

An Empirical Study on Factors Influencing E-commerce in Rural China

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Abstract

E-commerce in rural China has a huge potential market that not only accords with national policies on new rural communities, but could improve people's living standard. However, many difficulties are inevitable because of limitations of external factors and internal factors, such as rural residents. Therefore, by using questionnaire as research method, this paper analyzes the factors influencing e-commerce in rural areas, and proposes the effective and practical strategies to improve rural residents' living standard and make more contribution to build moderately prosperous society.

Keywords: *E-commerce in rural areas, influencing factors, empirical study*

1. Introduction

Currently, development of rural areas is the crucial to improve overall living standards in China, because percentage of rural population is much higher than urban population. Because of the great success of E-commerce in cities and the huge market potential in country-level cities, villages and towns under country-level, e-commerce in rural areas should also be valued and promoted. Promoted by the people's innovation, E-commerce in rural areas is a new integration of rural informatization and industrialization, which plays a unique role to impelling the urban-rural integration.

As far as E-commerce in rural areas, it is not only a business platform for rural residents to sell local specialty, but purchase various kind of goods. It is the true function of E-commerce. Therefore, this paper analyzes the development of E-commerce in rural areas from two perspectives – sellers and buyers to discuss relevant influencing factors.

1.1. Definition

E-commerce in rural areas refers to the electronic trades and management on agricultural production and operation, including production management, Internet marketing, E-payment, logistics management and CRM (customer relation management) etc. On the basis of information technology and network system, E-commerce in rural areas is the whole process of an all-around management from places of origin to customers receiving products. This definition came up by Du Wenhong and Liu Qian in their academic report. Broadly, E-commerce refers to not only selling, but purchasing. The selling in rural areas should include all products with local features that transacted to improve rural resident's income, rather than farming products only.

1.2. E-commerce Model in Rural Areas

Nowadays, most of rural areas in China have not implemented E-commerce activities successfully, because of many obstacles such as rural residents, logistics, Internet etc. Wang Xiangdong, the director of Research Center for Information Technology in Chinese Academy of Social Sciences, indicated that two different E-commerce models exist in our country because of different sources of motivation: top-down model and bottom –up model. The top-down model means the E-commerce platform run by official agencies with government leading and national investment, which aims to make rural residents informationization. The bottom-up model means the e-commerce platform is market-oriented with social or customers’ investment and voluntary utilization, which aims to carry out informationization by rural residents.

2. Qualitative Analysis and Quantitative Analysis of Factors that Influencing E-commerce in Rural Areas

2.1. Qualitative Analysis of Factors that Influencing E-commerce in Rural Areas

In China, the number of empirical study in this field is very short, because of too many influences and inconvenience of data collection in rural areas. By using combination of qualitative analysis and quantitative analysis, this paper mainly analyzes influencing factors on E-commerce in rural areas, and then ranks the those related factors. At the end, some recommendation and strategies are proposed to promote rural development.

On the basis of former literature and study of influencing factors in this field, this paper mainly analyzes influencing factors from two different perspectives of rural residents – sellers and buyer. From the perspective of being seller, the primary factors include individual, broadband, logistics, seller and external circumstances. From the perspective of being buyer, the primary factors include individual, broadband, logistics, startups, commodity and external circumstances. The details could be found in Table 1.

Table 1. Analysis of Influencing Factors on E-commerce in Rural Areas

Primary factors	Secondary factors	Code
Individual	Computer Penetration	GR1
	Computer Proficiency	GR2
	Acquirement the basic computer skill under guidance	GR3
	Smartphone Penetration	GR4
	The number of familiar shopping sites	GR5
	The number of shopping apps on Smartphone	GR6
Broadband	Variety of available broadband	KD1
	How easy to install broadband	KD2
	Installation cost	KD3
	Coverage rate	KD4
Logistics (in rural areas)	various approaches	WL1
	shipping price	WL2
	Satisfaction on delivery speed	WL3
	Satisfaction on delivery service	WL4
Start-ups	Willingness to build up Internet start-ups	CY1
	Funds for Internet start-ups	CY2
	Willingness to take Internet start-ups training	CY3
	Degree of risk taking	CY4

Commodity (online sale)	A variety of commodity	SP1
	Profit margin compared with offline sales channels	SP2
	The degree of preservation in delivery	SP3
	Market demand	SP4
Seller	Emphasis on Credibility	SJ1
	Emphasis on online service	SJ2
	Emphasis on selectivity	SJ3
	Emphasis on after-sales service	SJ4
External circumstances	The number of peers	XX1
	Local government support on E-commerce	XX2

2.2. Questionnaire Design

The basic information in questionnaire includes gender and age. In the body part, five primary factors and nineteen secondary factors could be found by qualitative analysis from the perspective of rural residents being buyer. Moreover, six primary factors and twenty-two factors could be found by quantitative analysis from the perspective of rural residents being seller. And then, related questions are set in terms of secondary factors. People filling in the questionnaire should make a multiple choice. The questionnaire is designed as a 5-point scale (A=1, B=2, C=3, D=4, E=5).

2.3. Research Method and Research Object

This research object is rural residents, and research methods include Internet survey and field survey. Limitation of field research is that rural residents aged over 36 know little about e-commerce. The valid questionnaires from field research are only 43, but from Internet survey are 103.

2.4. Survey Overview

After analyzing the valid data on basic information, following data are summarized.

Table 2. The Basic Characteristics of Research Sample

Items		Total number of participants	Percentage
Gender	Male	77	52.74%
	Female	69	47.26%
Previous Experience of Shopping Online	Yes	125	85.62%
	No	21	14.38%
Age	16-25	96	65.75%
	26-35	29	19.86%
	36-45	11	7.53%
	Over 46	10	6.85%
	Total	146	100.00%

As can be seen, the percentage of male respondents is slightly higher compared to female ones. Most respondents have previous experience of shopping online, accounting for 85.62%. Compared with people without such experience, these respondents offered more objective and meaningful answers. From age distribution, the group of the 16-25

year olds has the largest proportion of 65.7%; the 26-35 year olds account for 19.8%; the 36-45 year olds account for 7.53%; and only 6.85% of total is the over 46 year olds because of limited education and age. Overall, 85.62% of total has the previous experience of shopping online, and 14.38% doesn't.

2.5. Reliability Analysis

Reliability analysis of this research is carried out by Cronbach's Alpha reliability coefficient. Data that cannot meet the requirements are listed in following table 3.

Table 3. Item-total Statistic Table

	Corrected Item-Total Correlation	Alpha if deleted	Cronbach's Alpha
GR3	.299	.785	0.771
SP1	.292	.725	0.721

As we can see, when the alpha value is higher with these two items excluded, the following data analysis deletes them to improve the overall reliability of the questionnaire.

3. Quantitative Analysis on Influencing Factors from the Perspective of Rural Residents Being Buyer

Quantitative analysis uses factor analysis to input and analyze data, and then adopts the componential analysis to extract common factor. Principal component number whose eigenvalues greater than 1 is set as number of factors. Varimax rotation is used as method of factor rotation with SPSS 19.0.

3.1 KMO and Bartlett's Test of Sphericity

KMO value is 0.796 that is more than 0.7, and indicates the significant intercorrelations among the variables. Because there is no difference in the degree of relationship among variables, it is concluded that factor analysis is available. Bartlett value is 985.469, and result of significance test is 0. Therefore, we can reject the hypothesis of sphericity; correlation matrix is not an identity matrix. Indexes are not independent variables. It is concluded that factor analysis is also available here.

Table 4. Results of KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.796
Bartlett's Test of Sphericity	Approx. Chi-Square	985.469
	df	171
	Sig.	.000

3.2. The Number of Factors

Table 5. Factors to Explain the Total Variance in Original Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.427	28.561	28.561	<i>5.427</i>	<i>28.561</i>	28.561	2.590	13.629	13.629
2	2.266	11.927	40.489	<i>2.266</i>	<i>11.927</i>	40.489	2.587	13.616	27.245
3	1.702	8.958	49.447	<i>1.702</i>	<i>8.958</i>	49.447	2.498	13.145	40.391
4	1.165	6.129	55.576	<i>1.165</i>	<i>6.129</i>	55.576	2.193	11.540	51.930
5	1.098	5.778	61.355	<i>1.098</i>	<i>5.778</i>	61.355	1.791	9.424	<i>61.355</i>
6	.948	4.991	66.346						
7	.790	4.159	70.505						
8	.739	3.888	74.394						
9	.662	3.483	77.877						
10	.650	3.419	81.296						
11	.624	3.282	84.578						
12	.527	2.775	87.354						
13	.498	2.622	89.976						
14	.423	2.228	92.204						
15	.393	2.0686	94.271						
16	.355	1.867	96.128						
17	.337	1.775	97.913						
18	.237	1.246	99.160						
19	.160	.840	100.00						

Factors to explain the total variance in original variables(continue)			
Component	Rotating square and loading		
	Total	% of Variance	Cumulative %
1	2.590	13.629	13.629
2	2.587	13.616	27.245
3	2.498	13.145	40.391
4	2.193	11.540	51.930
5	1.791	9.424	<i>61.355</i>
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As shown in Table 5, the eigenvalues of first five factors are higher after factor rotation. These six factors explain 61.355% of the total variance in original variables. Generally speaking, information of original variables has little loss. Factor analysis results are basically satisfactory. Five factors are basically appropriate.

3.3. The Names of Factors

Table 6. Rotated Component Matrix

	Component					
	1	2	3	4	5	6
GR1	.208	.137	<i>.821</i>	-.014	.208	.208
GR2	<i>.589</i>	.353	.306	.125	.137	<i>.589</i>
GR4	<i>.648</i>	.299	.163	.128	.190	<i>.648</i>
GR5	<i>.793</i>	.252	.175	-.019	.191	<i>.793</i>
GR6	<i>.712</i>	-.076	.063	-.059	.234	<i>.712</i>
KD1	.289	.027	.254	.265	<i>.505</i>	.289
KD2	.071	.080	<i>.678</i>	.351	.164	.071
KD3	.351	-.081	<i>.474</i>	.389	-.274	.351
KD4	.147	.085	<i>.862</i>	.030	.246	.147
WL1	.246	.140	.232	<i>.452</i>	.369	.246
WL2	.248	-.127	.104	<i>.694</i>	-.194	.248
WL3	-.012	-.002	.098	<i>.759</i>	.167	-.012
WL4	-.229	.156	.005	<i>.736</i>	.153	-.229
XX1	.251	-.026	.272	.030	<i>.678</i>	.251
XX2	.140	.161	.079	.042	<i>.669</i>	.140
SJ1	.122	<i>.760</i>	.033	.009	.118	.122
SJ2	.161	<i>.767</i>	.018	.016	.171	.161
SJ3	.323	<i>.680</i>	.123	.055	.029	.323
SJ4	-.089	<i>.741</i>	.072	-.004	-.083	-.089

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

Factor1: as a higher load factor, factor 1 mainly explains the following variables: computer proficiency, Smartphone penetration, the number of familiar shopping sites and the number of shopping apps on Smartphone. Therefore, the factor 1 could be named as Rural Resident Factor.

Factor 2: as a higher load factor, factor 2 mainly explains the following variables: emphasis on sellers' credibility, emphasis on online service, emphasis on selectivity and emphasis on after-sales service. Therefore, the factor 2 could be named as Seller Factor.

Factor3: as a higher load factor, factor 3 mainly explains the following variables: computer penetration, how easy to install broadband, installation cost and coverage rate of broadband. Therefore, the factor 3 could be named as Basic Facilities Factor.

Factor 4: as a higher load factor, factor4 mainly explains the following variables: various approaches in logistics, shipping price, satisfaction on delivery speed and satisfaction on delivery service. Therefore, the factor 4 could be named as Logistics (in rural areas) Factor.

Factor 5: as a higher load factor, factor 5 mainly explains the following variables: variety of available broadband, the number of peers and local government support on E-commerce. Therefore, the factor 5 could be named as External Circumstances Factor.

3.4. Results of Statistical Analysis

Table 7. Factor Score Coefficient Matrix

	Component				
	1	2	3	4	5
GR1	-.095	.005	<i>.433</i>	-.145	-.024
GR2	<i>.222</i>	.071	.022	.009	-.084
GR4	<i>.283</i>	.038	-.086	.030	-.025
GR5	<i>.374</i>	-.002	-.085	-.050	-.043
GR6	<i>.381</i>	-.141	-.133	-.055	.051
KD1	.025	-.066	-.028	.076	<i>.286</i>
KD2	-.135	.002	<i>.323</i>	.071	-.021
KD3	.173	-.069	<i>.212</i>	.141	-.371
KD4	-.140	-.015	<i>.458</i>	-.130	.012
WL1	.013	.002	-.041	<i>.184</i>	.174
WL2	.176	-.075	-.058	<i>.355</i>	-.237
WL3	-.061	-.013	-.083	<i>.376</i>	.083
WL4	-.190	.089	-.094	<i>.380</i>	.117
XX1	-.025	-.098	-.001	-.058	<i>.440</i>
XX2	-.075	.005	-.102	-.021	<i>.472</i>
SJ1	-.050	<i>.320</i>	-.041	-.005	.008
SJ2	-.034	<i>.315</i>	-.068	-.002	.044
SJ3	.079	<i>.263</i>	-.016	.008	-.109
SJ4	-.145	<i>.351</i>	.062	-.008	-.115

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalizatio.
Component Scores.

Table 7 shows factor score coefficient matrix. We find that five new factors is a linear combination of the original indexes. Therefore, five functions of factor score are listed as followings:

$$F1 = -0.095GR1 + 0.222GR2 + 0.283GR4 + \dots - 0.145SJ4$$

$$F2 = 0.005GR1 + 0.071GR2 + 0.038GR4 + \dots + 0.351SJ4$$

$$F3 = 0.433GR1 + 0.022GR2 - 0.086GR4 + \dots + 0.062SJ4$$

$$F4 = -0.145GR1 + 0.009GR2 + 0.030GR4 + \dots - 0.008SJ4$$

$$F5 = -0.024GR1 - 0.084GR2 - 0.025GR4 + \dots - 1.115SJ4$$

As seen these six functions, it can be conclude that: in Rural Residents Factor, the most influential factor is the number of shopping apps on Smartphone, followed by the number of familiar shopping sites, Smartphone penetration and computer proficiency in turn.

In Seller Factor, the most influential one is emphasis on after-sales service, followed by emphasis on sellers' credibility, emphasis on online service and emphasis on selectivity in turn.

In Basic Facilities Factor, the most influential one is coverage rate of broadband, followed by computer penetration, how easy to install broadband and installation cost in return.

In Logistics(in rural areas) Factor, the most influential one is satisfaction on delivery service, followed by satisfaction on delivery speed, shipping price and various approaches in logistics in turn.

In External Circumstances Factor, the most influential one is Local government support on e-commerce, followed by the number of peers and variety of available broadband.

Five primary factors explain 61.355% of the total variance of all 19 variables. The proportion of explained variance of each factor is different. The first factor is 28.561%, the second of 11.927%, the third of 8.958%, the fourth of 6.129%, the fifth of 5.778%. Setting total variance explained as weight value in this part, it can be concluded that among influencing factors from the perspective of rural residents being buyer, the most important one is Rural Resident Factor, followed by Seller Factor, Basic Facilities Factor, Logistics(in rural areas) Factor and External Circumstances Factor in turn.

4. Quantitative Analysis on Influencing Factors from the Perspective of Rural Residents Being Seller

The analysis method in this part is the same as the quantitative analysis from the perspective of rural residents being buyer.

4.1. KMO and Bartlett's Test of Sphericity

KMO value is 0.773 that is more than 0.7, and indicates the significant intercorrelations among the variables. Because there is no difference in the degree of relationship among variables, it is concluded that factor analysis is available. Bartlett value is 1117.710, and result of significance test is 0. Therefore, we can reject the hypothesis of sphericity; correlation matrix is not an identity matrix. Indexes are not independent variables. It is concluded that factor analysis is also available here.

Table 8. Results of KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.796
Bartlett's Test of Sphericity	Approx. Chi-Square	1117.710	
	df	231	
	Sig.	<i>.000</i>	

4.2. The Number of Factors

Table 9. Factors to Explain the Total Variance in Original Variables

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
	1	5.735	26.068	26.068	<i>5.735</i>	<i>26.068</i>	26.068	2.556	11.620
2	2.270	10.317	36.386	<i>2.270</i>	<i>10.317</i>	36.386	2.512	11.419	23.039
3	1.647	7.486	43.872	<i>1.647</i>	<i>7.486</i>	43.872	2.271	10.323	33.362
4	1.429	6.496	50.368	<i>1.429</i>	<i>6.496</i>	50.368	2.184	9.929	43.292
5	1.151	5.233	55.600	<i>1.151</i>	<i>5.233</i>	55.600	1.939	8.812	52.104
6	1.095	4.979	60.580	<i>1.095</i>	<i>4.979</i>	60.580	1.865	8.476	<i>60.580</i>
7	.981	4.461	65.041						
8	.925	4.204	69.245						
9	.878	3.993	73.238						
10	.832	3.783	77.021						
11	.695	3.160	80.181						
12	.650	2.952	83.134						
13	.594	2.701	85.835						
14	.501	2.277	88.112						
15	.484	2.198	90.310						
16	.423	1.923	92.233						
17	.406	1.845	94.078						

Extraction Method: Principal Component Analysis.

As shown in Table 9, the eigenvalues of first six factors are higher after factor rotation. These six factors explain 60.580% of the total variance in original variables. Generally speaking, information of original variables has little loss. Factor analysis results are basically satisfactory. Six factors are basically appropriate.

4.3. The Names of Factors

Table 10. Rotated Component Matrix

	Component					
	1	2	3	4	5	6
GR1	.280	<i>.797</i>	-.004	.001	.182	.094
GR2	<i>.642</i>	.368	.184	.120	.035	.178
GR4	<i>.731</i>	.156	.020	.134	.180	.284
GR5	<i>.835</i>	.182	.155	-.015	.163	.091
GR6	<i>.610</i>	.038	.356	-.062	.245	-.132
KD1	.207	.277	.023	.215	<i>.607</i>	.007
KD2	.003	<i>.677</i>	.224	.313	.236	-.006
KD3	.147	<i>.462</i>	.308	.380	-.131	-.104
KD4	.217	<i>.844</i>	-.067	.039	.227	.096
WL1	.308	.261	.036	<i>.443</i>	.322	-.002
WL2	.154	.072	.040	<i>.700</i>	-.063	-.066
WL3	.014	.094	-.079	<i>.755</i>	.187	.029
WL4	-.133	.026	.029	<i>.746</i>	.040	.123

XX1	.204	.271	.169	.014	<i>.639</i>	.035
XX2	.114	.059	.147	.033	<i>.652</i>	.234
CY1	.187	.071	<i>.684</i>	.074	.156	.152
CY2	.106	.109	<i>.601</i>	-.018	-.178	.005
CY3	-.028	.026	<i>.769</i>	-.069	.267	.153
CY4	.286	-.072	<i>.592</i>	.104	.285	.162
SP2	.083	.092	.176	.131	-.138	<i>.744</i>
SP3	.142	-.093	-.048	-.016	.231	<i>.674</i>
SP4	.060	.150	.266	-.067	.184	<i>.736</i>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

Factor 1: as a higher load factor, factor 1 mainly explains the following variables: computer proficiency, Smartphone penetration, the number of familiar shopping sites and the number of shopping apps on Smartphone. Therefore, the factor 1 could be named as Rural Residents Factor.

Factor 2: as a higher load factor, factor 2 mainly explains the following variables: computer penetration, how easy to install broadband, installation cost and coverage rate of broadband. Therefore, the factor 2 could be named as Basic Facilities Factor.

Factor 3: as a higher load factor, factor 3 mainly explains the following variables: willingness to build up Internet start-ups, funds for internet start-ups, willingness to take internet start-ups training and degree of risk taking. Therefore, the factor 3 could be named as Start-ups Factor.

Factor 4: as a higher load factor, factor 4 mainly explains the following variables: various approaches in logistics, shipping price, Satisfaction on delivery speed and Satisfaction on delivery service. Therefore, the factor 4 could be named as Logistics (in rural areas) Factor.

Factor 5: as a higher load factor, factor 5 mainly explains the following variables: variety of available broadband, the number of peers and local government support on E-commerce. Therefore, the factor 5 could be named as External Circumstances Factor.

Factor 6: as a higher load factor, factor 6 mainly explains the following variables: profit margin compared with offline sales channels, the degree of preservation in delivery and market demand. Therefore, the factor 6 could be named as Commodity (online sale) Factor.

4.4. Results of Statistical Analysis

Table 11. Factor Score Coefficient Matrix

	Component					
	1	2	3	4	5	6
GR1	-.019	<i>.395</i>	-.072	-.124	-.044	.026
GR2	<i>.283</i>	.073	-.009	.007	-.184	.045
GR4	<i>.370</i>	-.095	-.137	.040	-.051	.104
GR5	<i>.428</i>	-.078	-.053	-.042	-.069	-.038
GR6	<i>.292</i>	-.129	.107	-.052	.063	-.194
KD1	-.032	-.002	-.078	.041	<i>.374</i>	-.080
KD2	-.200	<i>.321</i>	.097	.050	.037	-.048
KD3	-.010	<i>.211</i>	.171	.136	-.237	-.089
KD4	-.067	<i>.424</i>	-.103	-.114	-.002	.035
WL1	.083	-.020	-.058	<i>.177</i>	.128	-.061

WL2	.094	-.080	.009	<i>.359</i>	-.119	-.048
WL3	-.031	-.086	-.074	<i>.372</i>	.092	.007
WL4	-.106	-.073	.011	<i>.384</i>	-.006	.082
XX1	-.060	.019	.000	-.066	<i>.394</i>	-.082
XX2	-.088	-.093	-.023	-.026	<i>.430</i>	.049
CY1	-.028	-.031	<i>.325</i>	.015	-.011	-.009
CY2	-.007	.073	<i>.338</i>	-.020	-.230	-.048
CY3	-.183	-.013	<i>.391</i>	-.060	.117	-.015
CY4	.052	-.160	<i>.247</i>	.046	.101	-.016
SP2	-.021	.049	.019	.063	-.245	<i>.461</i>
SP3	.024	-.111	-.141	-.005	.097	<i>.392</i>
SP4	-.114	.065	.043	-.067	.001	<i>.411</i>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Component Scores.

Table 11 shows factor score coefficient matrix. We find that six new factors is a linear combination of the original indexes. Therefore, six functions of factor score are listed as followings:

$$F6 = -0.019GR1 + 0.283GR2 + 0.370GR4 + \dots - 0.114SP4$$

$$F7 = -0.395GR1 + 0.073GR2 - 0.095GR4 + \dots + 0.065SP4$$

$$F8 = -0.072GR1 - 0.009GR2 - 0.137GR4 + \dots + 0.043SP4$$

$$F9 = -0.124GR1 + 0.007GR2 + 0.040GR4 + \dots - 0.067SP4$$

$$F10 = -0.044GR1 - 0.184GR2 + 0.051GR4 + \dots + 0.001SP4$$

$$F11 = 0.026GR1 + 0.045GR2 + 0.104GR4 + \dots + 0.411SP4$$

As seen these six functions, it can be conclude that: in Rural Residents Factor, the most influential factor is the number of familiar shopping sites, followed by Smartphone penetration, the number of shopping apps on Smartphone and computer proficiency in turn.

In Basic Facilities Factor, the most influential one is coverage rate of broadband, followed by computer penetration, how easy to install broadband and installation cost in return.

In Start-ups Factor, the most influential one is willingness to take Internet start-ups training, followed by funds for Internet start-ups, willingness to build up Internet start-ups and degree of risk taking in return.

In Logistics(in rural areas) Factor, the most influential one is satisfaction on delivery service, followed by satisfaction on delivery speed, shipping price and various approaches in logistics in turn.

In External Circumstances Factor, the most influential one is local government support on E-commerce, followed by the number of peers and variety of available broadband in turn.

In Commodity (online sale) Factor, the most influential one is profit margin compared with offline sales channels, followed by market demand and the degree of preservation in delivery in turn.

Six primary factors explain 60.580% of the total variance of all 22 variables. The proportion of explained variance of each factor is different. The first factor is 26.068%, the second of 10.317%, the third of 7.486%, the fourth of 6.496%, the fifth of 5.233% and the sixth of 4.979%. Setting total variance explained as weight value in this part, it can be concluded that among influencing factors from the perspective of rural residents being

seller, the most important one is Rural Residents Factor, followed by Basic Facilities Factor, Start-ups Factor, Logistics(in rural areas) Factor, External Circumstances Factor and Commodity (online sale) Factor in turn.

5. Summary

5.1. Existing Problems in Development of E-commerce in China Rural Areas

(1) Rural resident factor. It is the crucial reason to restrain the development of E-commerce in rural areas. The other main reason is low education level, especially in computer and the Internet, because of huge rural population, weak infrastructure and weak economic foundation for a long time. Thirdly, with the restrictions of some outdated traditional views, rural residents are lack of confidence on E-commerce and function of Internet economy. All of three reasons lead to the slow development of E-commerce in rural areas.

(2) The infrastructure of E-commerce in rural areas is weak. In recent years, urban development has spent abundant capital on national construction. It also happened in the field of information technology. Therefore, with insufficient investment in rural areas and poor infrastructure, existing network system in rural areas is difficult to adapt to meet the need of rapid development of E-commerce. Secondly, although the establishment of a number of large databases, it is only small part of them that are put into operation. Thirdly, it is difficult and impossible to popularize online banking, e-banking and telephone banking which are widespread in cities. Still, referring to account settlement, the rural residents still rely on financial institutions, such as postal savings and credit cooperatives. Lastly, although with high Smartphone penetration, it is still difficult to implement mobile commerce and mobile payment in rural areas

(3) The logistics system of E-commerce in rural areas is incomplete. In recent years, rural areas have made a great progress in logistics, such as the completion of “village – to – village” project. However, generally speaking, the logistics construction in rural areas is still slow and backward.

(4) The study indicates that with high willingness of start-ups, rural residents only have small startup capital with very low degree of risk taking. This is the one of main restraining factors.

5.2. Strategies and Recommendation

(1)Strengthen and popularize the E-commerce knowledge in rural areas to cultivate related talents.

The precondition to develop e-commerce in rural areas is to strengthen and popularize the related knowledge, because strengthening rural education is a must to improve the overall quality of rural people. Therefore, the related trainings are necessary to help rural people learn basic skills of computer operation, understand the application of E-commerce, gain the enthusiasm and establish a new idea on the Internet marketing and consumption.

(2)Speed up information infrastructure in rural areas

Speed up information infrastructure is an urgent task for the current development of e-commerce in rural areas. Many effective and feasible methods could be adopted. Cooperating with relevant computer manufacturers, the government should provide farmers with a number of cost-effective and highly efficient computers, encouraging rural people to get on to the Internet, guiding them to actively participate in E-commerce and building various information platforms. Meanwhile, the government should coordinate with relevant departments to reduce the Internet fee and attract more people to join in.

(3)Establish system of E-commerce logistics distribution in rural areas

To speed up the construction of infrastructure of logistics distribution in rural areas, the funding mechanism should be established and improved; financial supporting and financial guarantee should be given to support related projects; and finally, the transport system should be built up by. The basic ideas are as follows: 1. Setting up the delivery points in local supermarkets, business networks could be established. 2. The local coach could be used to establish a delivery system of small parcels and goods could be delivered in the same day. It can greatly shorten the delivery time. 3. The comprehensive service sites for major logistics services could be established. In terms of location, transportation, economic condition and service of major logistics companies, a number of service points could build up to allocate resource reasonably and reduce costs.

Government should give more support to E-commerce, including capital, policy and training. Lack of comprehensive network sales system, it is difficult to bring scattered farming products together into the large market, which is the contradiction between "small farmers and large market". Therefore, the government should make preferential policies to encourage college students or technicians in E-commerce to give periodical training and guidance to farmers, and encourage them to become a pioneer in e-commerce development in rural areas.

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