Research on Bribery Characterization of Property Developers in Land Market: Based on Quantitative Analysis

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Abstract　Taking Wuhan, Nanjing and Guangzhou as examples and using Logistic model and Moran index, this paper made a quantitative analysis on bribery characterization of developers in land market. It found that (ⅰ) bribery behavior of developers is promoted by supply and demands; (ⅱ) bribery behavior of developers takes on regional agglomeration and difference. It reached following conclusions: (ⅰ) under the influence of macro factors and micro factors, bribery behavior of developers is rational selection after full consideration of institutional environment and corporate strength, and is passive to a certain extent; (ⅱ) bribery behavior of developers has certain spatial correlation, and the high-high correlation characteristic is most significant.

Key words　Land market, Property developers, Bribery characterization, Quantitative analysis

With development of socialist market economy, land market plays an essential role in allocation of resources and adjustment of industrial structure. However, there are frequent reports of bribery behavior of developers, such as power-money deal, power-thing deal. It is claimed that bribery behavior of developers upsets existing land market and real estate order and poses grave threat to China's democratic legal construction and social stability. Many developers disclose that bidding procedure exists only in name, it is difficult to obtain project without bribery. Due to cut-throat market competition, 5 − 10% of project price has to be used as public relation spending[1]. Pritchard held that bribery is to obtain benefits by other approaches, so it is obviously negative in moral sense[2]. Clark and Riis stated that bribery is an unfair competition[3]. Abbinc believed that bribery is an abnormal relationship between enterprises or market entities and government officials, once being exposed, they would suffer high amount of punishment[4]. Batabyal and Beladi established queuing model of bribery and stated that bribers cooperating well with government officials easily reach their purposes[5]. Zhang Xinxiang thought that commercial bribery is typical impermissible action and deeply influenced by commercial field and commercial rules[6]. Xie Ping and Lu Lei pointed out two types of briery in financial institutions: rent setting incurred for launching new businesses, and active bribery for seeking supervision protection[7]. Li Jieyu and Huang Yufeng found that corporate bribery can reduce predation of officials or help enterprises to obtain resources[8]. Many scholars revealed various characteristics of bribery, but there is no systematic and indepth study and there is no focus on bribery characterization of de-velopers in land market. In this study, with the aid of relevant econometric tools, we made a quantitative analysis on performance and characteristics of bribery behavior of developers, to make clear its essential property and external manifestation, and provide practical reference for administration decisions of government.

1　Essential property of developers' bribery behavior

1.1　Description of the study　In July to October 2010, we made a field survey of developers in Wuhan, Nanjing, and Guangzhou. With the support of local bureau of land and natural resources and real estate management departments, we made closed quantitative interview and standard free interview by stratified random sampling, and obtained data of developers' bribery behavior. To remove worry of interviewees, we told them that our survey will be used only for academic study and the questionnaire will be filled in anonymous manner. We distributed a total of 900 copies of questionnaire (300 copies for each city). Finally, we received 883 valid copies, the rate of response reached 98.11%. Interviewees are 23 − 55 years old (41.37 years old on average), and 85.7% of them are male.

1.2　Study methods　Bribery of enterprises depends on judgment for expected utility of bribery or no bribery[9]. Thus, we got:

$$BD^* = \beta'x + \varepsilon \qquad (\text{Formula 1})$$

where BD^* denotes the potential difference between expected utility of bribery and no bribery, vector x refers to influence variable of micro and macro possibility, β' is corresponding parameter, and ε is random variable. Since bribery payment can be observed, we defined $BD_{ij} = \begin{cases} 1, BD^* > 0 \\ 0, BD^* \leqslant 0 \end{cases}$, where BD_{ij} signifies the bribery payment of the j-th developer in the i-th region. This follows the Logit model distribution.

$$Prob(y = 1) = Prob(\varepsilon - \beta'x) = F(\beta'x) \qquad (\text{Formula 2})$$

In Formula 2, F is cumulative distribution function (CDF) of ε.

In view of possible increase of developer's bribery in land market, assume ε takes on fat-tailed distribution, the Logit form can be converted into:

$$Prob(y=1) = \frac{e^{\beta'x}}{1+e^{\beta'x}} = \Lambda(\beta'x) \qquad \text{(Formula 3)}$$

To further know range of parameters, we adopted expression formula of Greene marginal effect[10]:

$$\frac{\partial E[y|x]}{\partial x} = \Lambda(\beta'x)[1-\Lambda(\beta'x)]\beta \qquad \text{(Formula 4)}$$

1. 3 Setting of variables On the basis of referring to survey of world commercial environment, using Delphi method, we consulted 20 experts of land management and real estate management.

From external environment and internal factors of developers' bribery, through 3 rounds of screening, we finally set 16 variables (8 macro variables and 8 micro variables) and established corresponding weight assignment form. *GDP* and *Pop* data were selected from statistical yearbook of corresponding city, *Asset*, *Sale*, *Staff*, *GO*, *PO*, and *CO* data were obtained from registration data in real estate management department, and other data were provided by surveyed developers. Variables were selected mainly according to institutional precondition of developers' bribery, supply capacity, negotiation position, and expected return. The descriptive statistics were listed in Table 1.

Table 1 Descriptive statistics of variables

Variable	Mean value	Standard error	Min.	Max.	Variable description
Macro variable					
L	2.236	1.525	1.000	5.000	Legal construction: weak (1 point), general (2 points), high (3 points), higher (4 points), and highest (5 points)
GS	2.303	1.267	1.000	5.000	Government supervision: seldom (1 point), sometimes (2 points), constant (3 points), frequent (4 points), and always (5 points)
GI	3.422	1.206	1.000	5.000	Market intervention: little (1 point), general (2 points), much (3 points), more (4 points), and most (5 points)
P	1.247	1.603	1.000	5.000	Policy continuity: worse (1 point), poor (2 points), general (3 points), better (4 points), and best (5 points)
MD	1.279	1.253	1.000	5.000	Market level: lower (1 point), low (2 points), general (3 points), higher (4 points), and highest (5 points)
Cul	3.316	1.575	1.000	5.000	Bad custom like establishing unprincipled relation: existence but few (1 point), existence and more (2 points), existence and common (3 points), existence and widespread (4 points), and existence and serious (5 points)
GDP	3.812	0.050	3.699	4.025	Gross domestic product: take natural log
Pop	2.999	0.047	2.903	3.104	Population of the city: take natural log
Micro variable					
Asset	3.403	1.116	1.000	5.000	Asset of real estate development enterprise: provisional asset level (1 point), level four asset (2 points), level three asset (3 points), level two asset (4 points), and level one asset (5 points)
Sale	6.182	3.149	3.525	10.154	Sales amount of developer in current year: take natural log
Staff	0.175	0.228	0.000	1.000	Number of staff: up to 100 (0 points); ≥ 100 (1 point)
Edu	3.529	1.816	1.000	5.000	Educational credentials of developers: primary school and below (1 point), junior middle school and special secondary school (2 points), senior middle school and professional school (3 points), university and college (4 points), and postgraduate (5 points)
MC	0.175	0.382	0.000	1.000	Market concentration of enterprise (measured as per number of competitors): ≤ 3 (0 point), >3 (1 point)
GO	0.013	0.227	0.000	1.000	Enterprise nature: GO, PO, and CO stand for state operation, private operation, and cooperative operation, No (0 point) and Yes (1 point)
PO	0.948	0.213	0.000	1.000	
CO	0.026	0.202	0.000	1.000	

1. 4 Study process Firstly, we established relationship matrix (as listed in Table 2). According to height correlation (higher than 0.50), we rejected redundant variables: government supervision (GS) and marketization degree (MD). On this basis, we obtained following equation:

$$B_{ij} = \beta_0 + \beta_1 L_i + \beta_2 GI_i + \beta_3 P_i + \beta_4 Cul_i + \beta_5 GDP_i + \beta_6 Pop_i + \beta_7 Asset_{ij} + \beta_8 Sale_{ij} + \beta_9 Staff_{ij} + \beta_{10} Edu_{ij} + \beta_{11} MC_{ij} + \beta_{12} GO_{ij} + \beta_{13} PO_{ij} + \beta_{14} CO_{ij} \qquad \text{(Formula 5)}$$

Next, we made collinearity diagnosis (Table 3), tested variance inflation factor (VIF) and tolerance of explanatory variables, and found that VIF > 10 and Tolerance < 0.1, indicating that there

is no collinearity. Further, according to formula 3 to formula 5, we estimated variable parameters and the results were listed in Table 4.

1. 5 Study results For macro variables, *L*, *GI*, *P*, and *Cul* have statistical significance, and *GDP* and *Pop* have no statistical significance. These indicate that legal construction, government intervention, policy continuity, and human relation have significant influence on bribery of developers. The highest influence comes from government intervention. From Table 4 (the 5th column), government intervention (*GI*), and cultural factor (*Cul*) separately lead to increase of developers' bribery for 0.133 and

0.054 units. Legal construction (L) and policy continuity (P) separately lead to drop of developers' bribery for 0.067 and 0.112 units. Besides, the marginal effect of column 6 in Table 4 is consistent with standardization coefficient of column 5. These indicate that bribery behavior of developers occurs in certain context. Especially, range, way, and effort of government intervening in land market provide developers with bribery space for elastic benefit and gray benefit, such as land transfer, land ownership transfer, land certification handling, and increase of plot ratio. In micro variables, $Asset$, $Sale$, MC, and PO are statistically significant, while $Staff$, Edu, GO, and CO are not statistically significant. These indicate that asset, sales, market concentration, and private

model have significant influence on bribery behavior of developers. From coefficient value (the fifth column) in Table 4, market concentration (MC) and private operation (PO) increased bribery of developers for 0.351 and 0.033 units, and marginal effect value of both variables is higher, indicating that developers' bribery behavior is an instinctive response to market intense competition. Besides, standardization coefficient of Asset and sale is negative, showing that the higher the asset, the higher sales volume, and the less bribery behavior. Therefore, bribery behavior of developers is closely connected with market position and market dominance ability of developers.

Table 2 Relationship matrix of variables for empirical model

L	GS	GI	P	MD	Cul	GDP	Pop	Asset	Sale	Staff	Edu	MC	GO	PO	CO
GS	0.527	1.000														
GI	0.124	0.034	1.000													
P	0.002	−0.046	−0.042	1.000												
MD	0.015	0.006	0.533	0.189	1.000											
Cul	0.218	0.223	0.162	0.204	0.033	1.000										
GDP	0.011	0.005	0.012	0.039	0.016	0.054	1.000									
Pop	−0.056	−0.029	−0.017	−0.006	−0.099	−0.250	0.014	1.000								
Asset	0.013	−0.202	0.354	0.005	0.113	0.232	0.001	−0.059	1.000							
Sale	−0.044	−0.056	−0.035	−0.020	0.007	0.010	0.155	0.162	0.012	1.000						
Staff	−0.105	−0.162	−0.201	−0.163	−0.044	0.009	0.033	0.112	0.029	0.104	1.000					
Edu	−0.008	−0.158	0.086	0.019	0.034	0.029	0.136	0.114	0.165	0.053	0.006	1.000				
MC	0.037	−0.026	0.023	0.074	0.238	0.250	−0.020	−0.035	0.247	0.218	0.201	0.334	1.000			
GO	−0.205	0.003	0.206	−0.031	−0.254	0.027	−0.004	−0.143	0.059	0.122	0.004	0.055	0.016	1.000		
PO	−0.202	0.002	0.195	0.012	0.015	0.034	0.004	0.013	0.017	0.011	0.009	0.003	0.131	−0.003	1.000	
CO	−0.203	0.002	0.193	0.011	0.007	0.022	0.001	0.003	0.008	0.015	0.006	0.002	0.109	−0.003	−0.002	1.000

Table 3 Collinearity diagnosis: variance inflation factor and tolerance

	Initial model			Final model		
Variable	VIF	Tolerance	Variable	VIF	Tolerance	
L	2.980	0.336	L	1.360	0.735	
GS	5.710	0.173				
GI	3.210	0.322	GI	−	−	
P	1.720	0.318	P	1.150	0.750	
MD	2.770	0.230				
Cul	4.340	0.888	Cul	1.100	0.727	
GDP	1.130	0.941	GDP	1.120	0.740	
Pop	1.040	0.715	Pop	1.050	0.693	
Asset	2.720	0.366	Asset	1.140	0.735	
Sale	2.310	0.544	Sale	1.290	0.835	
Staff	3.120	0.763	Staff	1.440	0.650	
Edu	1.360	0.737	Edu	1.100	0.721	
MC	4.430	0.525	MC	1.350	0.908	
GO	1.060	0.219	GO	1.344	0.830	
PO	1.212	0.316	PO	1.317	0.529	
CO	1.103	0.204	CO	1.263	0.546	
Mean VIF	2.513	−	Mean VIF	1.145	−	

Table 4 Parameter estimation of Logit regression（dependent variable：BD_{ij}）

Independent variable	β_p	Standard error	$\beta_p^{SY^*}$	β_p^{FS}	Marginal effect
Macro variable					
L	−0. 359*	(0. 145)	−0. 152	−0. 067	−0. 086
GI	0. 143***	(0. 025)	0. 061	0. 133	0. 032
P	−0. 192**	(0. 039)	−0. 082	−0. 112	−0. 044
Cul	0. 251**	(0. 121)	0. 108	0. 054	0. 062
GDP	0. 063	(0. 041)	0. 027	0. 036	0. 016
Pop	0. 047	(0. 029)	0. 022	0. 033	0. 015
Micro variable					
Asset	−0. 122**	(0. 016)	−0. 056	−0. 158	−0. 030
Sale	−0. 018**	(0. 142)	−0. 008	−0. 003	−0. 005
Staff	−0. 003	(0. 003)	−0. 001	−0. 025	−0. 001
Edu	−0. 173	(0. 141)	−0. 075	−0. 031	−0. 043
MC	2. 204***	(0. 177)	0. 941	0. 351	0. 443
GO	−0. 219	(0. 135)	−0. 092	−0. 043	−0. 052
PO	0. 169***	(0. 125)	0. 021	0. 033	0. 018
CO	−0. 193	(0. 132)	−0. 076	−0. 054	−0. 037

Note：＊, ＊＊, and ＊＊＊ denote significance level of 10%, 5%, and 1% respectively. The second and third columns signify partial change and standard error, . The fourth column denotes standardization coefficient of $Y*i$. The fifth column denotes standardization coefficient of Xp, $\beta_p^{FS} = \sigma_p B_p / \sigma Y^* = \sigma_p B_p^{SY^*}$. The sixth column is marginal effect.

2 Spatial characterization of developers' bribery behavior

2. 1 Description of the study In order to further reveal spatial characterization of bribery behavior of developers, we made a depth interview with developers who have resorted to bribery, mainly involving with bribery fund. Since we have guaranteed privacy of the survey, here we do not disclose the statistical results of bribery fund publicly. Spatial situation of three sample cities：according to administrative division, Wuhan includes 7 central districts and 6 suburban districts；Nanjing includes 11 districts and 2 counties；Guangzhou includes 10 districts and 2 cities.

2. 2 Study methods In the space related analysis and application studies, space statistics generally use the spatial auto–correlation index Moran'I. Moran' I is defined as：

$$Moran' l = \frac{\sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij}(Y_i - \bar{Y})(Y_j - \bar{Y})}{S^2 \sum_{i=1}^{n}\sum_{j=1}^{n} W_{ij}} \quad (\text{Formula 6})$$

In Formula 6, $S^2 = \frac{1}{n}\sum_{i=1}^{n}(Y_i - \bar{Y})$, $\bar{Y} = \frac{1}{n}\sum_{i=1}^{n} Y_i$, Y_i denotes statistical value of bribery fund in the $i-$th area, n is total number of areas, S is standard deviation of indicator Y, and W_{ij} signifies any

element in binary weight matrix of adjacent space（adjacency standard or distance standard is used, the purpose is to define mutual adjacency relation of spatial object）. Generally, W_{ij} of adjacency standard is as follows：

$$W_{ij} = \begin{cases} 1 & \text{when region } i \text{ is adjacent to region } j \\ 0 & \text{when region } i \text{ is not adjacent to region } j \end{cases} \quad i = 1,2,$$
$$\cdots,n;j=1,2,\cdots,m;m = m \text{ or } m \neq n \quad (\text{Formula 7})$$

2. 3 Study process Firstly, we calculated the spatial auto-correlation index of mutual bribery fund relation between adjacent areas, and estimated spatial adjacency effect and spatial dependence of developers' bribery behavior. From Table 5, we know that global Moran index is lower than 1%, indicating significant spatial auto-correlation. This means bribery fund takes on spatial agglomeration. In other words, the hypothesis of spatial stochastic distribution of developers' bribery behavior is rejected. Secondly, with the aid of GeoDa software, we obtained local Moran index scatter diagram of developers' bribery and local spatial correlation cluster map. Thirdly, we divided bribery funds of three sample cities into a cluster model with four quadrants, to recognize relationship between adjacent areas and make spatial description, as shown in Fig. 1 and Fig. 2.

Table 5 Global Moran spatial auto–correlation index test of developers' bribery behavior

| Wuhan	First order adjacency	Second order adjacency	Minimum distance	One time increased distance
Moran index	0. 6105	0. 4592	0. 3756	0. 2665
Small probability	0. 0000	0. 0000	0. 0000	0. 0000
Nanjing	First order adjacency	Second order adjacency	Minimum distance	One time increased distance
Moran index	0. 5319	0. 3987	0. 2974	0. 1669
Small probability	0. 0000	0. 0000	0. 0000	0. 0000
Guangzhou	First order adjacency	Second order adjacency	Minimum distance	One time increased distance
Moran index	0. 4727	0. 3213	0. 2304	0. 1255
Small probability	0. 0000	0. 0000	0. 0000	0. 0000
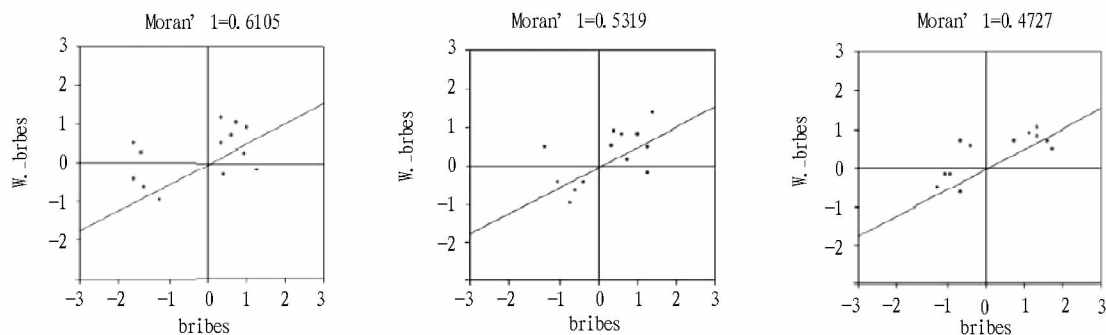
Fig. 1   Scatter diagram for Moran index of developers' bribes (from the left to the right is Wuhan, Nanjing, and Guangzhou)
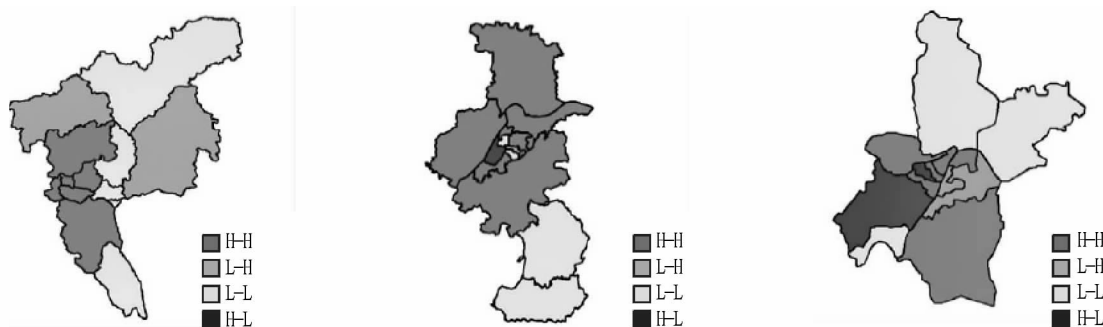

Fig. 2   Cluster diagram for Moran spatial auto-correlation index of developers' bribes (from the left to the right is Wuhan, Nanjing, and Guangzhou)

2.4 Study results   (i) The first quadrant: high-high (H-H) type, areas of bribery fund take on positive spatial auto-correlation, local spatial difference is low, local homogeneity is high, i. e. bribery level of the area and surrounding areas is high; in Wuhan, there are 6 such areas, accounting for 46.15%; in Nanjing, there are 7 such areas, accounting for 53.85%; in Guangzhou, there are 6 such areas, accounting for 50%.

(ii) The second quadrant: low-high (L-H) type: areas in this quadrant take on negative spatial auto-correlation, bribery level has high local difference, and local heterogeneity is high, forming local heterogeneous cold point, in other words, areas with low bribery level are surrounded by areas with high bribery level. For such areas, there are 2 in Wuhan, accounting for 15.38%; in Nanjing, there is one, accounting for 7.69%; in Guangzhou, there are 2, accounting for 16.67%.

(iii) The third quadrant: low-low (L-L) type: bribery level of study unit and surrounding areas is low and local spatial difference is low. For such areas, there are 3 in Wuhan, accounting for 23.08%; in Nanjing, there is 4, accounting for 30.77%; in Guangzhou, there are 4, accounting for 33.33%.

(iv) The fourth quadrant (H-L) type: local difference of bribery level is high, bribery level of study area is high, forming hot point of local heterogeneity, and the surrounding areas are low. For such areas, there are 2 in Wuhan, accounting for 15.38%; in Nanjing, there is one, accounting for 7.69%; in Guangzhou, there is no such area.

In general, bribery fund of Wuhan, Nanjing, and Guangzhou takes on spatial agglomeration of similar values, generally takes on positive spatial correlation relation, and also has difference characteristic of local bribery fund level. Therefore, developers' bribery has significant spatial correlation. It can be found that most areas lie in the first quadrant and the third quadrant, are positive spatial correlation, belong to low-low agglomeration and high-high agglomeration types, and high-high agglomeration type areas within the first quadrant are more than low-low agglomeration type areas within the third quadrant. These indicate that bribery of developers has obvious spatial spillover and dependence. This is possibly because land element is not mobile, local government is the sole subject of land supply, strategic arrangement of developers must indicate spatial similarity based on geographical position and economic endowment.

3 Conclusions and discussions

3.1 Conclusions   (i) Developers' bribery has certain passive characteristic. In land market, institutional arrangement of power monetization or power capitalization buries trouble for spread of bribery. If the power controlled by government is too high, especially concentration of administrative discretion power and advantage of possessing information, and monopoly of primary land market, have higher industrial access threshold compared with private enterprise model. In transfer of land use right, land plan, and land bidding, there are many limitations. For survival and development, developers have to adopt abnormal means to wait for competition qualification and market opportunity. Status of transaction

parties is not equal， people accepting bribes， as administers of public powers or resources， remain monopoly position in public service， while bribers remain in unfavorable status of looking to others for help. When they establish a one-to-one relation， transaction results will be the situation that only people accepting bribes and bribers offering the highest price have favorable position.

（ⅱ） Developers' bribery has certain spatial correlation. In land market， law enforcement is weak. In addition to accumulation of cultural custom such as human relation idea， the combination of power and capital becomes inevitable. As a result， bribery of developers is widespread in space. Especially， area agglomeration characteristic of high-high bribery fund reflects mutual conduction and prevailing of bribery. Bribery ability determines difference of spatial distribution of bribery fund. Such spatial correlation proves externality of developers' bribery. From this， we reached the conclusion that most developers have the highest possibility of bribery. In other words， developers' bribery is an undisputable potential rule in land market. This also verifies to a certain extent that developers' bribery is a rational choice. If they do not choose bribery， they may be eliminated from land market.

3.2 Policy implications

（ⅰ） There is drawback in operational institution of land market. For land market， within the institutional arrangement of a legal framework and property and contract， there are a group of potential buyers and sellers. Through exchange and mutual competition， it brings encouragement and so as to obtain optimum result. However， China's land market system is much lower than developed countries. Firstly， legal framework is not definite. *Law of Land Management* involves no land market issue. Secondly， there is no clear land property system and perfect contract system. Thirdly， primary land market is totally monopolized by government and lacks free competition atmosphere. The fundamental drawback is obscure definition between government and market， between public power and private power， and between officials and merchants. Government has higher policy explanation right and discretion right， while developers must get close to government to pursue maximum profit.

（ⅱ） Bribery of developers has constituted land corruption. Developers' bribery behavior distorts original meaning of fair market competition. It promotes human relation， power and money relation to replace the value and competition rules. To a certain extent， it detours normal land requisition procedure， bidding， auction and listing， and affair handling process. Bribers and people accepting bribery form alliance of "benefit conveyance". In the interaction process of illegal transaction， moral risk resulted from externality and information asymmetry leads to conflict between their profit pursuing activities and overall benefit of the society. These are mainly manifested in breaking the limit of state-owned land use planning， blind investment， excessive leading， and low-level repetitive distribution； land field becomes severely afflicted area of power rent-seeking. This leads to waste of resources， loss of state-owned assets， insufficient construction of people's livelihood projects， change of land use purpose， and house price remaining high. It strengthens public cognition and media orientation that "if there being land， there will be corruption".

3.3 Recommendations

（ⅰ） Breaking land market monopoly right of government. Government monopoly artificially sets institutional rent of land market and provides breeding space for illegal activities such as power-money transaction and power-object transaction. On the one hand， to satisfy maximum personal benefits， corruptive officials take power as means and tool of exchange. On the other hand， to obtain land use right and land development right， developers have to pay cost for government organs and officials. Government monopoly is also accompanied with benefit impulse of land finance and political achievement project， which inveigles developers into striving for rare resources in the way of bribery. Therefore， it is required to break government monopoly of land market， eliminate institutional rent， and reduce or cancel direct intervention of government against economic field. This requires further changing government functions， limiting government's intervention in making up the market failure and defining game rules， not providing space for power rent-seeking， and not providing excuse for enterprise seeking rent.

（ⅱ） Raising right of developers in land market. Developers' passive bribery and spatial spillover and difference of bribery space deeply revealed function of micro factors including asset， sales， market concentration， and private operation. In other words， developers' bribery motivation orientation and strategic arrangement are based on existing strength and survival and development of enterprises. On the contrary， it is recommended to raise right of developers in land market， respect reasonable requirements of developers in land transaction and profit pursuing， make them become subjects of investment construction， sales， and operation， and limit government function in formulating rules and becoming judge， providing services. In the context of strict property protection， it is recommended to make developers judge by themselves， make decisions on their own， independently assume corresponding responsibilities and risks， and strengthen independence and flexibility of willing express and behavior selection， so as to raise their position and bargaining ability， to maximally reduce public relation costs and reduce the possibility of bribery.

（ⅲ） Increasing institutional restriction of offering and accepting bribes. From macro factor， legal construction， policy continuity， and human relation idea have significant correlation with developers' bribery behavior. In space， it is manifested as high correlation with bribery funds and directly reflects drawbacks and lag of existing systems. In view of weak institutional constraint， it is required to focus on legal construction， policy adjustment， and cultural innovation. For developers with bribery record， it is recommended to strictly limit them in market access， operation qualification， loan approval， and bidding qualification， and impose certain legal attack. For exposed government officials accepting bribes， it is required to impose stern administrative and criminal punishment， so as to increase opportunity cost and law-breaking

loss of developers and government officials. In addition, it is recommended to improve quality of public policy, build up good faith culture and ethical awareness, and expand participation channels of functional departments, the public, and news media, to effectively stop black box transaction and gray negotiation of public right and private interests.

(ⅳ) Strengthening management and supervision of land market. Market mechanism of land market in China is inadequate. It is mainly manifested in information asymmetry and non-free flow of land elements. Besides, there are series of problems such as unfair land use, low efficiency of land allocation, and unstable expected income. As a result, developers are face with intense industrial competition and market pressure. This accelerates combination of economic benefits and political power and promotes developers to take bribery as their wise choice. Therefore, it is urgent to strengthen management and supervision of land market, establish perfect bidding, auction, and listing system for operational land, and create fair competition and equal access market environment. Furthermore, it is recommended to consolidate hidden market, regulate normal circulation and reasonable use of land, and implement land transaction license system and land transaction declaration system, to get overall control of market operation situation in time. Finally, it is recommended to publically issue land supply information and land price information, and improve land supervision and management system, to realize real-time supervi-

sion of law-breaking and discipline-breaking activities.

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