Studying on the psychological contract of farmers behavior of transferring agricultural land in China

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Background. At present, the social economy is in a period of fast-paced change in China, with various modes of production and life evolving and emerging. The transfer of agricultural land is the transformation of the utilization mode of the main factors of production in rural areas, and it is one of the contents of the social and economic reform in rural areas. In 2021, the area of rural land transfer is up to 3.7×10^{11} m2 in China, an increase of 4.3% over the previous year. 1,239 counties (cities, districts) and 18,731 townships have established agricultural land management rights transfer centers to provide services such as policy consultation, information release, and contract signing for both sides of the transfer. Farmers are the subjects of agricultural land management and transfer. Their behaviors are affected by their psychology to some extent. In the long-term, dynamic, and gradual process of agricultural land transfer, it is particularly important to respect farmers' wishes, pay attention to farmers' psychology, and guide farmers' behavior. However, only a few written contracts were signed. Most are verbal agreements of spontaneous or collective land transfers. The verbal agreements auto-execute to some extent within certain limits. The goals of farmers in farmland transfer are diversified, and their cognition, willingness and psychological identity affect the performance of the contract and the effect of transfer.

Subjects and Methods. The psychological contract of agricultural land transfer can be defined as the transferor and transferee of agricultural land transfer. Through a certain psychological suggestion mode, through the subjective cognition and understanding of the rights and obligations of both parties, rather than the direct explicit expression, a contract relationship of rights and obligations is formed. The party awarding contract and the contractor are the subjects of agricultural land transfer. Therefore, the subjects of the psychological contract of agricultural land transfer include farmers, village collectives and enterprises, all of whom have equal status, forming their own psychological contracts. The forming process of the psychological contract of agricultural land transfer includes four steps. Step one is cognition and judgment. Both parties to the transfer are aware of and judge their own rights and obligations based on external environmental information and their own circumstances. Step two is psychological expectations. Before information is transmitted, both sides of the transmission transform cognition and judgment into psychological expectations. The third step is to convey psychological expectations. Both sides of transfer transmit psychological expectations by means of direct patterns, such as oral form and written form, and implicit ways, such as perception and comprehension. Step four is the formation of the psychological contract. Both sides of transfer reciprocally admit information of psychological expectations transmitted in implicit ways, forming psychological contracts. If they can't come to an agreement on psychological contracts, a new four-step cycle is entered.

Results. The forming of the psychological contract of agricultural land transfer is shown in Figure 1. First, farmers' behavior background, such as the experiences of land lease and transfer, the targets of land transfer and education, has an effect on the building of psychological contracts and its type. On the one hand, the farmers who have the experience of land transfer and get high benefits from it are much more motivated than those who don't have that experience or ever have dissension while transferring. On the other hand, the targets of transfer and the education level of farmers affect the type of psychological contracts. Second, Farmers' subjective norms, mainly reflected in the difference in folk customs, will form various communication modes and take different measures to deal with breaching contracts while transferring. Third, farmers' behavior cognition reflects in their comprehension of the capability of executing contracts, including bargaining power, decision-making level and managing modes of the rent. The ability of behavior cognition and control of farmers has a positive influence on their behavior intention and happened.

Conclusions. According to the above results, in order to promote the reposeful transfer and orderly development of agricultural land, the following suggestions are proposed: The first is to improve the agricultural land transfer policy system, establish and improve the institutional environment for agricultural land
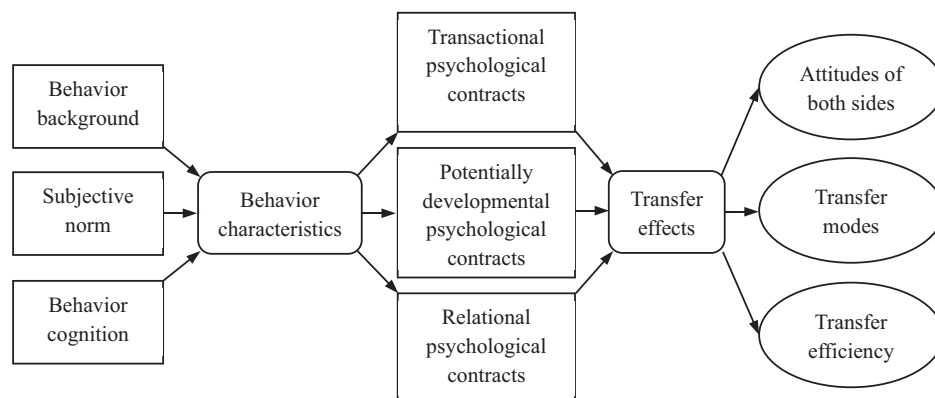
Figure 1. Psychological contracts of agricultural land transfer forming

transfer, create conditions for the establishment of farmers' behavioral psychological contracts in the process of agricultural land transfers, and guide farmers to establish relationship psychological contracts. The second is to improve the market system, properly cultivate and develop agricultural land transfer intermediaries, reduce transaction costs, and reduce the probability of farmers' psychological contracts being broken. The third is to guide farmers to establish a positive agricultural land transfer psychology based on their resource endowments such as labor force quality and cultural quality, and encourage farmers to make agricultural land transfer decisions such as subcontracting, leasing, reselling, and interchanging.

The application of structural equation model in psychological research

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Figure 1. Diagram of the full structural equation model

Background. The development of social science is inseparable from the development of research methods. The traditional research methods such as factor analysis, regression analysis, and classical measurement theory cannot meet the professional development of modern disciplines. Therefore, a new generation of statistical analysis methods came into being, among which the most prominent development is the development and application of structural equation. Structural equation model is a statistical method that represents the theory with a corresponding linear equation system on the basis of the existing theory. It makes up for the shortcomings of traditional statistical methods, deals with the relationship between multiple causes and results, and measures variables that cannot be directly observed. Structural equation model has become an important tool in multivariate data analysis, which is widely used in social science data analysis, especially in the fields of education and psychology.

Subjects and Methods. As a research method based on statistical analysis technology, structural equation model can be used to deal with the exploration and analysis of complex multivariable research data, estimation of latent variables, parameter estimation, and fitting degree estimation of complex independent variables and dependent variables prediction model at the same time. The complete structural equation model includes two parts: measurement model and structural model. The measurement model describes the relationship between latent variables and actual measured variables, while the structural model describes the relationship between latent variables.

As shown in Figure 1, a complete structural equation model, the lambda said the relationship between the observed variables and latent variables, gamma said the relationship between exogenous variables and endogenous potential, beta said the relationship between endogenous latent variable, the delta said exogenous variables to explain the latent variables incomplete measuring residual, epsilon says endogenous variable to explain the latent
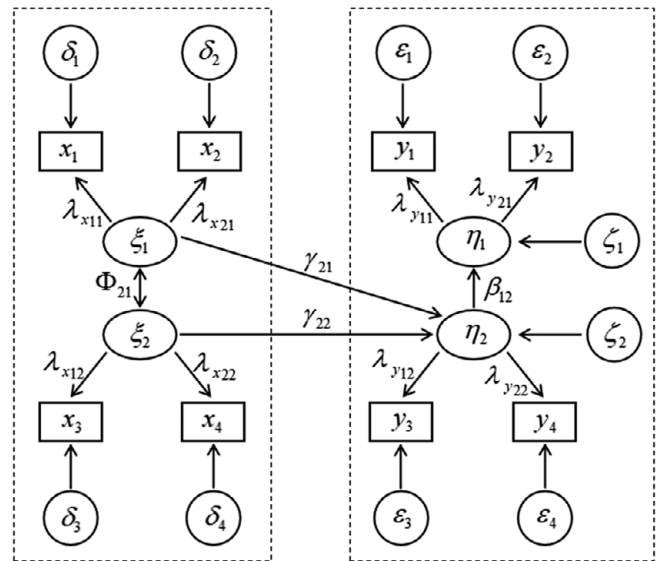
variables measuring residual incomplete; ζ represents the estimated residuals of endogenous latent variables that cannot be fully explained. Figure 1 shows the relationship between exogenous variables on the left and endogenous variables on the right. the complete structural model is composed of γ and β parameters. The relationship between various variables and parameters involved in Figure 1 can be described by a general linear equation:

$$x=\Lambda_x\xi+\delta;\ y=\Lambda_y\eta+\varepsilon\ \eta=B\eta+\Gamma\xi+\zeta$$

The relationship between specific variables and specific parameters in Figure 1 can be described by the following two equations:

$$\eta_1=\beta_{12}\eta_2+\zeta_1;\ \eta_2=\gamma_{21}\xi_1+\gamma_{22}\xi_2+\zeta_2$$

From the above overview, it is not difficult to find that if there is no assumption of latent variables in a structural equation model, only the measured variables, then it is no different from the traditional path analysis model. Therefore, in general, the structural equation model can not only deal with the estimation of multiple regression equations at the same time, but also make the processing of variable relations more elastic. Anyhow, structural equation modeling following the general linear model of multivariate analysis to verify model analysis, can put the variance analysis, regression analysis, path analysis, factor analysis of traditional statistical methods, such as included in the model, the structural equation modeling and investigation and experiment analysis can be used, therefore more extensive applicability. Although structural equation model has obvious advantages over traditional statistical methods, it still has limitations, and it is conditional in psychological research.

First, different theoretical assumptions, if the same variables, can be used to construct multiple models. But the more variables you have, the more models you can combine. This will bring difficulty to the test of model fit. Therefore, the use of structural equation model should pay more attention to theoretical discussion, and should be based on the exact theory or reasonable logical reasoning. Second, in psychological research, if only data are used to explore the causal relationship between latent variables without special design, no statistical method, including structural equation