

A Study on the Factors Affecting Human Consumption from the Perspective of "Differential Order Pattern"--An Empirical Analysis Based on 429 Farming Households in Yan'an City, Shaanxi Province

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Abstract. As an important part of social interaction, human consumption, from the past to the present, has tended to be "over-monetized" and has imposed a heavy economic burden on farming households. Based on the unique structure of rural society -- "Differential Order Pattern", it is crucial to analyze the influence of Affinity, Region and Benefit factors on the human consumption by farmers to improve the problem of alienation of consumption of favors and promote the construction of new rural spiritual civilization. Based on this, this paper uses the Ologit model to analyze whether Affinity, Region and Benefit factors influence human consumption, analyze the degree of influence, and obtain the following conclusions: (1)Affinity factors are still the main influencing factors of farmers' human consumption, and Region factors are weaker than in the past; (2)The original pattern of "Differential Order Pattern" has changed. Benefit factors have become an important consideration in farmers' human consumption; (3)Low-income households' human consumption is more likely to be influenced by Affinity and Benefit factors than high-income households' human consumption.

Keywords: Human Consumption, Differential Order Pattern, Farming Households.

1. Introduction

Liang Shuming^[1] found that the Chinese people's life has always depended on the family. Recently, however, it began to become a large group of super-large families. Because of relatives and relatives, friends and friends, their way is still familiar, so when things go wrong, they always like to ask for favors. Human consumption has long been an important part of rural residents' living expenses. However, in recent years, due to the development of market economy and the acceleration of the process of urban-rural integration, farmers' view of human consumption is also changing quietly. On the one hand, the human consumption has become a way of "investment in benefits", and there is a trend of "excessive monetization"; on the other hand, the excessive burden of human consumption brought about by the "face-saving" "comparison" is becoming more and more apparent. It can be seen that it is necessary to study human consumption. Therefore, in this paper, we study human consumption from the perspective of "Differential Order Pattern", focusing on how the factors of Affinity, Region and Benefit affect human consumption, and whether there are differences in the influence of different factors on the human consumption. There are two possible innovations in this paper: (1) To study the factors influencing farmers' human consumption and their degree of influence from a new perspective of "Differential Order Pattern"; (2) To use research data from two sample villages with similar contexts to control for the effects of differences in the natural environment, external policies, social environment, and cultural environment on human consumption, and then to conduct the study.

2. Theoretical framework and research hypothesis

2.1 Research related to farming relationships, human consumption

The farming household is the basic unit of action in rural society. Fu Zhenqi^[2] proposed that relationships were the native qualities of rural society. Chinese relationships are rich in emotional, moral, and cultural implications. Zhou Daming^[3] pointed out that the nature of relational exchange

classification included affective, instrumental, and relationships in which affectivity and instrumentality were fused. Liu Xiaofeng^[4] argued that many relational structures such as Affinity, Region, and Work relationships were refracted in the gift exchange of actors. Gift exchange is commonly manifested in rural areas as inter-farmer human consumption. A grasp of mundane affairs is genuine knowledge, and understanding worldly wisdom is true learning. Since ancient times, human consumption has been an underlying rule among farmers in Chinese rural society. Lai, Kaisheng, et al.^[5] pointed out that human consumption could be influenced by the consumer's own characteristics as well as the subjective and objective economic status of the family. Du Leyong et al.^[6] found that the standard of surrounding families also influenced human consumption by constructing a peer effects theory model. With the effect of "face-saving" and "comparison", the burden of human consumption becomes increasingly heavy. Wu, Qinghua et al.^[7] found from CSS data that human consumption had a typical "inverted U-shaped" relationship with the happiness of rural residents. If the proportion of human consumption to total household consumption expenditure is too high, it will significantly and negatively affect subjective well-being. Du Leyong et al.^[6] found that it can also increase the economic burden on households and distort the efficiency of household resource allocation, affecting the improvement of sustainable household livelihoods. In addition, Yu, Bin^[8] proposed that human consumption, which used to be one of the ways to convey people's feelings, was now more driven by real benefits, instrumental purposes, and utilitarian consciousness, neglecting the social conditions of human consumption and the emotional factor of the basic actor "human". Hillman, B.^[9] indicated that bonds based on human feelings might be used as tools at some point in the future. He, Menglan^[10] pointed out that many farmers' seemingly irrational behavioral choices were investments in future expected access to social capital, rational choices made under either obvious or implicit constraints of established conditions. However, Bin Wu et al.^[11] argued that farming households tried to maintain their social ties and community attachments to the countryside even after entering the city to continue to keep their sense of identity. Based on the above analysis, this paper proposes the following hypotheses:

H1: The Affinity factor has a significant positive effect on farming household human consumption.

H2: The Region factor has a significant positive effect on farming household human consumption.

2.2 Differential Order Pattern related studies

As a classical concept in the study of social relations in rural China, the "Differential Order pattern" is manifested as the "self" as the center, just like the ripples formed by stones thrown into the water, pushing out in circles, farther and farther away and thinner and thinner (Fei Xiaotong, 2005)^[12]. Liu Xiaofeng^[4] found that the "Differential Order Pattern" is dynamic, variable, and differentiated in a study on the gift list of common farmers. With the continuous attacks of the market economy, rural society is undergoing intense shocks and transformations, and the changing nature of the "Differential Order Pattern" is particularly prominent. Many farming households have gone out to work, resulting in a significant increase in non-farm employment. On the one hand, non-farm employment significantly reduces affinal and regional trust, leading to increasing affinal and regional alienation (Xiang Nan et al., 2021)^[13]. On the other hand, non-farm employment raises the income of family farmers. While the economic foundation determines the superstructure, it also determines the direction of change in the ideology of farming households. Yin Shihong^[14] found in his research on the ancient village of Anyi in Jiangxi that economic interests became the decisive factor in various social relationships. The moral ethics in the "Differential Order pattern" began to give way to the judgment of benefits. The Benefit factor gradually becomes an important part of the "Differential Order Pattern" that cannot be ignored. Therefore, the following hypothesis is proposed:

H3: The Benefit factor has a significant positive effect on farming household human consumption.

3. Data sources, variable settings and descriptive statistics

3.1 Data sources

This study selected two administrative villages in Fuxian County, Yan'an City, Shaanxi Province, for field research. The reasons for selecting the research area were as follows: (1) The annual income of farming-based households in the two administrative villages differed significantly due to their geographical locations, so we chose them to represent higher and lower economic level farming households, respectively; (2) Located in the north of Shaanxi Province, south of Yan'an City, Fuxian is conveniently connected to the town. Many customs and traditions are interweaving and colliding with modern ones, similar to most rural areas under the wave of market economy, which can better represent the current situation of the rural regions in northwest China. A total of 440 questionnaires are obtained, of which 429 are valid, with an effective rate of 97.5%, providing first-hand information for the analysis of human consumption in rural areas.

3.2 Variable settings and descriptive statistics

(1) Human consumption. The explained variable in this paper is the frequency of human consumption in farming households. The questionnaire is measured by taking the average of the results of the question "frequency of human consumption by various groups of people". As shown in Table.1., the average frequency of human consumption is 2.41, roughly in the range of "occasionally" and "usually". In addition, the respondents were also asked about the "total amount of household human consumption in 2020" and the "highest amount of single human consumption in 2020," with the lowest total amount of household human consumption in 2020 being \$300 and the highest being \$35000, with a huge difference. Therefore, the kernel density of the total amount of human consumption is plotted in Figure.1., which generally follows a right-skewed distribution.

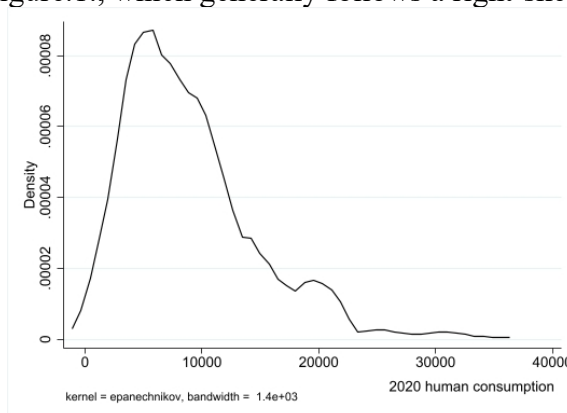


Figure.1. Kernel density graph of total household human consumption in 2020

(2) Differential Order Pattern. The core explanatory variables in this paper are Affinity, Region, and Benefit. The measure used in the paper is the number of Affinity, Region, and Benefit chosen as drivers of human consumption in all categories, respectively.

(3) Control variables. Concerning current research on human consumption, a series of control variables are included in the empirical analysis. As shown in Table.1., five indicators, such as age, gender, and education, are selected as control variables at the individual level; the total household income, the number of household members, and the number of people working outside in 2020 are selected as control variables at the household level.

Table.1. Descriptive statistics of variables related to human consumption

Category	Variable	Observations	Min	Max	Average
Explained variable	Total human consumption in 2020	429	300	35000	8969.46
	Frequency of human consumption	429	1	4	2.41

Core explanatory variables	Maximum single amount	429	1	5	2.87
	Affinity	429	0	9	3.85
	Region	429	0	7	1.72
	Benefit	429	0	10	2.48
	Age	429	30	75	52.74
Control variables (Individual level)	Gender	429	0	1	0.85
	Education	429	0	15	7.44
	Farming situation	429	1	5	1.09
	Marriage situation	428	0	4	1.09
(Household level)	Total household income in 2020	429	0	190000	38789.26
	Number of family members	429	1	8	3.99
	Number of outworkers	429	0	4	0.45

4. Empirical analysis of Differential Order Patterns and human consumption

4.1 Model setting of the effect of Differential Order Pattern on human consumption

Since the explained variable "frequency of human consumption" in this paper is a multivariate ordered variable, a multivariate ordered logit model (hereinafter referred to as Ologit) is used for estimation, and all results are processed using robust standard errors. The model is set as follows:

$$P(y_i = j|x_i) = \frac{\exp(x_i\beta_j + \alpha)}{\sum_{k=1}^j \exp(x_i\beta_k + \alpha)}$$

$$y_i = F(\alpha affi_i + \beta regi_i + \gamma bene_i + \delta X_i + \varepsilon_i)$$

Where j is the category of human consumption frequency; y_i is the explained variable human consumption frequency; $affi_i$, $regi_i$, $bene_i$ are the core explanatory variables of focus in this paper, such as Affinity, Region, and Benefit, respectively; X_i is a series of individual-level and household level control variables, such as age, gender, education, farming situation, marriage situation, total household income in 2020, and number of family members; ε_i is a random disturbance term.

4.2 Differential Order Pattern and human consumption empirical regression results

Firstly, we analyze whether the presence or absence of Affinity, Region and Benefit factors would impact the frequency of human consumption. For this purpose, we conducted chi-square tests on the dummy variables set in three ways, and the results showed that when the Affinity factor was greater than or equal to 3, it was recorded as 1 otherwise it was recorded as 0 (the same for Region and Benefit), the dummy variables passed the tests ($p < 0.05$), so the three types of dummy variables were set in this way. As shown in Table.2., column (1) is a model containing only core explanatory variables, and column (2)(3) adds individual level and household level control variables in order based on (1). The results indicate a significant positive effect of the presence or absence of Affinity, Region, and Benefit factors on the frequency of human consumption.

Table.2. Empirical analysis of the effect of the presence or absence of Differential Order Pattern on human consumption-- Ologit model

Name of variable	(1)	(2)	(3)
Dummy-affinity	1.303*** (0.267)	1.160*** (0.283)	1.156*** (0.284)
Dummy-region	1.063*** (0.244)	1.045*** (0.249)	1.030*** (0.256)
Dummy-benefit	0.944*** (0.242)	0.928*** (0.244)	0.925*** (0.244)
Individual-level control variables	--	YES	YES

Household-level control variables	--	--	YES
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Note: ***, **, * indicate significance at 1%, 5%, and 10%, respectively; values in parentheses are robust standard errors; same below.

Based on the above results, further analysis of the effects of Affinity, Region and Benefit degree on the frequency of human consumption yields the following results, as shown in Table.3. It can be seen that the degree of Affinity, Region, and Benefit significantly and positively affect the frequency of human consumption. Since the coefficients estimated from the Ologit model can only give limited information in terms of significance and parameter sign, the marginal effects of each explanatory variable on the frequency of human consumption are further calculated, as shown in column (4). The results in column (4) show that the probabilities of "never" and "occasionally" are negatively influenced by the increase in the degree of Affinity, Region, and Benefit, positively influenced by the probabilities of "average" and "more often". The likelihood of "never" human consumption decreased by only 3.4% when Benefit were increased by one unit, while the probability of "never" decreased by 34.2% and 36.7% when Affinity and Region were raised by one unit. The coefficient comparison shows that when the frequency of human consumption is "average" or "more often", the influence of Benefit factor on the frequency of human consumption is similar to that of the Affinity factor, which indicates that the consideration of Benefit factor has wholly entered the life of farmers. Human consumption has gradually become a tool to expand social capital.

Table.3. Empirical analysis of the effect of the degree of Differential Order Pattern on human consumption-- Ologit model

Name of variable	(1)	(2)	(3)	(4) dy/dx
Affinity	1.455***	1.440***	1.444***	1 -0.342
	(0.136)	(0.141)	(0.141)	2 -0.187
				3 0.193
				4 0.027
Region	1.472***	1.473***	1.468***	1 -0.367
	(0.147)	(0.151)	(0.152)	2 -0.202
				3 0.209
				4 0.030
Benefit	1.431***	1.427***	1.427***	1 -0.034
	(0.131)	(0.135)	(0.135)	2 -0.185
				3 0.192
				4 0.027
Individual level control variables	--	YES	YES	-- --
Household level control variables	--	-	YES	-- --

4.3 Robustness test of the effect of Differential Order Pattern on human consumption

In order to verify the credibility of the above empirical results, this paper conducts robustness tests in three ways, as shown in Table.4. These three aspects include: (1) OLS regression is used to replace the estimation method of the original olit model, and the robust standard error is added to make the regression result more reliable. Moreover, the total household human consumption in 2020 is used to replace the explanatory variable, and it is regarded as logarithm; (2) Tobit model is used for regression, and the explained variables are treated in the same way as above. (3) Ten categories of human consumption objects from the original questionnaire data were subjected to factor analysis, and OLS regressions were conducted using each factor score against the logged total household human consumption in 2020 robust standard errors.

Table.4. Robustness test of the effect of Differential Order Pattern on human consumption

Name of variable	OLS (robust) (1)	Tobit (2)	OLS (robust) (3)
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Affinity	0.092** (0.030)	0.098*** (0.028)	0.082** (0.033)
Region	0.087*** (0.035)	0.087** (0.033)	0.124*** (0.031)
Benefit	0.089*** (0.031)	0.089*** (0.029)	0.153*** (0.033)
Control variables	YES	YES	YES
R-squared	0.070	0.035	0.152

Robustness tests in all three ways indicate that Affinity, Region, and Benefit factors significantly and positively affect human consumption, further demonstrating the credibility of the prior empirical results.

4.4 Heterogeneity analysis of the impact of Differential Order Patterns of different income farm households on human consumption

The above analysis has shown that Affinity, Region, and Benefit factors promote farm households to engage in human consumption. However, it is likely that the extent to which Affinity, Region influences farm households' human consumption, and Benefit factors varies across income classes. For this reason, this paper conducted OLS regressions from the perspective of total household income in 2020 by dividing respondents into low-income, lower-middle-income, upper-middle-income, and high-income household groups, and conducted intergroup coefficient difference tests on the four groups of data. It is concluded that there is a significant difference between low-income and high-income households at the 1% confidence level.

Table.5. Impact of Differential Order Pattern of different income farm households on human consumption -- OLS model

Name of variable	0—25%	25%—50%	50%—75%	75%—100%
	low-income	lower-middle-income	upper-middle-income	high-income
Degree of affinity	0.062* (0.037)	-0.007 (0.012)	0.021** (0.009)	-0.011 (0.024)
Degree of region	0.005 (0.046)	-0.013 (0.019)	0.019* (0.011)	-0.005 (0.030)
Degree of benefit	0.059* (0.034)	0.002 (0.014)	0.020** (0.009)	-0.028 (0.022)
Control variables	YES	YES	YES	YES
Constant	7.990*** (0.473)	8.459*** (0.201)	9.027*** (0.103)	9.790*** (0.340)
R-squared	0.246	0.132	0.115	0.103

As shown in Table.5., in the low-income group, the effect of Affinity and Benefit factors on total human consumption was significant at the 10% confidence level. The Affinity coefficient is slightly higher at 0.062 than the Benefit coefficient at 0.059. With their limited household income, they spend more on those related to them by blood or marriage, thus maintaining close relationships with them. In addition, the Benefit factor is also a key consideration and influence for low-income households when they spend on human. This may be because low-income households have weak risk resistance of their own and expect to expand their social capital, maintain good relationships in their interpersonal circle, and enhance their ability to resist financial risks through human consumption. In the upper-middle-income household group, Affinity, Region, and Benefit factors all impact total household human consumption. Among them, the Affinity factor has the greatest impact, the Benefit factor is the second most influential, and the least influential is the Region factor. In many upper-middle-income households, the young and middle-aged laborers work outside the home. They are the main contributors to the household income as well as the main spenders on household human consumption. Because they work outside the home all the time, for them, the rural areas are no longer

the "acquaintance society" of "born in the village and die in the village", but gradually become the "semi-acquaintance society". The local ties of neighborhoods and villages are weakening, so the Region factor becomes the least influential factor in human consumption. In addition, it can also be seen that Affinity, Region, and Benefit factors are not significant for both lower-middle-income and high-income household groups.

5. Research conclusions and policy implications

5.1 Research conclusions

This paper uses whole village data obtained from a field study in Fuxian County, Yan'an City, Shaanxi Province, and uses an Ologit model to study the impact of the evolving "Differential Order Pattern" on human consumption. The following main conclusions are obtained: (1) The Affinity factor is still the main influencing factor of farmers' human consumption. Birth is to determine the fate of people with whom they have blood ties, and it is necessary to contact each other and undertake the obligation to help each other. This strong blood obligation is thicker than water, which is expressed through the higher number of gifts and frequent human consumption. The influence of Region factors on farmers' human consumption is relatively low, but still cannot be ignored. The accelerated urbanization process strengthens the mobility of farming households, which increases the opportunities for farming households to work outside and weakens the regional ties. (2) Under the process of marketization, the original form of the "Differential Order Pattern" has gradually disintegrated. The Benefit factor has become the primary consideration of farmers' human consumption. (3) In terms of household income differences, the human consumption by low-income households is more likely to be influenced by Affinity and Benefit factors than that of high-income households. The lower the income, the more affected the households are.

5.2 Policy implications

The above results lead to the following policy insights: (1) Farmers, as the main body of human consumption, should establish the correct concept of human consumption, in the relatives and neighbors, more visits, fewer gifts, using regular gatherings, collective activities and other ways to contact feelings. (2) Rural local governments and village committees take the lead in improving villagers' conventions, setting standards for banquets, and accompanying gifts. Various grassroots cadres set an example to avoid rent-seeking and other negative behaviors when interacting with farmers. (3) Accelerate to raise the income level of low-income groups, which can help farmers break free from the shackles of human consumption as soon as possible. For high-income families, to curb their "face-saving" "comparison" misconceptions, avoid bringing negative demonstration effect of human consumption.

Explanation

Never = 1; Occasionally = 2; Average = 3; More often = 4; Many = 5

¥1000 and below = 1; ¥1000-¥2000 = 2; ¥2000-¥3000 = 3; ¥3000-¥5000 = 4; ¥5000 and above = 5

Number of all categories of human consumption in which Affinity, Region, and Benefit are selected as drivers, respectively

Completely farming = 1; Involved in farming when farming is busy = 2; Not farming at all = 3; In the military or in school = 4; No labor force = 5

Unmarried = 0; Married = 1; Divorced = 2; Widowed = 3; Other = 4

Since the available research data are cross-sectional, fixed effects cannot be used. Panel data and fixed effects models will be used in further studies in the future.

References

- [1] Liang Shuming. The Complete Works of Liang Shuming (Volume 3) [M]. Shandong: Shandong People's Publishing House, 2005.
- [2] Fu Zhenqi. Mechanisms and values of traditional rural social governance in the perspective of family and household relations[J]. Journal of South China Agricultural University (Social Science Edition),2021,20(04):111-121.
- [3] Zhou Daming. A study on the relationship between Differential Order Pattern and Chinese people[J]. Journal of Central University for Nationalities (Philosophy and Social Science Edition), 2022,49(01):17-24.
- [4] Liu Xiaofeng. The " Differential Order Pattern" in the gift list--an investigation based on a farmer's gift list book[J]. China Rural Observation,2018(05):111-125.
- [5] Lai Kaisheng, Sun Xiaodong. A study on Chinese urban and rural households' human consumption and its influencing factors--an empirical analysis based on CGSS2010 data[J]. Consumer Economics,2016,32(05):9-15.
- [6] Du LY, Zhang XQ, Meng XH. Human consumption, cohort effect and educational extrusion: theory and empirical evidence[J]. Consumer Economics,2020,36(06):46-55.
- [7] Wu, Qinghua, Leng, Chenxin, Zhu, Zhongkun. Human consumption and happiness of rural residents--empirical evidence from the 2015 CSS[J]. Journal of Huazhong Agricultural University (Social Science Edition),2018(04):128-136+172-173.
- [8] Yu Bin. A review of research on rural human consumption behavior[J]. Law and Society,2011(17):226.
- [9] Hillman, B. Review of Social Connections in China: Institutions, Culture, and the Changing Nature of Guanxi, by T. Gold, D. Guthrie, & D. Wank. The China Journal, 2005, 53, 209–211.
- [10] He Menglan. A study on rural human consumption based on rational choice theory [J]. Market Research,2019(02):53-54
- [11] Bin Wu, Linghui Liu, Chris James Carter, Bridging social capital as a resource for rural revitalisation in China? A survey of community connection of university students with home villages, Journal of Rural Studies,2019.
- [12] Fei Xiaotong. Rural China [M]. Beijing: People's Publishing House, 2008.
- [13] Xiang, Nan, Lezhang. Non-farm employment and social trust of rural residents: an empirical investigation based on Fukuyama's proposition[J]. Journal of Xi'an Jiaotong University (Social Science Edition),2021,41(05):85-93.
- [14] Yin Shihong. Changes in rural family structure during social transition: the case of Anyi ancient village in Jiangxi Province[J]. Jiangxi Social Science,2012,32(04):237-242.