Factors that Influence Enterprises' Enthusiasm for Continuously Establishing the Traceability System： An Empirical Analysis of 81 Enterprises in Sichuan

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Abstract　Agro-product enterprises are the mainstay of the traceability system，and are of great importance. We analyze the factors that influence the enthusiasm of agro-product enterprises for continuously establishing traceability system from characteristics of enterprises，environment and performance，using the data of 81 agro-product enterprises in Sichuan province. It shows that the enthusiasm is greatly influenced by enterprises' characters and performance，such as age，ownership，business pattern of enterprises，market breadth，condition of enterprises' traceability system，income，acceptance of consumers，sales volume. Finally we put forward some recommendations，such as consummating the relative policies，increasing the publicity and perfecting performance assessment system.

Key words　Agro-product enterprises，Traceability system，Ordered Probit model

1　Introduction

In recent years，food safety accidents occur continually，drawing attention from more and more countries，customers，producers and scholars. Agricultural products have the characteristics of long supply chain，asymmetric information，difficult source control and predominant downstream control，making the quality safety of agricultural products become an urgent problem to be solved.

Basically，the traceability system is a kind of information recording system，which aims at enhancing information transmission，controlling the damage of the food-borne illness and guaranteeing the consumers' benefit. The government has made a series of laws and rules in China such as *Quality Safety Law of Agricultural Products in the People's Republic of China* （2006），*Agricultural Product Packing and Marking Management Approach*（2006），*Safety Management Methods of Food in Circulation Field*（2007）. As one of the earlier experimental areas continually establishing traceability system，Sichuan introduced advanced technology and equipment from developed provinces，and set up the traceability system on pigs in new and high-tech zones and peripheral locality of Chengdu in 2009，and gradually established the traceability system on fruits and vegetables in 2010. In general，Sichuan is still in its infancy at present，and some enterprises with strength and pioneering spirit have taken the lead in carrying out the traceability system and have obtained some results. It can be affirmed that in the initial period，government posing requirements through enacting laws，rules and systems，and giving policy support，has played important leading role. Along with the deepening practice，we

may have the following questions：Whether these enterprises which have initially established the traceability system have the enthusiasm for continually establishing it？ Which factors are affecting the enthusiasm？ According to economic theory，when the income is more than the cost，the enterprise will have the enthusiasm；otherwise，the enterprise will no longer establish it. The income may be one of the most important factors. In addition，whether there are other influencing factors？ To clarify this question is very important to speeding up the traceability system's healthy development. Therefore，the topic has great theoretic meaning and realistic meaning.

At present，the researches of the traceability system are mainly focused on the traceability system's development，technology and tools，purpose of establishment，intension and extension of the traceability system，as well as the main body's behavior and so on. The traceability system's behavioral agents mainly include the government，the consumers，the enterprises and the farmers. The research of the enterprises' behavior is mainly focused on motivation[1-3]，cost and income[4-7]，wish and influencing factors[3]，and so on.

In summary，the academic world has made remarkable achievements on the research of the traceability main body's behavior，especially the enterprises' behavior. But it lacks researches about enthusiasm of enterprises having initially established the traceability system. This article takes Sichuan's edible agricultural product enterprises which have initially established the traceability system as example to explore the factors influencing the enthusiasm for continually establishing the traceability system，and puts forward the corresponding policy proposals.

2　The hypotheses and empirical model

2. 1　The hypotheses　Enterprises are typical " economic

man", therefore, enterprises' behaviors are of rationality. As the rational economic organizations, enterprises take the traceability measure as a kind of behavior pursuing maximum benefit, and even if it aims to increase the products' quality and reduce the food security risk, it is after all a kind of behavior chasing benefit based on the consideration of satisfying the markets' needs (Hobbs, 2003; Guo Bin, 2004; David Sparling, 2006; Yang Qiuhong, *et al.* 2008). Hobbs (2003) believed that it can reduce transaction cost and increase benefits by taking the traceability measures. David Sparling (2006) held that income from adopting the traceability measures is important motivation for enterprises to adopt them. For enterprises which have initially established the traceability system, the performance brought by the traceability system to enterprises is bound to influence the enterprises' enthusiasm for continuously establishing or consummating the traceability system. The essence of the traceability system is the continuous safeguard system of the edible agricultural product information in each state of the market, and also the warning system for guaranteeing the products' security risk. For enterprises, it is an investment behavior of introducing a kind of risk control system. When they choose the investment, they would be affected by their own characters and the external environment. Therefore, through the theoretical analysis and the survey of the edible product enterprises, we divide the influencing factors into 3 aspects (the enterprises' characters, the external environment and the management performances), and put forth the following hypotheses.

2.1.1 The enterprises' characters have influence on the enthusiasm of edible agricultural product enterprises for continually establishing the traceability system.

Many researches of individual behavior and the theory of behavioral science indicate that there are close relations between the main body behavior and its own characteristics. As an individual establishing the traceability system, enterprises' characters consist of enterprise scale, age, pattern of ownership, management pattern, quality authentication, product category, proportion of exportation, market breadth, completeness degree of the traceability system, the level of enterprises' cognition on the traceability system and so on. Scale (X_1). The larger the enterprise scale, the greater the strength in fund, technology and manpower, and the easier to introduce the new technology and management methods. However, the establishment and maintenance of the traceability system need massive fund investment. So, we assume that the enterprise scale has influence on the enthusiasm for continually establishing the traceability system. We take gross asset to measure enterprise scale.

Enterprise age (X_2). Generally speaking, the longer the enterprises exist, the more complete the construction of internal systems, the easier for the enterprises to carry out standardized management and production, the higher the enthusiasm for keeping a complete management chain. Therefore, we assume that enterprise's age has influence on the enthusiasm for continually establishing the traceability system.

Pattern of ownership (X_3). At present, the establishment of the traceability system is mainly led by the government. Different structures may have different responses to the government policy. The pattern of ownership of Sichuan edible agro-product enterprises mainly includes private enterprises, state-owned (holding) enterprises and foreign-invested enterprises. So, we assume that the pattern of ownership has influence on the enthusiasm for continually establishing the traceability system.

Management pattern (X_4). Edible agro-product enterprises' management pattern includes production-oriented pattern, trade-oriented pattern and production-trade-oriented pattern. The enterprises with different patterns lie in different positions of the supply chain. At present, the agro-products' quality safety in China mainly uses the downstream control method, making the possibility that the enterprises in upstream, mid-stream and downstream of supply chain are to be checked different. Here, we assume that management pattern has influence on the enthusiasm for continually establishing the traceability system.

Enterprises' quality authentication (X_5). The quality authentication obtained by enterprises may include pollution-free agricultural products authentication, green food authentication, organic food authentication, ISO900 authentication, HACCP authentication, QS authentication, and so on. The quantity of the quality authentication that enterprises obtain reflects the degree of enterprises' attention to quality. Therefore, we assume that the quantity of quality authentication has influence on the enthusiasm for continually establishing the traceability system.

Product category (X_6). Different kinds of agricultural products have different length of production chain, causing different unsafe factors. So, we assume that product category has influence on the enthusiasm for continually establishing the traceability system.

Proportion of exportation (X_7). Exportation of edible agro-product has been influenced seriously by non-tariff barrier in China. Many developed countries and regions require that the imported agro-products should be traceable, so the imported agro-products pose high requirements on traceability. We assume that the proportion of exportation has influence on the enthusiasm for continually establishing the traceability system.

Market breadth (X_8). The market breadth has influence on the possibility that the enterprises will be inspected after the food security accidents occur. Here we assume that market breadth has influence on the enthusiasm for continually establishing the traceability system.

The completeness degree of the traceability system (X_9). We assume that market breadth has influence on the enthusiasm for continually establishing the traceability system.

The level of cognition of the traceability (X_{10}). If enterprises' operators have more knowledge about traceability, they will have deeper understanding about the function and importance of enterprises, and thus have higher enthusiasm for continually establishing the traceability system. We assume that the level of cognition of the traceability has influence on the

enthusiasm for continually establishing the traceability system.

2.1.2 The external environment has influence on the enthusiasm for continually establishing the traceability system.

The external environment faced by enterprises mainly includes policy environment, profession environment, market environment and so on. The article conducts analysis mainly from policy environment and market environment. The former is to inspect spot check way and spot check frequency, while the latter is to inspect the behavior of enterprises of the same trade.

Spot check way (X_{11}). The quality supervision departments' way to spot-check the enterprises' products includes regular spot check, nonscheduled spot check and combination of regular spot check and nonscheduled spot check according to the batch. For different spot check ways, the enterprises may have different responding strategies. We assume that the spot check way has influence on the enthusiasm for continually establishing the traceability system.

Spot check frequency in one year (X_{12}). The spot check frequency of the product in a year is one of the crucial factors for urging enterprises to take the quality safety measures and guarantee products' quality safety. We assume that spot check frequency has influence on the enthusiasm for continually establishing the traceability system.

Behavior of enterprises of the same trade (X_{13}). Behavior of enterprises of the same trade, especially the enterprises' action of establishing the traceability system, is one of the most important factors to be considered deliberately when they make decisions. If an enterprise takes the lead to establish the traceability system, then the enterprises of the same trade will immerse themselves in emulation, in order to enhance their competitiveness. We assume that behavior of enterprises of the same trade has influence on the enthusiasm for continually establishing the traceability system.

2.1.3 The management performance has influence on the enthusiasm for continually establishing the traceability system.

For the enterprises that have established the traceability system, how is the management performance? This is an important factor in deciding whether it is worth establishing the traceability system continually. According to the existing researches, it hasn't yet formed systematic indicator system. So we choose the indicators that we usually use to research enterprises' management performance, such as the change of cost, the change of income, the change of competitiveness, the change of consumers' cognition, the change of product sales. According to research of enterprises' motivation in the establishment of the traceability system, if enterprises' competitiveness of products, consumers' cognition and product sales are increased after establishment of the traceability system, then the enthusiasm for continually establishing the traceability system will be high. Enterprises pursue the maximum benefit or the minimum cost. Establishing the traceability system will increase the enterprises' cost. If the change of cost conforms to enterprises' anticipation, their enthusiasm for establishing the traceability system continually may be high; if the change of in-

come conforms to or is better than anticipation, then their enthusiasm will also be higher to some extent. So, we assume that the change of cost (X_{14}), the change of income (X_{15}), the change of competitiveness (X_{16}), the change of consumers' cognition (X_{17}), and the change of product sales (X_{18}) have influence on the enthusiasm for continually establishing the traceability system.

2.2 Empirical Model We choose the enthusiasm as the dependent variable. According to the survey, we divide the enthusiasm into 3 levels: high, normal, low. The dependent variable is classified ordered variable, and its independent variable is mainly discrete data, so it's ideal to take the probabilistic model for estimation. The ordered Probit model is a method widely used to deal with the multi-type discrete data[8].

In the ordered model, the observed value y, as the valuable to be explained, signifies the sequencing results or classification results, and the value is rounded, such as 0, 1, 2, 3···. The explanatory variable x_i is the factor that may affect the order of variables to be explained; x_i can be the set of several explanatory variables, namely vector. As the observed value y is discrete variable, we can not use the linear estimation model directly.

We assume that there is theoretical continuous indicator y_1^* depending on explanatory variable X, which is unobservable variable, and the map of y_i, meeting the conditions of LS. Thus we get the following formula:

$$y_i^* = \beta x_i + \varepsilon_i, \ i = 1, 2, \cdots, n$$

where β represents parameter vector, $\varepsilon_i \sim N(0, \sigma^2 I)$, that is, the observed samples are mutually independent, and have normal distribution errors. We assume that there are two unknown points, μ_1 and μ_2, signifying the unknown section point of assessment level of edible agro-product enterprises' enthusiasm for continuously establishing the traceability system, respectively, namely, $y_i = 1$, $y_i^* < \mu_1$, low; $y_i = 2$, $\mu_1 < y_i^* < \mu_2$, normal; $y_i = 3$, $y_i^* > \mu_2$, high. The probability when $y_i = 1, 2, 3$ is as follows:

$$prob(y = 1 \mid X) = prob. (y_i^* < \mu_1 \mid X) = prob. (\beta X_i + \varepsilon_i < \mu_1) = \Phi(\mu_1 - \beta X_i)$$

$$prob(y = 2 \mid X) = prob. (\mu_1 < y_i^* < \mu_2 \mid X) = prob. (\mu_1 < \beta X_i + \varepsilon_i < \mu_2) = \Phi(\mu_2 - \beta X_i) - \Phi(\mu_1 - \beta X_i)$$

$$prob(y = 3 \mid X) = prob. (y_i^* > \mu_2 \mid X) = prob. (\beta X_i + \varepsilon_i < \mu_2) = 1 - \Phi(\mu_2 - \beta X_i)$$

where Φ is the cumulative density function of standard normal distribution. Like the general Probit model, the ordered Probit model's parameter estimation takes the maximum likelihood method. However, the marginal effect of independent variable x on probability can not be reflected by β. For this probability, we need to calculate the marginal effect of independent variable's change.

$$\frac{\partial prob. (y = 1)}{\partial x} = \Phi(\mu_1 - \beta X_i)\beta$$

$$\frac{\partial prob. (y = 2)}{\partial x} = [\Phi(\mu_1 - \beta X_i) - \Phi(\mu_2 - \beta X_i)]\beta$$

$$\frac{\partial prob. (y = 3)}{\partial x} = \Phi(\mu_2 - \beta X_i)\beta$$

It can be seen from the above formula that the sign of derivative of *prob.*（*y*=1）and the sign of coefficient β are obviously reverse；the sign of derivative of *prob.*（*y*=3）is consistent with the sign of coefficient β；the relationship between the derivative of *prob.*（*y*=2）and β can not be determined, which hinges on the size of $\Phi(\mu_1-\beta X_i)$ and $\Phi(\mu_2-\beta X_i)$.

The basic model of this article is set as follows：

The enthusiasm of agro-product enterprises for continuously establishing traceability system = F（business features, the external environment, business performance）+ random disturbance term.

3   The empirical analysis

3.1   Data sources   The data come from the questionnaires of Sichuan's 120 edible agro-product enterprises which are establishing or consummating the traceability system and interviews with the managers in the period July – October, 2010. In ac-

cordance with the economic level, natural conditions and other characteristics of Sichuan Province, the survey selects places which are establishing the traceability system, such as Chengdu, Suining, Meishan, Leshan, Zirang. We distribute 120 questionnaires and call back 87 questionnaires, eliminating 6 invalid or non-complete questionnaires. Finally we get 81 valid questionnaires. The response rate is 67. 76%. Data are processed by Excel 2003 and Stata 10. 0.

The results show that 86. 42% of the enterprises have high enthusiasm for continually establishing the traceability system；12. 35% of the enterprises have not high enthusiasm；1. 23% of the enterprises have quite low enthusiasm.

3.2   Variable Setting   According to the above theoretical analysis model selection and research assumptions, this article divides the influencing factors into 3 categories, a total of 18 variables. The definition of variables and statistical description can be shown in Table 1.

Table 1   Variable definition and statistical description

Variable	Variable definition
1. Enterprises' characters	
Scale（X_1）	1 = gross asset value is less than 20 million yuan；2 =20 million and 1 to 40 million yuan；3 = 40 million and 1 to 60 million yuan；4 =60 million and 1 to 80 million yuan；5 =more than 80 million yuan
Age（X_2）	1 = less than 5 years；2 =6 – 10 years；3 =11 – 15 years；4 =16 – 20 years；5 =more than 20 years
Pattern of ownership（X_3）	1 =private；2 =state-owned（holding）；3 = foreign-invested
Management pattern（X_4）	1 =production；2 =trade；3 = production-trade
Quality authentication（X_5）	1 =less than 3kinds；2 = 4 –6 kinds；3 =more than 6 kinds
Product category（X_6）	0 = the rest；1 = grain and edible oil；2 = livestock and poultry；3 =fruits and vegetables
Proportion of exportation（X_7）	The actual proportion of exportation
Market breadth（X_8）	1 =products are sold to 1 area；2 =products are sold to 2 areas；……7 =products are sold to 7 areas
Completeness degree of the traceability system（X_9）	1 =complete；2 =normal；3 =incomplete
The level of cognition of the traceability（X_{10}）	1 =have never known；2 =don't know；3 =know；4 =know it well
2. External environment	
Spot check way（X_{11}）	1 =regular spot check；2 =nonscheduled spot check；3 =combination of regular spot check and nonscheduled spot check
Spot check frequency per year（X_{12}）	The actual check times in one year
Behavior of enterprises of the same trade（X_{13}）	0 =no；1 =yes
3. Management performance	
The change of cost（X_{14}）	1 = consistent with anticipation；2 = basically consistent with anticipation；3 = inconsistent with anticipation
The change of income（X_{15}）	1 = consistent with anticipation；2 = basically consistent with anticipation；3 = inconsistent with anticipation
The change of competitiveness（X_{16}）	1 = increase；2 = constant；3 = decrease
The change of consumers' cognition（X_{17}）	1 = increase；2 = constant；3 = decrease
The change of product sales（X_{18}）	1 = increase；2 = constant；3 = decrease

3.3   Model estimation and result discussion

3.3.1   Model estimation. We first conduct correlation analysis on independent variables using Excel 2003, and the result shows that there is no obvious relationship between the variables. Then we conduct ordered Probit regression on the data, using stata10. 0 software. The regression coefficient and test results can be seen in Table 2. Table 2 shows that the LS is −12. 564, LR chi2（22）is 45. 930, and log-likelihood ratio's

significance level P = 0. 0003 < 0. 05, thus the overall fitting effect of model is good.

3.3.2   Results discussion. The enterprises' character variables have impact on the enthusiasm for continually establishing the traceability system. From the result of model estimation, enterprises' age, pattern of ownership, management pattern, market breadth, the completeness degree of the traceability system's establishment influence the enterprises' enthusiasm.

Specifically, enterprises' age (X_2) is significant at level of 10%, but the coefficient is negative. This conclusion supports Yang Qiuhong's assertion that most of the managers of new enterprises believe that the traceability system is the trend of future development, and integrate it into the strategic plan. In contrast, the mature companies have had a set of relatively complete safety system, with low enthusiasm for establishing the traceability system. The pattern of ownership (X_3) is signif-icant at level of 10%, consistent with our anticipation. Management pattern (X_4) and market breadth (X_8) are significant at level of 5% and 10%, respectively, also consistent with hypotheses in this article. The completeness degree of the traceability system (X_9) is significant at level of 5%, and the coefficient is positive, also confirming the hypothesis in this article. That is to say, the higher the completeness degree is, the higher the enthusiasm will be.

Table 2   Regression results of factors that influence the enthusiasm of agro-product enterprises for continuously establishing traceability system

Dependent variable	Coefficient	Z	P
1. Enterprises' characters			
Scale (X_1)	−0.161	−0.420	0.671
Age (X_2)	−0.843*	−1.710	0.088
Pattern of ownership (X_3)	2.697*	1.870	0.062
Management pattern (X_4)	−3.046**	−2.070	0.039
Quality authentication (X_5)	0.884	0.870	0.386
Product category (X_6)	0.455	0.990	0.322
Proportion of exportation (X_7)	−2.636	−0.150	0.878
Market breadth (X_8)	0.800*	1.880	0.061
Completeness degree of the traceability system (X_9)	2.658**	1.990	0.046
The level of cognition of the traceability (X_{10})	2.308	1.440	0.150
2. External environment			
Spot check way (X_{11})	−1.368	−1.420	0.157
Spot check frequency per year (X_{12})	−0.072	−0.450	0.654
Behavior of enterprises of the same trade (X_{13})	−1.022	−0.540	0.592
3. Management performance			
The change of cost (X_{14})	−1.824	−1.380	0.167
The change of income (X_{15})	−3.200**	−2.390	0.017
The change of competitiveness (X_{16})	0.152	0.180	0.855
The change of consumers' cognition (X_{17})	2.967**	2.010	0.045
The change of product sales (X_{18})	3.117***	2.590	0.010
Log likelihood		−12.564	
Pseudo R^2		0.646	
LR chi2(22)		45.930	
P		0.0003	

Note: *, ** and *** mean significant at level of 10%, 5%, 1%, respectively.

Scale (X_1), quality authentication (X_5), product category (X_6), proportion of exportation (X_7), the level of cognition of traceability (X_{10}) all have no statistical significance, but the co-efficient of scale (X_1) is negative, which is inconsistent with anticipation in this article. The possible reason is that the larger the enterprise is, the more complete the quality safety system is, then the managers may believe that continuously establishing the traceability system has little influence on enhancing the competitiveness, leading to low enthusiasm. However, the small-scale enterprise takes the establishment of the traceability system as the way to enhance its corporate reputation and competitiveness, so the enthusiasm is high.

The external environment variables have no effect on the enthusiasm. From the estimation results of the model, spot check way (X_{11}), spot check frequency (X_{12}) and behavior of enterprises of the same trade (X_{13}) are not significant. The possible reason is that the relevant government departments always remain unchanged in spot check way and frequency, having not conducted effective adjustment according to the actual situation. In addition, the government-led establishment of the traceability system in Sichuan Province may make the behavior of enterprises of the same trade have little impact on enterprises. The coefficient of the spot check frequency is negative, contrary to the hypotheses in this article, which may be caused by the measurement variables; the reason needs to be further studied.

The management performance variables have influence on the enthusiasm of agro-product enterprises for continually establishing the traceability system. From the estimation results of the model, the change of income, the change of consumers' recognition degree and the change of product sales, have great influence on enterprise's enthusiasm. Specifically, the change of income (X_{15}) is significant at level of 5%, confirming the hypothesis that the more the gains obtained consistent with the gains expected, the more the enterprises inclined to continuously establish the traceability system. The change of consumers' recognition degree (X_{17}) is significant at level of 5%, confirming the hypothesis in this article. Consumers are the final users of the products. The products can be sold only if the consumers recognize them. The degree of consumers' recognition on the traceable products directly affects the enthusiasm of agro-product enterprises for continually establishing the traceability system. The change of product sales (X_{18}) is significant at level of 1%, and its coefficient is also consistent with the anticipation in this article. The change of cost (X_{14}) and the change of competitiveness (X_{16}) are not significant, which may be related to the fact that the traceability system is still in its infancy in Sichuan Province.

4 Policy recommendations

4.1 Formulating relevant policies to encourage enterprises to establish the traceability system For young enterprises, we should give them enough financial and policy support, in order to make them respond to the government's call to establish and improve the quality safety traceability system of agricultural products. For the older companies, we should give them special lectures and training about the traceability system to change their concepts, making them pay enough attention to the traceability system. For the enterprises with different ownership structures, we should formulate different policies. Especially for those old private enterprises with certain strength and size, many of them believe that the establishment of the traceability system has little impact on them, due to the old management philosophy.

4.2 Strengthening publicity of the enterprises establishing the traceability system We should carry out real-time reporting of enterprises' establishment of the traceability system, to help enterprises to expand products' market breadth by enhancing their reputation.

4.3 Enhancing the popularization of traceable product knowledge and improving the evaluation system of enterprises' performance We should widely use the media to spread the knowledge of traceable products to consumers, and increase consumers' acceptance of the products and willingness to pay them, in order to increase the sales and promote the edible agro-product enterprises to continuously establish the traceability system. Moreover, we should include the completeness degree of the traceability system in the indicator system for measuring the enterprises' performance, and strictly implement it.

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purchasing books of various disciplines and industries, especially the agricultural technology teaching materials and agriculture-related magazines, in order to update the farmers' knowledge and technology. Secondly, we can often organize the farmers to watch some movies on travel safety, environmental protection and all kinds of new movies updated with the theater, so that farmers can also watch the latest movie in rural areas. Thirdly, we can regularly organize the villagers to hold activities and competitions on painting, photography, calligraphy, reciting and other themes, in order to foster cultural atmosphere in rural areas, and enrich farmers' spiritual and cultural life. In this way, we can not only use the fees obtained to support the development of local compulsory education, but also provide a good cultural environment for the villagers, to promote the new rural cultural construction, and further improve the development of rural public cultural undertaking.

3.4 Using the idle school buildings to develop social security undertakings in rural areas Establishing the sound rural social security system is an important step in building a new socialist countryside[3]. With the growing number of young migrant workers working in the cities and moving to the cities, the number of the elderly left behind in rural areas also shows an upward trend. In addition to the change in the concept of many old people, they are willing to go to the nursing home, but the nursing homes in rural areas can not meet the needs both from quantity and quality. On the one hand, in terms of quantity, the nursing homes can not meet more and more old people's needs for living a retired life. On the other hand, the conditions of the existing nursing homes are generally "dirty, chaotic, and poor", and the quality of service provided is also poor, thus the elderly can not enjoy a life in retirement.

We can use the idle school buildings to develop rural social security undertaking. The main form is to provide sites, for example, the buildings can be used to set up the nursing home. First of all, the number should be increased to meet the old people's growing needs for living a retired life. Secondly, on the basis of increasing the number, we should improve the facilities for the elders. The primary schools closed and merged are usually located in the heart of the administrative villages, which is a gathering place for a variety of small shops and clinics, therefore, it is sagacious to use the idle school buildings to set up the nursing homes, which can make the elderly enjoy a life in retirement, and improve the level of social security in rural areas.

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