be from the time listening to the radio, but not for all. For some people it may come from the sleep time or from other forms of entertainment and even from working hours. Now, it may be changed from browsing the website. Due to the measurement of opportunity, cost of time spent on media is vague; there are few studies on the relationship between consumer expenditures and time spent on media. This study aims to explore the relationship between consumer expenditures and time spent on media.

On the basis of above arguments, this study proposes the following hypotheses:

**H1:** The more one's income increases, the more one's expenditures on media will increase provided other conditions are controlled.

**H2:** Consumers expenditures on media increases as consumers' attitude towards media increases provided other conditions are controlled.

Attitude is a psychological tendency, a state of readiness, which will affect behavior to some extent. There are literally hundreds of definitions for the term attitude (Heath & Gaeth, 1994). Heath and Gaeth (1994) gave a state-of the-art summary of definitions and example measures of key constructs associated with attitude. However, they do not elaborate on issues surrounding attitude and they choose to adopt one-component view of attitude as a general and enduring negative or positive evaluation of a person, object, or issue. Kim and Littrell (1999) measured the attitude of tourists and found out that the

tourists' attitude towards humanities and the landscape of the place will affect their intention to buy local products. Furthermore, consumers make decisions to maximize utility (Hoskins, McFadyen, & Finn, 2004), which is often called as satisfaction, a concept related with attitude. So if a consumer becomes more satisfied, he or she would have more utility and possibility to buy the product.

Consumption expenditures spent on media is an action predicted by the audience's attitude towards media. For example, studies have shown no interest to the payment of internet news dues to unsatisfied audiences' attitude towards internet news compared with printed news (Chyi & Lasorsa, 1999. In 2004, Online Publishers Association (2004) conducted a survey of 25852 users in 41 major online news sites consumption in 12 countries to compare the similarities and differences of the audience attitudes towards traditional media and internet. The findings indicated that internet is regarded as "unlike", "unsatisfied" and "discontented" as compared to the other media. The findings also suggested that traditional media consumption is more correlated to cultural factors in different countries rather than the income.

For this study the sample is drawn from Guangzhou residents over 16 years of age and are using internet for the past six months during November 2011. It is a quota internet interview. Based on the quota of gender and age provided by the Internet user's statistics data several years ago, each interview is required to complete 9 valid questionnaires in total online survey, which involves 2 ranging from 16 to 22-year-old individual, 3 from 23 to 30, 2 from 31 to 40, 2 over 40. In addition, the ratio of male-female is 5:4. Therefore this sample could represent the characteristics of whole population due to quota



allocation even though it is different from traditional proportionally stratified sampling.

The interviewers are undergraduates who have attended courses taught by the researcher. In order to ensure the reliability of survey, interviewers are requested to sign their name in questionnaires. A total of 1317 respondents are successfully interviewed. After the interviews, the data is preprocessed and the logical relationships between the variables and collate of variables are checked so that unsatisfactory samples and questionnaires with missing data could be omitted. A total of at least 1162 valid data is obtained, accounting for 88.2% rate of total questionnaires which is applicable on the following analysis.

The whole population data for Guangzhou internet users are missing. So the sample is only compared with the statistical data China Internet Network Information Center (CNNIC) in table 1.

**Table1: Compare sample data with the statistical data of CNNIC**

Variable	Sample (%)	statistical data (%)
Gender		
Male	55.2	55.1
Female	44.8	44.9
Age (Note1)		
16-19	9.0	10.7
20-29	49.9	37.8
30-39	21.7	28.5
40-49	15.6	14.2
50-59	3.5	5.9
60+	0.3	2.9
Education		
primary and secondary	1.2	8.7
junior high school	8.4	35.1

Senior high school or technical secondary school	25.1	33.9
junior college	22.4	10.5
Bachelor	42.9	11.7
Profession		
Student	27.7	29.9
self-employed	13.0	14.6
Unemployed	4.2	9.5
Technical staff	9.1	8.7
Manufacture worker	3.3	4.8
Service worker	9.8	3.6
General staff in company	16.6	10.9
Middle management in company	5.4	4.0
Top management in company	2.8	0.8
General staffs in government institutions	1.6	2.4
Higher lever staffs in government institutions	0.3	1.7
Peasant	0.1	5.3
Retiree	0.5	2.7
Else	5.7	1.0

Note 1: For the reason of no investigation under aged 16, the statistics has discounted the proportion of the age under 16 and re-calculated the proportion of groups over 16 years old.

According to table 1, the deviation of the gender proportion of sample with the statistical data is only 1%; Samples ranged from 20 to 29 year-old is 10% over. The Sample is higher than the statistics in terms of educational background but the deviation of profession is little. The following table compares data with the Sixth Nationwide Population Census data of Guangzhou in 2010

**Table 2: Compare sample data with Population Census data of Guangzhou in 2010**

Varies	sample data (%)	statistical data (%)
Family household district distribution		
Liwan District	8.6	7.1
Yuexiu District	13.5	9.1
Haizhu District	13.2	12.3
Tianhe District	26.5	11.3
Baiyun District	10.9	17.5
Huangpu District	3.8	3.6
Panyu District	11.4	13.9
Huadu District	5.2	7.4
Nansha District	2.5	2.1
Luogang District	0.6	2.9
Zengcheng District	2.4	8.6
Conghua District	1.4	4.7

According to table 2, the deviation of the sample with the statistical data is little except for some household district distribution. For instance, there are more samples from Tianhe district because it is the concentration zone of information technology. Companies and office buildings in Guangzhou compared with other zones. In all, the sample is good enough to represent for Guangzhou Internet users in general in terms of gender, age, profession and household district distribution,

**Dependent variable**

Consumer expenditures on media includes newspapers, magazines, television, and internet. Radio hasn't been included for the spending is almost null for most individuals. Related questions are as follows: (1) How much did you spend on newspaper monthly? (2) How much did you spend on magazine monthly? (3) How much did you spend on TV monthly? (4) How much did you spend on Internet monthly (excluding internet shopping)?

**Independent variables**

The question of income measurement is "how much is your personal average monthly income?" The attitude towards television, newspapers, magazines, Internet was measured by 5-point Likert-type response scale that ranged from 1(don't like at all) to 5 (like it very much). Time spent on newspapers, magazines was measured by 5-point Likert-type response scale that ranged from 1 (don't read newspaper/ read magazines) to 5 (half an hour to an hour). Time spent on television and internet was measured by 5-point Likert-type response scale that ranged from 1 (do not watch TV /do not use the Internet) to 5 (five hours to eight hours).

**Controlled variables**

Previous studies show that the variable of consumer expenditures on media is associated with demographic variables, such as age, gender, education (Stempel & Thomas, 1996; Stempel, Thomas & Joseph, 2000). In order to study the relationship between independent variable and dependent variable, this study chose age, gender, education as control variables according to the standard questionnaire survey.

**Results and Discussion**

Of the 1162 respondents surveyed, the average mean of monthly spending on newspapers is 16.49 RMB; the monthly magazines spending is 18.37 RMB; the monthly watching TV expenditure is 40.56 RMB ; the monthly online spending is 89.78 RMB . Results showed that 33.4% of Guangzhou Internet users didn't read newspaper; 38.0% didn't read magazines. Among the people who read newspaper, most of them read 5 to 15 minutes a day (21.3%). The same did reading magazine (21.3%). 17.6% of Guangzhou Internet users watch TV every day. Among the people who watch TV, they mostly watch it 1 to 2 hours (28.5%), and next is 2 to 5 hours (23.7%). And among the Guangzhou Internet users, most of them spend 2 to 5 hours on Internet (32.4%) and 22.0% spend 5 to 8 hours.

Since the dependent variable of this study is a continuous variable, and the independent variable and control variable is categorical variable (dummy variable) or continuous variable, so we adopt general linear regression analysis on consumer expenditures on newspapers, magazines, television, and internet respectively in table 3.

**Table 3: The analyses of factors affecting of' consumption expenditure spent on media among Guangzhou Internet users (N = 1162)**

	Newspaper	Magazine	TV	Internet
Gender	-.006	.027	.031	-.005
Education	.05	.034	<b>.099***</b>	.012
Age	<b>.175***</b>	.035	.038	.062
Average monthly income	.069*	.04	.016	.091**
Time spend on media	<b>.209***</b>	<b>.335***</b>	<b>.128***</b>	<b>.176***</b>
Attitude towards media	<b>.112***</b>	<b>.193***</b>	-.002	<b>.111***</b>
R SQUARE(%)	16.9	21.8	2.6	5.9
ADJUSTED R SQUARE(%)	16.5	21.4	2.0	5.4
F	38.269	52.472	4.720	11.785
SIG	.000***	.000***	.000***	.000***

\*p<0.05; \*\*p<0.01 \*\*\*p < 0.001

Hypothesis 1 predicts that consumer expenditures on media increase as income increases once other conditions are controlled. According to table 3, results show that when other conditions are controlled, income is the positively significant influencing factors of

both newspaper consumption ( $b = .069$ ,  $p < 0.05$ ) and internet consumption ( $b = .091$ ,  $p < 0.01$ ). But for magazines and television, income has no significant influence on the consumer expenditures. Therefore, hypothesis 1 is partially confirmed. Meanwhile, under controlled conditions, the consumer spending on newspapers and internet increases as income increases, so they are normal product. But the consumer expenditures of magazines and television has nothing to do with income, so they are regarded as abnormal products.

Hypothesis 2 predicts consumer expenditures on media increases as consumer's attitude towards media increases once other conditions are controlled. According to table 3, attitude towards media is the positively significant influencing factor for both newspaper consumption expenditure ( $b=.112$ ,  $p<0.001$ ), and magazine consumption expenditure ( $b=.111$ ,  $p<0.001$ ). But for television, attitude towards media has no significant influence to consumption expenditures on media. Therefore, Hypothesis 2 is partially confirmed.

Question 1 aimed to find out the relationship between consumer expenditures and time spent on media once other variables are controlled. It is found that all time spent on media shows significantly positive influence on consumer expenditures on media; newspaper ( $b = .209$ ,  $p < 0.001$ ), magazines ( $b = .335$ ,  $p < 0.001$ ), television ( $b = .128$ ,  $p < 0.001$ ), Internet ( $b = .176$ ,  $p < 0.001$ ).

In the control variables, age is the positively significant influencing factor of both newspaper consumption expenditure ( $b=.175$ ,  $p<0.001$ ). Education is the positively significant influencing factor of television consumer spending ( $b = .099$ ,  $p < 0.001$ ).

The R square in the newspaper consumer spending model is equal to 16.9%. R square is coefficient of determination of formula between zero and one. The closer R square value is to one, the greater

the ability of the variable to predict  $y$ . But R square increases as we increase the number of independent variable, even when the linear relation between variable and  $y$  is insignificant. Because R-square would be influenced by the number of variables and sample size, so we adopt Adjusted R square in this model. Adjusted R square in this model is 16.5%, indicating that taking the number of variables into consideration, variables of gender, age, education degree, average monthly income, average time spending on reading newspaper daily and preference of newspaper, can explain 16.5% of the variation in the response variable, which is a relatively large proportion in social science studies. In addition, this formula has pass F-test ( $F=38.269$ ,  $SIG=0.000^{***}$ ). Adjusted R square in magazine consumer spending model is equal to 21.4%, higher than the one of newspaper. But in TV (Adjusted R square =2%) and internet consumer spending model (Adjusted R square =5.4%), Adjusted R square is relatively small. That is to say, introduced variables in newspaper and magazine consumer spending models have a better explanatory ability than TV and internet models. The consumer spending of TV is fixed mandatory charge, and those of internet are usually one-time charge, which leads to a worse prediction.

### **Conclusion and limitations of the study**

Based on Guangzhou internet users, this study revealed that income variable is positively correlated with consumer spending on newspapers and internet but not with magazines and television once other variables are controlled. From macro data, Yu (2008) analyzed the correlation of per capita consumption expenditure and cultural entertainment spending proportion among all Chinese provinces and cities in 2006, and found that the cultural entertainment consumption expenditure, one index of media consumption related, will be more



than those with less consumption expenditure, one index of income related in one province/city. As from micro aspect, Chyi and Yang (2009) have pointed out that the newspaper consumption and income are positively correlated, while internet news consumption and income are negatively correlated. This shows that newspaper is normal product, which has been empirically confirmed in China and other countries. Since "internet consumption" is mainly internet charged and fixed, while internet news is varied, therefore internet consumption and internet news consumption is not the same for Guangzhou citizens, which leads to their relationship and income incomparable. In terms of attitude towards media, attitude has significant influence on the rest of the media (newspapers, magazines, the Internet) and these effects are positive except for television. In other word, the media consumption expenditure would be increased if audience has positive attitude towards this media. Time spent on media is positively correlated to media consumption expenditure, which shows that the more time audience are engaged with media, the more money they will spend on it.

The theoretical significance of this study is explored on economic characteristics of different media products (newspapers, magazines, television and internet). Previous researches proved that consumption expenditure on newspapers and internet are correlated with income so they belong to normal product. Yu (2008) found that per capita consumption expenditure, per capita cultural entertainment spending and the ratios of daily newspaper ownership have significant correlation in Chinese cities, which is 0.863 and 0.754 respectively. This shows that income and newspaper consumption are correlated. Of course, It would need more empirical data that whether magazines and

television consumption expenditure are correlated with income or not and showing the reason of their relation. Secondly, this study concludes that the positive attitude to media influences media consumptions, which might explain some media economics issues, such as the reason of low internet news subscription may be due to lack of audiences' attitude towards internet news. Though McCombs (1972) discussed time spent on media in the Principle of Relative Constancy, but he mixed the media consumption expenditure with time spent on media and didn't clarify the relations between time spent on media and media consumption expenditures, which leads to be questioned by scholars. In comparison, this study argues the variable of time spent on media and that of media consumption expenditure are correlated and addressed McCombs' unsolved problem. This study reveals that audience's consumption expenditure would be higher if they have higher income, better attitude toward media and more time spent on media. In other word, the key to increase audience's consumption expenditure is to increase the user's viscosity and loyalty.

There are certain limitations of the study: first, this study conducted online survey which does not represent the whole population therefore lacks generalization. Second, Guangzhou is a developed city in China for its extremely imbalance economics, According to the data of per capita cultural entertainment consumption expenditure drawn from official public in 2006, one related concept of media consumption expenditure, the amount of Guangdong is 1010.23 RMB per year, lag behind Beijing, Shanghai, but far more exceed than other areas, such as Tibet, which is only 87.44. Therefore, the data of Guangzhou could not represent the national data and further research should be conducted in other cities in China. Third, due to the limitation of the questionnaire, the study did not explore the function of different

media, which a major research realm in related studies. For example, Ghee - Young Noh and August E. Grant (1997) proposed that the relationships between different media were decided by their replacing or complementary function. They revealed that VCR offers a range of functions that implicate both mass communication and interpersonal communication by an examination of audience needs and uses of the VCR. Thus, the VCR is both a functional competitor and a functional complement to existing mass media. This study argued that functional analysis of media may provide an additional explanatory power for the mechanism of consumer spending on mass media. In Guangzhou, the audiences' consumption expenditure on Internet is much higher than those on other media, whose function has been becoming more and more superior to the information and entertainment functions of other media because the Internet can provide unique functions like searching information, communication, and opinion expression. As a result, we should analyze the influence of consumption expenditures spent on media according to the differences of media products' function.

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