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Subjective Well-Being of Chinese Landless Peasants in Relatively Developed Regions: Measurement Using PANAS and SWLS

Ying Liang · Demi Zhu

Abstract   The government of China expropriated the lands of peasants for urban development. Though some landless peasants have become the urban residents in the household registration system, they still recognize themselves as traditional peasants in the psychological cultural aspects. And they do not enjoy the same social security as urban citizens. This study explores the subjective well-being (SWB) of Chinese landless peasants using two scales, namely, the positive and negative affect schedule (PANAS) and the satisfaction with life scale (SWLS). A total of 1,236 landless peasants from three relatively developed cities (Nanjing, Yangzhou, and Hangzhou) were included in the sample. Results indicated that 60 % of the respondents got NA scores above the midpoint of scale (30) and 64.64 % of the respondents reported PA scores below the midpoint of scale (30). And 64.56 % of the respondents got SWLS scores below the midpoint of scale (20). SWLS is positively related to PA and negatively related to NA. Therefore, as landless peasants possess more or stronger negative emotions, their SWB decreases. Unfair or unreasonable land compensation and resettlement policy are supposed to lead to negative emotions, while incomplete social security system leads to low life satisfaction among landless peasants.

Keywords   SWB · PANAS · SWLS · Landless peasants · Urbanization · Social security · Compensation policy

1 Introduction

Landless peasants comprise the rural populations that lost their farming or non-agricultural lands because of expropriation for urban development in China. The emergence of this

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group coincides with the acceleration of the urbanization process in the country, which started during the implementation of the reform and opening policy. The level of urbanization increased from 17.9 % in 1978 to 52.6 % in 2012, particularly increased 1.0 percentage points annually. The total urban population increased to an average of 15.86 million annually, whereas the rural population declined to 4.35 million annually (National Bureau of Statistics of the People's Republic of China, 2013). In 2012, agricultural and arable lands that were converted for construction purposes (mainly for mining and warehousing, business services, housing, and infrastructure) reached 429,100 and 259,400 hectares, respectively, with an increase of 4.5 % and 2.5 % year-on-year (Ministry of Land and Resources of the People's Republic of China, 2012). As can be observed, China's rapid urbanization is accompanied by the prevalence of land use conversion.

The Chinese government expropriated the lands which served as the source of peasants for economic survival for many generations. These lands were converted for urban expansion and development. Some landless peasants have got urban citizenship in the household registration system, but in terms of psychological, cultural and social networks, great gaps exist of their identity recognition as urban residents. Most of them still tend to view themselves as the peasants. Though some recognize their identity as urban residents in the systematic calibration, they live a life as a peasant in terms of role (habits, mores, and life-style) (Hui et al. 2013; Wu and Qin 2008). Regardless of their integration, these landless peasants are not entitled to the same rights as those of urban residents. As the vulnerable and marginal group, they are confronted with the dilemma of living in cities but maintaining the identity of peasants. The protection of their rights and living conditions has become an interesting topic among scholars. By contrast, studies on the mental conditions of peasants remain limited; most of them are on social adaptation. Research gaps exist in the subjective well-being (SWB) of Chinese landless peasants, which is a topic that the present study intends to explore. Particular focus is geared toward the analysis on the plight of landless peasants in relatively developed regions and the reasons behind their living conditions.

1.1 Rights Protection and Living Conditions of Chinese Landless Peasants

Two keywords reflect the challenges of landless peasants: loss of land and integration of peasants to cities. In the keyword "loss of land", heated discussions delve on the distribution of benefits among the government/village collectives, the enterprises participating in the market, and the protection of the rights of peasants.

1.1.1 Interest Conflicts

The top rural grievance in rural China is land-related conflicts (Zhu and Roy 2007). In China, peasant families only have the rights to use rural lands that are owned by village collectives. Land expropriation policy refers to all the rights originally owned by the village collectives to be transferred to local government units (Guo 2001). The village collectives serve as the bridge between the government and the peasants during land reallocations (Tao and Xu 2007). The dispute caused by interest reallocations can stimulate the conflict between the rural population and local government units (Guo 2001; Tan 2008).

1.1.2 Argument and Criticism

The interest game brought endless disputes, which have derived from the criticism and reflection on the land expropriation policy. The Chinese government compulsorily expropriated the lands of peasants and reallocated them for urban construction and economic development. One of the motivations for the city government to expropriate the land is financial insufficiency. They intend to use profits to balance revenue and expenditure (Tao and Xu 2007). China's current policy system on agricultural land conversion involves government control and market participation. However, discrimination is observed in the welfare redistribution for agricultural landowners (Tan et al. 2011). The land expropriation policy that generates maximum profits consequently caused strong dissatisfaction and numerous protests of peasants (Zhao 2009).

In the keyword "integration of peasants to cities", the conversion of agricultural lands significantly affected the lives of landless farmers. Many scholars focused on their living conditions. Being deprived of a secure living, many landless peasants become trapped into poverty (He et al. 2009). As they attempt to integrate into the cities, they are confronted with tough financial and living conditions as they address different needs (Chen et al. 2013).

1.1.3 Compensation Policy

One important reason is the controversial compensation and resettlement policies. The compensation policy law of land expropriation in China is far from completion. Many problems, such as those on the implementation of the policy, remain unsolved, in addition to the low compensation standard (Chan 2003; He et al. 2007). The relatively low compensation rate cannot make up for the loss experienced by landless peasants, which caused the decline in their living standards (Liu 2006).

1.1.4 Social Security System

In the meanwhile, the social security system is also much-maligned. Guo (2012) found that the social security policy (including on pension and medical and employment insurances) for landless peasants remains lacking. The living allowances received by landless peasants actually came from the income after the land transfer and not from the governments, village collectives, and farmers. This reality is described as "using the peasants' bones to cook the meat of peasants" (Yang and Huang 2004). In many urban villages in eastern China, given the pressure of the national law, one of the means of survival for landless peasants is by offering their houses for rental to migrants at low prices. This situation has led to the worse and unsafe living conditions in the area (Liu et al. 2010).

1.2 Mental Conditions of Landless Peasants

The current land policy, especially the compensation policy, can enhance the nominal income of the peasants. However, landless peasants still suffer from social exclusion and farmers who flock to the cities experience social problems, including cultural, psychological, and social exclusion, given the differences between rural and urban areas (Hui et al. 2013). Most studies about the mental conditions of landless peasants focused on their social adaptation, such as citizenship, identity, and role portrayed (Zhang 2012). Zhang and Tong (2006) found that most landless peasants had low identity recognition and

encountered difficulties in adjusting to the urban environment. Wu and Qin (2008) reviewed the literature about the identity recognition of landless peasants and summarized influencing factors that include institutional external factors and self-subjective factors of peasant groups. In addition, female landless peasants have low quality of life (QOL) (Liang and Li 2014). Thus, many scholars strove to provide numerous recommendations for the improvement of QOL (Yang et al. 2010). Studies on the social adaptation of landless peasants considered their mental conditions under a specific environment. However, the research perspectives of these studies were relatively narrow or limited and their sustainability required justification. These studies focused on the gaps between the psychological expectation and social reality of landless peasants, but did not comprehensively explore the changes or features of their mental conditions after a change in their living environments.

1.3 Subjective Well-Being (SWB)

SWB refers to the evaluations or recognition of individuals regarding their lives. SWB focuses on "health and human development as the presence of well-being (i.e., health) and not merely the absence of illness, disease, and developmental deficiencies" (Keyes 2006). SWB is also a science about happiness and life satisfaction. Diener (2000) suggested that SWB should be set as a national indicator. Investigations on SWB can explain and lead to the exploration of mental health from the perspective of social psychology, especially on the positive illusions of individuals as they confront negative events or overcome threats (Taylor and Brown 1988).

SWB mainly consisted of three parts, namely, life satisfaction (LS), pleasant affect, and unpleasant affect (Diener 1994; Diener et al. 1999). The concept of SWB is broad, and it includes positive affect (PA), low level of negative affect (NA), and high level of life satisfaction. SWB measures the happiness, peace, sense of achievement, and life satisfaction of people (Diener et al. 2003).

Many Chinese scholars had studied SWB, which are mostly published in Chinese journals. This research field is still at the initial stage and contains limitations, such as misuse of student samples, imprecise descriptions of research methods, and isolation from foreign studies (Chen and Davey 2008). Some studies also explored SWB and its related factors among Chinese rural residents (Davey et al. 2009; Knight et al. 2009; Yip et al. 2007). The compared groups, residents, and migrants expressed serious concerns (Appleton and Song 2008; Gao and Smyth 2011; Knight and Gunatilaka 2008, 2010; Nielsen et al. 2010; Xin and Smyth 2010). Some also focused on the national population (Li and Raine 2014) or some particular populations (Shi et al. 2014).

However, only a few studies on SWB examined the vulnerability of landless peasants. Research also included only a few cases in certain regions. Comparative and comprehensive studies on landless peasants in different regions, who have diverse social economic backgrounds, remain limited (Peng 2010). Wu (2009) found that most studies on the SWB of Chinese landless peasants concentrated on psychological aspects, rather than on social science aspects. Therefore, certain academic values and reality meanings on the SWB of Chinese landless peasants are yet to be further investigated.

1.4 Research Questions and Objectives

This study explores the SWB of Chinese landless peasants in economically developed regions. The following questions are to be answered by this empirical investigation. In the

current process of the transformation of Chinese social structure, how are the SWB of landless peasants as they experience land expropriation for city development? What are the features of their PA, NA, and LS? Do their PA, NA, and LS have certain correlations? Can the results provide insights for the improvement of the mental conditions of Chinese landless peasants?

This study intends to investigate the SWB of Chinese landless peasants, such as emotional recognitions that include NA, PA, and LS. Particularly, the investigation aims to (1) evaluate the SWB of landless peasants and stimulate social concern toward this vulnerable group, (2) analyze the features of their SWB and further explore their psychological conditions, and (3) explore the potential factors of SWB among Chinese landless peasants and recommend government policy suggestions in connection with social efforts that targets landless peasants.

2 Methods

2.1 Participants

In China, landless peasants emerged along with the acceleration of the urbanization process. Land transition is more intense in the coastal provinces (Ho and Lin 2004). Feng and Ma (2005) comprehensively considered the absolute rate of urbanization and development speed, and subsequently observed that Jiangsu, Zhejiang, Guangdong, and Fujian provinces experienced rapid economic development that extraordinarily promoted urbanization. Among these four provinces, Zhejiang demonstrated significant importance since 2000 to the security of living among landless peasants (Yang and Huang 2004). The modes of social security in Jiangsu province are diverse (Jin and Zhang 2010). Therefore, investigating the mental health problems of landless peasants in Zhejiang and Jiangsu provinces is feasible and representative. The relatively developed cities in these two provinces are also preferred. Thus, Nanjing and Yangzhou Cities in Jiangsu and Hangzhou City in Zhejiang were selected as the research investigation sites.

Landless peasants can receive compensation fees at the expropriation of their lands. Meanwhile, they may be relocated into specific communities. Using the data from the local Ministry of Civil Affairs, we adopted simple random sampling to identify two resettlement communities containing landless peasants. The investigators underwent the unified professional training before they conducted the household survey in the communities. Prior to the administration of the household survey, Kish Grid sampling method was employed. The family members of the sample families were layered and then sampled with the same probability within the layer.

The participants in the study comprised 1,236 landless peasants, and among them were 626 males and 589 females (excluding the missing ones). The age range of the participants was from 18 years old to 70 years old, thus encompassing the young, middle-aged adults, and the elderly. The mean age value was 42.10 ($SD = 13.253$). For the education variable, the number of years was considered as a reference criterion: $1 =$ illiterate, $2 =$ elementary school, $3 =$ middle school, $4 =$ high school and $5 =$ college and above. The distribution of the education variable was similar, that is, each level accounted for almost 20 %. Elementary school comprised the largest proportion ($P = 22.8$ %), whereas college and above had the smallest proportion ($P = 17.6$ %). Moreover, 23.1 % of the respondents reflected an income of ¥1,000 to 1,500 ($163–244), and only 10.9 % of the landless peasants earned more than ¥4000 ($ 650) monthly.

2.2 Instruments

2.2.1 Positive and Negative Affect Schedule (PANAS)

PANAS was developed by Waston and Clark in 1988. During its first use, PANAS demonstrated good reliability and validity. This scale consists of two subscales, namely, the positive and the negative affect scales. Each subscale has 10 items that describe various moods. PANAS shows a reliable degree of differentiating two kinds of emotions. Measurement data in the different groups also proved that the scale had considerable construct validity and reliability (e.g., Crawford and Henry 2004; Terraciano et al. 2003; Thompson 2007). The exploratory factor analysis of the Chinese and English versions of PANAS verified that the two dimensions have cross-cultural consistency, thus conforming to the requirements of psychometric measurements (Zhang et al. 2004). Moreover, Qiu et al. (2008) found that all items of PANAS after adaptation exhibited a reliable degree of differentiation. Therefore, PANAS is an effective and reliable tool for the measurement of emotional well-being.

The following are brief definitions of PA and NA. PA reflects the enthusiasm, activeness, and alertness of people. "High PA means having full energy, high concentration, and pleasant engagement, whereas low PA indicates sadness and absence of focus. NA is a subjective experience of being depressed and contained in unpleasant emotions such as those that cause annoyance. Low NA is a state of calmness and serenity" (Watson and Clark 1988). Each mood is measured using a five-point scale (1 = very slightly or not at all, 2 = a little, 3 = moderately, 4 = quite, and 5 = very much). The respondents indicate the extent of each feeling or emotion. Overall, the Cronbach's alpha coefficients of PA subscale is 0.836 and that of NA is 0.855, which indicate that PANAS has good internal reliability.

2.2.2 Satisfaction with Life Scale (SWLS)

SWLS was developed by Diener et al. (1985) and was used to evaluate the life satisfaction of individuals, without employing any other SWB-related constructs (e.g., PA or loneliness). SWLS has its own evaluation standard on an individual's conscious evaluative judgment of life. SWLS has sufficient sensitivity in testing the changes in life satisfaction during clinical interventions (Pavot and Diener 1993). This scale has been proven to contain reliable psychometric properties (Diener et al. 1985). Different language versions of SWLS are considered valid and feasible (e.g., Anaby et al. 2010; Arrindell et al. 1999; Gouveia et al. 2009). For the general population, the Chinese version has proven reliability and validity, with α coefficient of 0.78 and split-half reliability of 0.70 (Xiong and Xu 2009).

SWLS has five items, each comprising seven options. The five items include the following: (1) "In most ways, my life is close to my ideal", (2) "The conditions of my life are excellent", (3) "I am satisfied with my life", (4) "So far, I have achieved the important things I want in life", and (5) "If I could live my life over, I would change almost nothing" (Diener et al. 1985). The following is the seven-point scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = slightly agree, 6 = agree, and 7 = strongly agree. The respondents use the scale to indicate their evaluation of the current living conditions. Overall, the Cronbach's alpha of SWLS is 0.668 and that based on standardization is 0.668, indicating that the scale has acceptable reliability.

2.3 Analytical Methods

2.3.1 Descriptive Statistical Analysis

Descriptive statistical analysis of the data, including the maximum and minimum values, standard deviation, mean, skewness, and kurtosis, was conducted.

Skewness describes the distribution symmetry of the data. If the distribution of the mean values is symmetrical, the data are symmetrically distributed and the value of skewness is 0. When the skewness is above 0, it is indicated the curve is skewed positively. The right side has a longer tail; When the skewness is below 0, it is indicated the curve is skewed negatively. The left side has a longer tail.

Kurtosis distinguishes whether the data distribution is steep or flat. If the value of kurtosis is above 0, the data distribution is steeper than that at normal distribution. Conversely, the negative value indicates that the data distribution is not as steep as that at normal distribution.

2.3.2 Confirmatory Factor Analysis (CFA)

In reality, the relationship between many indicators or variables is complex. The relationship between latent variables and indicators can be explored by establishing structure models. If the causal relationship between factors is not considered but instead the correlations between factors, this method is the factors analysis method. Unlike the traditional factors analysis, CFA can handle one indicator with many factors or consider a number of models of complex dependency relationship using a high-order factor. CFA can simultaneously calculate the general fitness of the sample data and then determine which model is closely related to the data.

In assessing the goodness of fit of the model, the following indicators can be adopted: Chi square test (χ^2), comparative fit index (CFI), and estimated value of the root mean square error of approximation (RMSEA). If χ^2/df is below 2, the model fitting is good and contains certain reference values. If the values of normed fit index (NFI), incremental fit index (IFI), and CFI are greater than 0.90, the model has good model fitting, while at more than 0.95, the model fitting is very good. The values of RMSEA at 0.05 and 0.08 indicate closed rational model fitting.

3 Results

3.1 Descriptive Statistical Analysis

The descriptive statistical analysis of PANAS and SWLS two scales are shown in Table 1.

3.1.1 Positive Affect (PA)

PA contains 10 kinds of moods. The minimum of each mood is 1, and the maximum is 5. Some respondents rarely reported positive moods, whereas others had strong positive moods.

The mean value of the PA items was approximately 2.50. Thus, the frequencies of the positive moods of most respondents were between 2 and 3. Among them, the highest mean value was "attentive" at 2.76. "Active" had the lowest mean value of 2.28. As observed from the standard deviation results, "determined" had the lowest gap, while "proud" had

Table 1 Descriptive statistics of the landless peasants

Items	Min/max	X̄ ± S	Mean value	Skewness	Kurtosis	Items	Min/max	X̄ ± S	Mean value	Skewness	Kurtosis
Enthusiastic	1/5	2.53 ± 1.46	2.54	0.376	−1.30	Scared	1/5	3.50 ± 1.37	3.50	−0.527	−1.00
Interested	1/5	2.42 ± 1.37	2.42	0.573	−0.93	Afraid	1/5	3.36 ± 1.39	3.36	−0.303	−1.25
Determined	1/5	2.64 ± 1.33	2.64	0.317	−1.02	Upset	1/5	3.21 ± 1.48	3.21	−0.137	−1.43
Excited	1/5	2.57 ± 1.42	2.57	0.388	−1.19	Disyressed	1/5	3.24 ± 1.33	3.24	−0.235	−1.11
Inspired	1/5	2.63 ± 1.48	2.64	0.313	−1.35	Jittery	1/5	3.36 ± 1.43	3.36	−0.344	−1.26
Alert	1/5	2.46 ± 1.45	2.46	0.512	−1.12	Nervous	1/5	3.30 ± 1.37	3.30	−0.265	−1.19
Active	1/5	2.28 ± 1.35	2.28	0.785	−0.64	Ashamed	1/5	3.35 ± 1.48	3.35	−0.366	−1.29
Strong	1/5	2.70 ± 1.47	2.69	0.222	−1.34	Guilty	1/5	3.15 ± 1.39	3.15	−0.126	−1.24
Proud	1/5	2.61 ± 1.51	2.61	0.378	−1.34	Irritable	1/5	3.20 ± 1.40	3.20	−0.208	−1.27
Attentive	1/5	2.76 ± 1.38	2.76	0.268	−1.20	hostile	1/5	3.17 ± 1.42	3.17	−0.081	−1.37
a	1/7	3.14 ± 2.02	3.14	0.550	−1.02	PA	10/48	25.61 ± 9.03	25.6083	0.39	−1.14
b	1/7	3.33 ± 2.03	3.33	0.474	−1.10	NA	13/49	32.84 ± 9.26	32.8403	−0.299	−1.33
c	1/7	3.04 ± 1.99	3.04	0.665	−0.85	SWLS	5/33	16.20 ± 6.74	16.1697	0.219	−1.02
d	1/7	3.47 ± 2.15	3.47	0.253	−1.37						
e	1/7	3.21 ± 2.09	3.21	0.456	−1.15						

The abbreviations of "a"–"e" indicate the five items of SWLS

"a" In most ways my life is close to my ideal

"b" The conditions of my life are excellent

"c" I am satisfied with my life

"d" So far I have gotten the important things I want in life

"e" If I could live my life over, I would change almost nothing

the largest standard deviation, thereby indicating that the former has low variation whereas the latter has high variation.

In terms of skewness, the PA values were skewed positively. "Active" had large skewness, whereas "strong" had small skewness. In terms of kurtosis, the values of all items were negative, indicating that PA is distributed gently among the landless peasants. "Inspired" has the most gentle distribution (kurtosis = −1.35). In addition, the minimum value of PA scores is 10 and the maximum is 50. So the midpoint of scale is 30. Cases score equal to or below 30 accounts for 65.8 % of the total number. And only 34.2 % of respondents get PA scores above 30.

3.1.2 Negative Affect (NA)

NA has 10 kinds of moods. The minimum of each mood is 1, and the maximum is 5. Some respondents rarely exhibited negative emotions, whereas the others had strong negative moods. For example, "scared" has mean value = 3.50 and standard deviation = 1.37. The mean value indicated that most of the respondents scored the "scared" item from 3 (moderate) to 4 (strong).

The mean value of NA items was about 3.30, and the standard deviation was approximately 1.40. "Scared" had the highest mean value of 3.50. "Guilty" had the lowest mean value of 3.15, indicating it as the least occurring emotion among the landless peasants.

In terms of skewness and kurtosis, skewness was below 0, which means that NA is distributed negatively. Kurtosis was also less than 0, which shows that the distribution curve is relatively moderate. The mean value of PA was less than that of NA. In addition, the minimum value of NA scores is 10 and the maximum is 50. So the theoretical mean value is 30. Cases score equal to or below 30 accounts for 40 % of the total number. In other word, 60 % of the respondents get NA scores above 30.

3.1.3 SWLS

Then general mean value of SWLS was 16.1697. The mean values of the five items were less than 7/2 = 3.5. Among the five items, the fourth item "So far I have achieved the important things I want in life (d)" has the highest mean value of 3.47, whereas the third item "I am satisfied with my life (c)" has the lowest mean value of 3.04. The standard deviation is approximately 2 for all five items. The skewness was above 0, illustrating that the distribution of life scale is positively skewed. Kurtosis was, by contrast, below 0, indicating that the life scale distribution curve is more moderate than the normal distribution curve. In addition, the minimum value of SWLS scores is 5 and the maximum is 35. So the midpoint of scale is 20. Data indicate that cases score below 20 accounts for 64.56 % of the total number and cases score equal to 20 accounts for 4.77 %. And only 30.67 % of the respondents get score above 20. It illustrates that the number of respondents score lower than the midpoint of scale is two times as great as those score above the midpoint of scale.

3.2 Correlation Between PA and NA

This study established models to explore the correlations between PA and NA, which are two latent variables. That is, the ten moods of PA and NA are measurable variables. Only a two-way arrow connects PA and NA (Fig. 1). These concepts are exhibited in

the four models. Model 1, also called the basic model, hypothesized that PA is correlated with NA and does not constrain any of its related coefficients. Model 2 shows that PA and NA are correlated positively (the correlation coefficient is set as 0.50) and that this correlation is independent. The degrees of PA and NA in individuals are either strong or weak. Model 3 illustrates that PA and NA are correlated negatively (the correlation coefficient is set as -0.50) and that one emotion is independent from another. When a person feels a strong positive emotion, he/she would have a weak negative emotion. Model 4 is the independent model (the correlation coefficient is set as 0), which hypothesized that NA is fully independent from PA. That is, no correlations exist between PA and NA and they do not affect each other. Table 2 shows the model fitting results of four models.

In Model 1, given that the value of co-variation (COV) is not limited, its degree of freedom (df) is 169, which is 1 less than the COV values of other models. In addition, estimate $= -0.865$, $\chi^2 = 304.169$, $\chi^2/df = 1.80$ (<2), NFI $= 0.964$ (>0.90), IFI $= 0.984$ (>0.90), CFI $= 0.984$ (>0.90), and RMSEA $= 0.025$ (<0.08).

In Model 2, $\chi^2 = 2{,}490.401$, $df = 170$, and $\chi^2/df = 14.65$. Compared with Model 1, a significant gap existed. Moreover, NFI $= 0.707$ (<0.90), IFI $= 0.722$ (<0.90), CFI $= 0.721$ (<0.90), and RMSEA $= 0.105$ (>0.08).

In Model 3, $\chi^2 = 371.619$, $df = 170$, and $\chi^2/df = 2.19$ (< 3). These values indicate that the result of Model 3 is similar with that of Model 1. Moreover, NFI $= 0.956$ (>0.90), IFI $= 0.976$ (>0.90), CFI $= 0.976$ (>0.90), and RMSEA $= 0.031$ (<0.08).

In Model 4, $\chi^2 = 1{,}875.874$, $df = 170$, and $\chi^2/df = 11.05$. The results are different from those of Models 1 and 3, but similar to those of Model 2. The NFI $= 0.780$ (<0.90), IFI $= 0.796$ (<0.90), CFI $= 0.795$ (<0.90), and RMSEA $= 0.090$ (>0.08).

Based on the fit standards or the critical value, both Models 1 and 3 are in accordance with the requirements of the model fitting. None of the items in Models 2 and 4 met the requirements. Model 1 has the greatest fitting, followed by Models 3 and 4. Model 2 has the worst fitting. The correlations, therefore, between PA and NA are closer to negative. That is when an individual has a strong positive emotion, his/her negative emotions becomes weak, and vice versa.

Table 3 shows the correlations between PA, NA and their related items. The correlations between the 10 PA moods and PA pass the significance test at $P < 0.001$. Besides "attentive" (with its coefficient set as 1), "inspired" has the highest coefficient of 0.941, whereas "alert" has the lowest coefficient of 0.578. Meanwhile, the correlations between the 10 NA moods and NA pass the significance test at $P < 0.001$. Besides "scared", the correlation between "jittery" and NA is 1.029, while that of "hostile" and NA is 1.021. Among all the negative emotions, "jittery" and "hostile" exhibited importance. The correlation between "irritable" and NA is lowest at 0.666.

3.3 SWLS

Based on the correlations between PA and NA, SWLS was employed into CFA to analyze the relationship between PANAS and SWLS, as well as the correlations between SWLS and its five items. The SWB of Chinese landless peasants were analyzed comprehensively (Fig. 2). The results of CFA showed that $\chi^2 = 494.2$, $df = 272$, $\chi^2/df = 1.817 < 2$, the root mean square residuals (RMR) $= 0.062$ (<0.08), GFI $= 0.968$ (>0.09), CFI $= 0.978$ (>0.09), and RMSEA $= 0.026$ (<0.05). Thus, the model fit is good and contains a certain reference value.
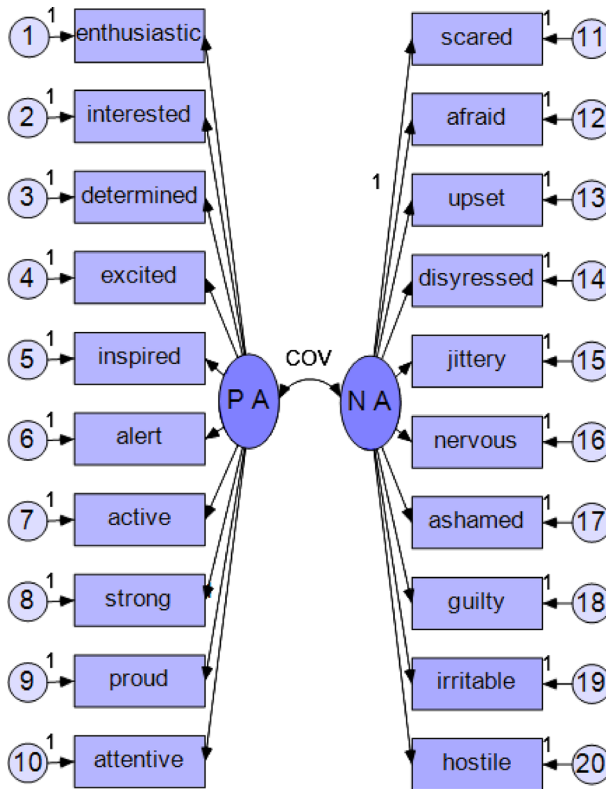
Fig. 1 Correlation between PA and NA

Table 2 General fitting indicators of models

Model	χ^2	df	χ^2/df	NFI	IFI	CFI	RMSEA
Model1: Basic model	304.169	169	1.80	0.964	0.984	0.984	0.025
Model2: cov (PA, NA) = 0.50	2,490.401	170	14.65	0.707	0.722	0.721	0.105
Model3: cov (PA, NA) = −0.50	371.619	170	2.19	0.956	0.976	0.976	0.031
Model4: cov (PA, NA) = 0	1,875.874	170	11.05	0.780	0.796	0.795	0.090

In model 2–4, the covariance of PA and NA are constraint as 0.50, −0.50 and 0, respectively

The CFA results of SWB are presented in Table 4. CFA analyzed the correlations between SWLS and its five items, as well as the correlations between SWLS and PANAS.

The correlations between SWLS and its five items were significant. All passed the significance tests, thus indicating that SWLS can basically reflect the life satisfaction of landless peasants. The investigation also obtained strong reference values.

Besides "a", "e" has the largest coefficient of 1.076. Therefore, the satisfaction of landless peasants for item "e" was highest at 1.076 units. The item "b" followed with the coefficient of 1.008. This value shows that the satisfaction of the landless peasants on their general lives improved by 1.008 units. The item "d", by contrast had the lowest coefficient of 0.935.

Table 3 Correlations between PA, NA and their related items

	Estimate	P		Estimate	P
Enthusiast ← PA	0.794	***	Scared ← NA	1.000	
Interested ← PA	0.887	***	Afraid ← NA	0.866	***
Determined ← PA	0.706	***	Upset ← NA	0.773	***
Excited ← PA	0.830	***	Disyressed ← NA	0.755	***
Inspired ← PA	0.941	***	Jittery ← NA	1.029	***
Alert ← PA	0.578	***	Nervous ← NA	0.813	***
Active ← PA	0.604	***	Ashamed ← NA	0.969	***
Strong ← PA	0.857	***	Guilty ← NA	0.821	***
Proud ← PA	0.907	***	Irritable ← NA	0.666	***
Attentive ← PA	1.000		Hostile ← NA	1.021	***

*** $P < 0.001$

The correlation coefficient of SWLS and PA was 0.809, which passed the significance test. This value indicates that the correlation between SWLS and the PA of PANAS is positive. The higher the PA scores of landless peasants, the greater SWLS scores they will get, and vice versa. In terms of the value of coefficients, the correlations are strong.

The correlation coefficient of SWLS and NA was −0.785, which passed the significance test. Thus, the correlation between SWLS and the NA of PANAS is negative. The stronger negative emotions that landless peasants have, the lower SWLS scores they obtain. Conversely, the higher SWLS scores of landless peasants, the lesser are their negative emotions. In the meanwhile, the correlation between NA and SWLS is negative. However, their absolute values are below 0.809, indicating that the correlations between SWLS and PA are stronger than those between SWLS and NA.

4 Discussion

Many cities in China currently experience rapid urbanization. One common pattern is the expropriation of agricultural land for urban construction. However, the current land expropriation policies in China are imperfect and unreasonable, at the extent by which the interests of farmers are disregarded (He et al. 2007). In this context, the happiness of landless peasants must be considered (Peng 2010). Investigating the SWB of landless peasants, under the currently controversial land expropriation system, aids in the study of SWB changes or conditions and their contribution to potential mental health problems. And the measurements of this study are more scientific and rational than the previous studies measured SWB of Chinese population groups (Liang and Lu 2014; Liang and Wang 2014). Considering the rapid urbanization in China, the investigation conducted in this study is not merely aligned with the interests of landless peasants, but is also aimed to enhance the smooth development of the Chinese society. Thus, practical significance and values are deemed important. One of the aims of this study is to explore the SWB of landless peasants. The main findings are as follow:

1. PANAS showed good reliability. In the scores obtained by PANAS, the mean value of PA is less than that of NA. 60 % of the respondents reported NA scores below the midpoint of scale (30). And 64.64 % of the respondents got PA scores less than the midpoint of scale (30).
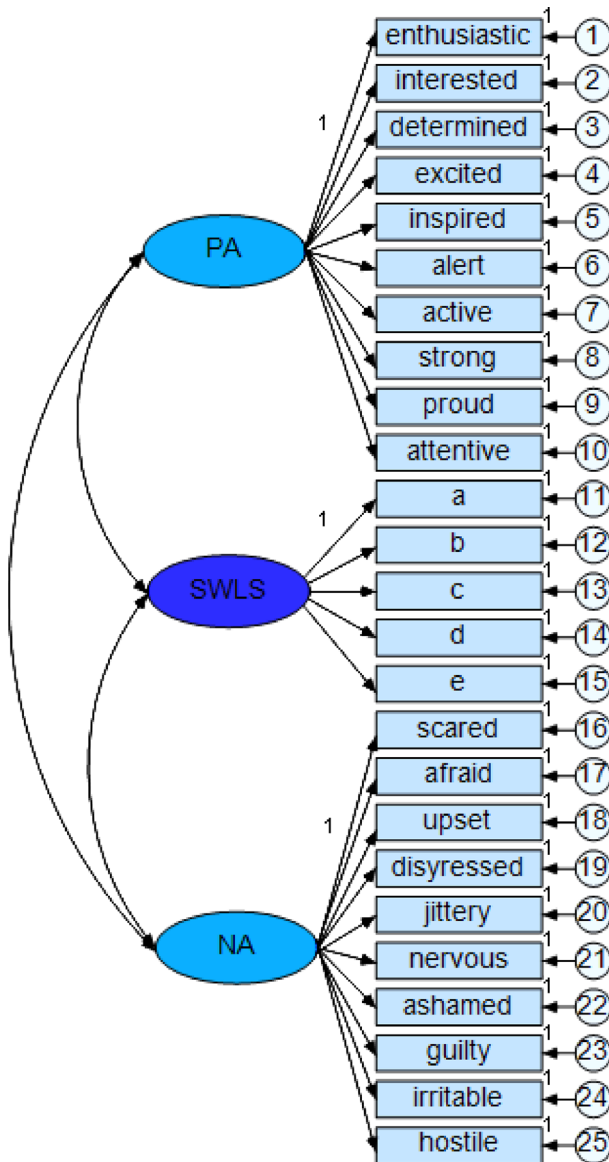
Fig. 2 CFA model of SWB

2. PA is negatively related to NA. If an individual has strong positive emotions, his/her negative emotions become weak, and vice versa. The correlation coefficients of 10 PA moods and PA passed the significance test, as well as those 10 NA moods and NA. Therefore, the construct validity of PANAS is high, and it can basically reflect the emotional conditions of landless peasants.

60 % of landless peasants have a higher score of negative emotions as a result of imperfect and unreasonable land expropriation policies. He et al. (2009) found significant

Table 4 Correlations between SWLS and PANAS

	Estimate	P		Estimate	P
Enthusiast ← PA	1.000		Hostile ← NA	1.277	***
Interested ← PA	1.115	***	Irritable ← NA	.834	***
Determined ← PA	.890	***	Guilty ← NA	1.023	***
Excited ← PA	1.046	***	Ashamed ← NA	1.209	***
Inspired ← PA	1.183	***	Nervous ← NA	1.018	***
Alert ← PA	.754	***	Jittery ← NA	1.287	***
Active ← PA	.762	***	Disyressed ← NA	.941	***
Strong ← PA	1.080	***	Upset ← NA	.965	***
Proud ← PA	1.145	***	Afraid ← NA	1.077	***
Attentive ← PA	1.359	***	Scared ← NA	1.000	
a ← SWLS	1.000		SWLS ↔ PA	0.809	***
d ← SWLS	0.935	***	SWLS ↔ NA	−0.785	***
c ← SWLS	0.950	***	PA ↔ NA	−0.636	***
b ← SWLS	1.008	***			
e ← SWLS	1.076	***			

*** $P < 0.001$. he abbreviations of "a"–"e" indicate the five items of SWLS

"a" In most ways my life is close to my ideal

"b" The conditions of my life are excellent

"c" I am satisfied with my life

"d" So far I have gotten the important things I want in life

"e" If I could live my life over, I would change almost nothing

differences between land expropriation policies in many regions in China. Some peasants at the city center in Guangdong received high compensation and then became millionaires, while others survived by offering their houses to be rented by migrants. However, in specific areas in less developed regions, changes in property rights as a result of land acquisition have negative or even fatal effects on the landless peasants. Guo (2001) mentioned that among the parties involved in land expropriation, the peasants who depend solely on the land for their livelihood receive the least amount as compensation. Land development dividend does not benefit the landless peasants.

Liu and Lou (2004) argued that implementing the differential pricing policy to land expropriation for profit and non-profit goals can also cause psychological imbalance. Given their varying interests, peasants and local officials are usually in conflict with each other. In confronting these conflicts, the attitudes of some landless peasants change from being traditionally silent and tolerant to being a vigorous fighter and exhibiting resistance. Peasants also tend to recall conflicts from previous time periods, resulting in the increasing intensity of the conflicts (Tan 2008). Thus, the unreasonable system and unfair conditions can negatively affect the psychological status of landless peasants.

3. SWLS also has acceptable reliability. In SWLS scores, the general mean value of SWLS is 16.1697, while the mean values of all five items are lower than 3.5, indicating that the life satisfaction of landless peasants is below average. 64.56 % of the respondents had SWLS scores below the midpoint of scale (20), two times as great as those score above the midpoint of scale.

4. The relatively large correlation coefficients of SWLS and the five items pass the significance test. Thus, SWLS reflects the life satisfaction of landless peasants and is positively related to PA. When landless peasants have more and stronger positive emotions, their SWB will improve. By contrast, SWLS is negatively related to NA. When landless peasants have more and stronger negative emotions, their SWB will decline.

A poor life satisfaction refers to the low evaluation of landless peasants on their global life, which might be related to the lack of social security. The imperfect quality of the scheme is one factor that diminishes the quality of life (Liang et al. 2014). The extent of effect of land reform is very broad. The broadened concepts involve the rural welfare system and development (Moyo et al. 2000). In Zhejiang, given the lack of funding, thoroughly and rapidly addressing urgent unemployment and medical issues of landless peasants is difficult (Yang and Huang 2004). In Jiangsu, the compensation system for the land expropriation is not yet established. The resettlement means are simple and are mostly monetary (Jin and Zhang 2010). The legalization in China has a long way to go, as well as the legal construction of compensation policies for the landless peasants (Liang 2011). After using the compensation they received, peasants subsequently face the problem on sustaining their financial resources. Moreover, their identity as rural residents persists, despite their relocation in urban areas, and they experience exclusion from the urban social security system. Therefore, landless peasants comprise the vulnerable groups that must be provided with utmost attention (Wang 2003). Traditionally, the land is the carrier of life security for the rural population. At the onset of urbanization and while the rural social security system is not yet in place, security, especially in relation to the land, is weakened or eliminated (Fan 2003). The source of security disappears because of land expropriation. The inability of the current security system to cope with the change results in uncertainties in health care and employment, which damage life satisfaction.

The low SWB of Chinese landless peasants may cause conflicts and petitions to arise, which may lead to rural development but instability in the society. One of the government projects that should be enhanced comprehensively is the SWB of landless peasants. The assistance policies organized by the government can help improve QOL or health (Liang and Wang 2013; Liang et al. 2014). Thus, we propose the following policy implications. (1) To improve the compensation and resettlement system of landless peasants, including the provision of a diversified compensation mode such as job placement, one-time monetary compensation, and stay resettlement, to highlight the reasonable qualities of the system and minimize the unfair perception, as well as to properly solve disputes and contradictions. (2) To intensify vocational education and training (Liang and Cao 2014) by establishing and improving the integration of urban and rural labor market systems and then fortify the special employment security for landless peasants and by increasing the employability of landless peasants for them to not experience difficulty in adapting to urban living. Lastly, (3) to further improve the rural social security system and merge the urban and rural rail systems (Liang and Wu 2014; Liang 2014) that will ensure access of landless peasants to social security, such as health care, pension, and housing among others.

This study has some limitations. First, the sample sites are only composed of regions in eastern China. The regional development in the Yangtze River delta (YRD) is not completely balanced. Some cities are still in their backward development but rapidly expanding, with numerous landless peasants living in these regions. Future research can consider expanding to larger regions toward the YRD. Second, this study lacks a

comparative perspective. The SWB of the landless peasants was not compared with that of the general population. Finally, many cities in China continue to develop at a fast pace, which increasingly renders landless peasants as a vulnerable group. Further studies can continue focusing on their SWB to encourage modifications to national policies and government reforms that will favor landless peasants.

5 Conclusions

The emergence of landless peasants is simultaneous with the accelerating urbanization in China as a result of the implementation of the reform and opening policy. The Chinese government has expropriated the lands of peasants, thus separating them from their sole source of economic survival for several generations. These lands are subsequently affected by urban expansion and development during the land conversion process. After the peasants lost their land, they are observed to neither maintaining their identity as traditional farmers (those who cultivate the lands for crops) nor integrating into the city. Although many of them had moved to the cities, they still do not benefit from the same rights as those of urban residents. This study had intended to explore the SWB of Chinese landless peasants in economically developed regions.

Results indicated that 60 % of the respondents got NA scores above the theoretical mean value (30) and 64.64 % of the respondents reported PA scores below the theoretical mean value (30). And 64.56 % of the respondents got SWLS scores below the theoretical mean value (20), twice as great as those score above the midpoint of scale. SWLS is positively related to PA and negatively related to NA. Thus, while experiencing strong negative emotions, the SWB of landless peasants decrease. Unfair or unreasonable land compensation and resettlement policies also lead to negative emotions. Moreover, incomplete social security system contributes to low life satisfaction level among landless peasants. Thus, we suggest that the compensation and resettlement system of landless peasants be improved, vocational education and training be intensified, and the rural social security system be strengthened. Constant attention is highlighted to focus on the health of landless peasants.

Conflict of interest The authors declare that they have no competing interests.

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