

Sense of Gain and Rural Infrastructures

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Contributor: LEI ZHU , Hongtao Jia , Jing Du

Rural infrastructure is not only the foundation for the development of various rural undertakings but also an integral part of the rural economic system. Its construction and operation are closely related to farmers' quality of life. However, owing to the urban–rural dual structure in many countries in the world, there is still a big gap between the level of rural infrastructure and that of cities, which affects the interests of farmers and restricts the sustainable development of rural areas. The sense of gain can reveal shortcomings in the rural infrastructure from the perspective of farmers, helping to suggest rapid and accurate improvements according to the farmers' feelings.

rural infrastructure

sense of gain

structural equation model

fuzzy comprehensive evaluation

1. Introduction

Rural infrastructure is not only the foundation for the development of various rural undertakings but also an integral part of the rural economic system ^[1]. Its construction and operation are closely related to farmers' quality of life. However, owing to the urban–rural dual structure in many countries in the world, there is still a big gap between the level of rural infrastructure and that of cities, which affects the interests of farmers and restricts the sustainable development of rural areas ^{[2][3]}. Many related policies and initiatives have been proposed to narrow this gap. Taking China as an example, a new rural policy that proposes continuous improvement of the conditions of rural infrastructure for sustainable development was promulgated in 2018. It is worth noting that this policy takes the “sense of gain” as one of the important evaluation indicators. The sense of gain can reveal shortcomings in the rural infrastructure from the perspective of farmers, helping to suggest rapid and accurate improvements according to the farmers' feelings.

Through an in-depth literature review, researchers found that many previous studies used satisfaction rather than sense of gain to evaluate rural infrastructure. Based on clear expectations, satisfaction can measure the gap between experience and expectations ^[4]. The American Customer Satisfaction Index and other statistical methods have been widely used to evaluate the condition of rural infrastructure and the satisfaction of farmers. By making some adjustments to the American Customer Satisfaction Index, Chen et al. formed an index system and evaluation model for farmers' satisfaction with China's rural public infrastructure and used the Interpretive Structural Model (ISM) to validate it ^[5]. Li et al. (2020) analyzed a satisfaction model on the internal mechanism, which reveals the relationship between expectations, perceived quality, perceived value, and satisfaction by using Structural Equation Modeling (SEM) ^[6].

However, the fact is that farmers do not have a clear expectation of use of the rural infrastructure. They make subjective evaluations based on their experience of use. Considering that gain can express people's unclear expectations, the sense of gain is suitable for measuring the subjective feeling after the experience of use [7]. Several previous research studies have used the sense of gain to evaluate public services and public utilities. Gu et al. (2020) built an evaluation index system for the sense of gain from the perspectives of material and spirit and used the sense of deprivation as the opposite to supplement the evaluation of the sense of gain [7]. Wang et al. (2020) summarized the influencing factors of the sense of gain from four aspects, namely, objective factors, subjective factors, institutional factors, and practical participation factors [8]. Sun (2020) and Feng et al. (2021) carried out evaluations of the public health service [9] and the public education service [10] through the sense of gain, respectively. However, there is currently very little published research on the evaluation of the rural infrastructure from the perspective of the sense of gain.

Considering the actual needs and the current research status, there is an essential need to explore the influencing factors, influencing mechanisms, and realistic levels of farmers' sense of gain in the provision of rural infrastructure from the subjective perspective of farmers. Therefore, this entry aimed to build a comprehensive evaluation model of the farmers' sense of gain in the construction and operation of rural infrastructure. The objectives are: (1) to propose hypotheses for the influence mechanism of the farmers' sense of gain from four perspectives, which are the social governance system, the content of gain, the way of gain, and the sense of gain through a theoretical analysis; (2) to develop an evaluation index system for the constructs in the influence mechanism; (3) to conduct a questionnaire survey and field investigations; (4) to use Structural Equation Modeling (SEM) and AMOS software to verify the proposed hypotheses; (5) to develop a fuzzy comprehensive evaluation model of the farmers' sense of gain in the provision of rural infrastructure. The research results could contribute to the body of knowledge of the evaluation of the farmers' sense of gain and the theories of sustainable development of rural areas. Moreover, the proposed model can help to efficiently discover deficiencies in the provision of rural infrastructure and provide theoretical support for putting forward targeted improvement strategies for the sustainable development of rural infrastructure.

2. Influence Mechanism of the Sense of Gain

The sense of gain is a compound word, which is synthesized through the two morphemes of "gain" and "sense". From an objective perspective, "gain" is used to describe material and non-material acquisitions. From a subjective perspective, "sense" is used to describe the direct reflection of the objective things in the human brain through subjective perception. Therefore, the sense of gain includes both objective acquisition and subjective feeling. The objective acquisition is acquired by individuals in social development [11]. The subjective feeling is a kind of feeling about whether life has become better or not based on the objective acquisition [12]. In addition, the sense of loss and relative deprivation are the opposite of the sense of gain and harm the sense of gain [13].

The sense of gain also reflects fairness and justice during the acquisition and distribution of social resources [8]. The sense of gain refers to the subjective identification of benefits for people in all aspects of life in the process of reform and development [8]. Rural infrastructure is an important social resource for the development of rural areas.

It is also called social overhead capital, which is invested before any other investments [14]. The acquisition and use of the rural infrastructure reflect that farmers get the benefits that they deserve in social development [15]. If the farmers subjectively approve of the benefits, they will have a sense of gain.

According to a comprehensive literature review of the research on the sense of gain, researchers proposes a conceptual framework of the influencing mechanism of the sense of gain, as shown in **Figure 1**. Because the sense of gain includes both objective acquisition and subjective feeling, the sense of gain has a positive association with the content of gain, the social governance system, and the way of gain [16]. As the basis of the sense of gain, the content of gain is a subjective evaluation based on what people have acquired [17]. The social governance system and the way of gain provide conditions and driving forces for the sense of gain [18]. By adopting SEM, researchers used this model as a basic structural model in SEM.

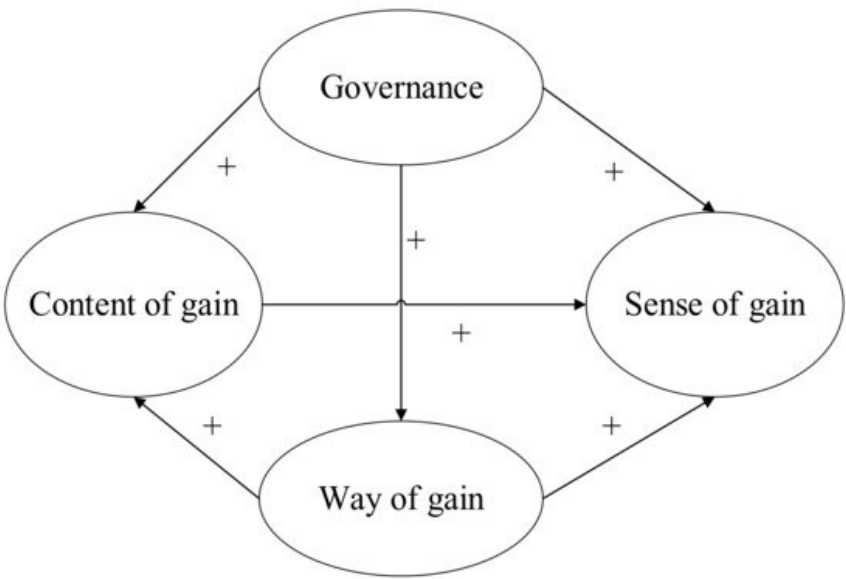


Figure 1. Conceptual framework of the influencing mechanism of the farmers' sense of gain.

The evaluation of the content of gain refers to the farmers' subjective feelings of whether the rural infrastructure meets their needs [19]. According to Maslow and Lewis's (1987) theory of human motivation, human needs include basic needs, psychological needs, and self-fulfillment needs [20]. Therefore, the content of gain mainly comes from the satisfaction of two aspects of needs. One aspect is that the material environment provided by the rural infrastructure meets farmers' needs in terms of daily life and work such as electricity supply, convenient roads, and clean water. Another aspect is that the farmers' needs for self-actualization and respect are satisfied during the provision of rural infrastructure [21]. For example, relevant suggestions for infrastructure development have been adopted. The subjective cognitive evaluation of the satisfaction of multiple needs represents the farmers approving of the content of gain, leading to the sense of gain.

The evaluation of the social governance system refers to the farmers' subjective feelings of a fair and just governance system and a good social trust atmosphere. With the development of rural infrastructure, there are more and more highly concerning issues about the distribution of resources and interests. For example, farmers

are highly concerned about whether compensation for land acquisition is fair. If such issues cannot be solved fairly and justly, the farmers' sense of gain will be harmed because of the feeling of unreasonable distribution of benefits [22]. In addition, a social trust atmosphere makes farmers believe that there is no corruption in the process of infrastructure development [23]. The government does its due diligence in high-quality infrastructure construction and management and guarantees the interests of farmers, leading to a high level of the farmers' sense of gain.

The evaluation of the way of gain refers to the farmers' subjective feelings of whether they can participate in the improvement of the content of gain through multiple channels. In the process of meeting needs, individuals will have a better subjective experience if they can give full play to their ability and participate in social development [24]. When people are satisfied through their efforts, people will show more positive emotions [25]. Such positive emotions brought about by people's hard work and satisfying their needs will enhance the sense of gain. For example, in the planning stage of a village road infrastructure, the village committee actively solicits farmers' opinions and adopts reasonable suggestions, leading to an increase in the farmers' sense of gain.

The sense of gain describes the farmers' emotional experience generated by being satisfied by the content of gain through the way of gain under a good governance system. An individual will have a positive emotional experience when they obtain the content of gain by the convenient way of gain when the governance is fair and just. If the case is the opposite, an individual will have a negative emotional experience. The sense of gain is evaluated by the level of positive or negative emotional experience.

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