

The Forgotten People: The Impact of Land-Loss on Chinese Farmers' Happiness

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Abstract

Since the 1980s, China's development and urbanization have led to many farmers losing their land. Most of those land-lost farmers live in urban areas. This paper uses data from the 2018 China Family Panel Study to explore the factors that impact the happiness of land-lost farmers. After controlling for eight variables from three aspects - demographic variables, socioeconomic variables, and social helping variables - it is clear that the experience of land loss hurts farmers' happiness. This is because the experience of land loss contributes to the loss of social status and psychological health issues caused by the imbalance of low fees paid for land expropriation. The government should consider slowing down the pace of urbanization since it brings less happiness for farmers on average.

Keywords: Land-lost Farmers, Land Expropriation, Happiness.

Introduction

By the 1990s, approximately 73.6% of China's population comprised agricultural residents or farmers. [1] With rapid urbanization, a new group of farmers, known as land-lost farmers, has emerged. These farmers have lost their land due to the acceleration of urbanization, and many have sought livelihoods in urban areas. Over time, the number of land-lost farmers has significantly increased. While these farmers have made significant contributions to China's development by sacrificing their land for urbanization and industrialization, it raises the question: does the experience of land-lost affect farmers' happiness? How does the experience affect happiness? Which group of farmers are affected the most? This research aims to analyze the impact of the experience of land loss on farmers' happiness and identify the reasons behind it.

This paper makes several contributions to the existing literature. Firstly, it adds to the body of knowledge regarding the impact of land loss. Previous studies have suggested that land loss may result in changes in income and negative psychological effects. [2] However, this study finds that the experience of land loss may lead to higher income, but additional factors collectively influence the happiness of land-lost farmers negatively.

Secondly, this article explores how the experience of land loss affects farmers' happiness. While previous studies have focused on the experience of land-loss and its impact on factors such as income, psychological well-being, and

health issues, the specific mechanisms through which these factors influence the happiness of land-lost farmers remain unclear. [3]

Thirdly, previous research has examined the relationship between various factors and happiness, such as the impact of income on happiness. However, selection bias is still present in these studies. This study employs Propensity Score Matching (PSM) analysis to address this issue to reduce selection bias. Specifically, we utilize Radius matching, Kernel matching, and nearest neighbor matching techniques.

Moreover, there are certain gaps in the existing literature. Firstly, there have been limited attempts to investigate the happiness levels of land-lost farmers. [4][5][6][7] Also, it is unclear whether the experience of land-lost leads to a decrease in income.

The remaining part of the paper is as follows: Section 2 briefly reviews the literature on factors that may influence land-lost farmers' happiness. Section 3 shows the research design, including data source and measurement. The results are indicated in Section 4. Finally, a discussion and conclusion are offered in Section 5.

Literature review

Happiness

Previous literature focuses on happiness from three perspectives, namely demographic factors, socioeconomic factors, and public service factors. [8][9]

The first perspective found demographic factors impact happiness, namely gender and age. Previous studies found that females and males differ in happiness in multiple perspectives. [10]Males derive more happiness and satisfaction with life from pleasurable experiences than women. In comparison, women derive more happiness and satisfaction from personally fulfilling (or meaningful) experiences than men. [11]Also, social roles based on gender and gender socialization significantly affect an individual's mental health and happiness. [12]In the United States, women, in comparison to men, have become less happy with their lives since the early 1970s. [13]From an age perspective, studies have proven the relationship between age and happiness is U-shaped in most countries. [14][15][16]Recent studies have shown that the "U" curve turns earlier, on average, for happier people and people in happier places and that those happier people experience a drop in stress levels earlier in life. [17]

The second perspective found that socioeconomic factors impact farmers' happiness: income, education, and social help. The effect of income on happiness seems paradoxical. [18]At a point in time, those with more income are, on average, happier than those with less income. [19]Over the life cycle. However, the average happiness of a cohort remains constant despite substantial income growth. Still, it is generally agreed that income greatly influences happiness. Education can increase happiness through different channels, such as promoting higher job quality with more interesting jobs, positive effects on health, and better marriage prospects. [20][21][22]Social support can affect happiness indirectly. [23]First, it is found that perceived social support has a direct, positive effect on hope, which is positively related to happiness. [24]Second, people with low social support are at a much higher risk of death from a variety of diseases (e.g., cancer or cardiovascular disease). Health issues affect happiness directly. [25]

The third perspective found that public services have a great impact on happiness. [26]First, public services can help reduce poverty and inequality, leading to a more stable society and happier citizens. [27]Second, public services will allow people to participate in decision-making processes. [28]This will make participants feel more connected to their government and society. This connection will lead to happiness.

Land-lost farmers

The experience of land loss has a huge negative effect on farmers. First, on the financial level in foreign countries such as Mali, studies found that agricultural land loss causes a decrease in farming output and farmers' income, leading to food insecurity and poverty issues. [29]Also, in China, land-lost farmers lost their long-term income due to the compensation paid in a lump sum. [30]Farmers

lose their main income source, which is land. They face the problem of being jobless. The farmers who become landless and jobless have to seek non-farming jobs or start self-business, but most farmers do not succeed in the latter, which threatens farmers' well-being. [31]

Second, on the psychological level, land has an important social meaning and status symbol in rural communities. The loss of land can have a negative psychological impact on farmers by making them feel less socially privileged and less able to identify themselves. [32]

Third, the health outcome. Farmers that used to live in the village were forced to separate from other villagers. This makes farmers feel less supported and isolated. Both the financial problems and psychological problems mentioned above make land-lost farmers unhealthy. Previous literature studied the effect of land expropriation on land-lost farmers' self-reported health and found that land expropriation negatively influences farmers' health due to income and psychological influences. [33]

However, the literature mentioned above neglected how land-lost experience negatively affects farmers' happiness. It is crucial to study farmers' happiness as they comprise much of China's population. This study tries to reveal how the experience of land-lost affects farmers' happiness and the mechanisms. This paper also tries to solve the heterogeneity problem.

Research design

Data

The data are from China Family Panel Studies (CFPS), funded by Peking University and the National Natural Science Foundation of China. The CFPS is maintained by the Institute of Social Science Survey of Peking University. All baseline family members and their future blood/adopted children defined by the 2010 baseline survey were permanently tracked as genetic members. The survey takes administrative division and socioeconomic level as the main stratified variables and adopts probability sampling, which is implicit stratified, multi-stage, multi-level, and proportioned to population, and selects randomly 25 provinces/cities/autonomous regions representing 95% of China's population from all over the country. In the 2018 China Family Panel Studies, there were 14,241 households, 32,669 adults and 8,454 children. The CFPS collects basic information about the children under investigation, academic grades, educational savings, and data from parents and other family members. This survey has been ethically reviewed and provides real and reliable data for academic research and national and social policy decisions. [34]

Measurement

Dependent variable

The dependent variable in this study is the happiness of farmers. It was measured using the question, “How happy do you consider yourself to be?” Participants were asked to rate their happiness on a scale from 0 to 10, with higher values indicating greater happiness.

Independent variable

The purpose of this study is to investigate the impact of the experience of land lost on farmers’ happiness. The independent variable is the experience of land loss. The survey asked the respondents “Whether you have experienced land expropriation?”. The answer was encoded as “yes=1, no=0”.

Mediating variable

The first mediating variable is income. This study assessed income using the following question: “In the past 12 months, including business income, salary income, rent income, government subsidies, or financial support from others, what is the total amount of your family income?”. Income data was logarithmically transformed to satisfy the “population-weighted decomposability” requirement. [35]

The second mediating variable is the level of trust interviewees have in their neighbors. This variable serves as a measure of the support land-lost farmers receive from their local communities. Farmers often receive significant support and trust from their fellow villagers. However, when they move to urban areas, they are separated from their original community and may receive less support. To assess trust, respondents were asked to rate their level of trust in their neighbors on a scale of 0 to 10, with 10 indicating a high level of trust.

The third mediating variable is mental health, which is crucial for happiness. [36]In this study, we utilized the “cesd8” questionnaire to assess the mental health of interviewees. The “cesd8” is a self-assessment form for depression. The questionnaire includes statements such as “I feel depressed,” “My life can’t continue,” and “I feel lonely.” Participants indicated how frequently they

experienced these feelings within a week. A higher score indicates a greater level of depression.

Control variables

According to the literature on happiness, there are three control variables. The first set of factors is demographic variables, including gender and age. [37]The corresponding question of gender is “What is your gender?” and the answer is encoded as “male=1, female=0.” The age variable is measured by the question, “What is your age?”. We used the continuous variable to measure age.

The second set of factors is socioeconomic variables, including income and education. [38] Income was measured by taking the logarithm of income data. The corresponding question of education is, “What is the highest level of education you have taken?”. The level of education was measured by the years of schooling. The numbers were the years interviewees spent in school.

Social support, generally speaking, consists of social insurance, social relief, social welfare, entitled groups, and resettlement. As people who get social support are more likely to think there is enough social support to deal with problems, the level of social support is measured by “how serious is the social support problem in our country” in the questionnaire. 0 means there is no problem of having social support in our country.

The third set of factors is public service factors, including self-reported health, satisfaction with health services, and confidence for the future. The corresponding self-reported health question is “How do you rate your health condition?” the answers are encoded as “5=very healthy, 4=pretty healthy, 3=healthy, 2=normal, 1=unhealthy.” The corresponding question of satisfaction of health service is “your satisfaction of health service,” and the answers were encoded as “5=very satisfied, 4=satisfied, 3=normal, 2=unsatisfied, 1=very unsatisfied.” The corresponding question of confidence for the future is, “How confidential are you about your future?” The interviewees rated from 0 to 5. The higher the value was, the more confidential the interviewee was about their future. Table 1 indicates the definition of all the variables.

Table 1 Definition of variables

Variable	Definition
Dependent variable Happiness	0-10 How happy the interviewee was. 0 is the lowest, and ten is the highest
Independent variable Land	1=have the experience of losing land 0=didn't have the experience of losing land
Mediating variable	

Income Trust Mental health	=ln (the sum of income of the last 12 months) 0-10 how much interviewee trust their neighbors. 0 is the minimum trust level, and 10 is the highest trust level Data from CESD8. The higher the points are, the more depressed the interviewee is.
Control variable	
Gender	1=male 0=female
Age	=the age of the interviewee
Helping	0-10 The extent of the social security problem. 0 is the lowest, and 10 is the highest
Income	=ln (the sum of income of the last 12 months)
Edu	Education=the number of years taking education
Healthy	1-5 self-reported health condition. 0 is the worst, and 5 is the most
Healthcare Future	Satisfaction of the conditions of receiving medical care. 5 is the most, and 1 is the least The confidence of the interviewee himself in his future. 5 is the most, and 1 is the least

Descriptive analysis

Table 2 is the descriptive analysis of our sample. Regarding the dependent variable, the average happiness score of farmers is 7.546 out of 10. Our independent variable shows that 6.09% of farmers experienced land loss. In the demographic aspect, the mean of gender is 0.497, which means almost half of the interviewees were female and half were male. The mean age showed that the average age of the survey respondents was 45 years old. The respondents rated the status quo of social security from a socioeconomic perspective. The mean of the score is 6.1, which indicates most respondents have a relatively lower image of social security. The mean of income after taking the logarithm is 10.597. The average education score is 7.727, meaning interviewees spent 7.73 years in school. From the public service perspective, the mean self-rated health status is 3.021 out of 5, which shows that respondents rated their health as medium. Similarly, the mean satisfaction with health care services is 3.633 out of 5, as a medium. The average score of future expectations of the interviewee is 4.125 out of 5, which indicates that the respondents are pretty positive about their future.

Table 2 Descriptive analysis

Variable	Mean	Std. Dev.	Min	Max
Happiness	7.5464	2.1650	0	10
Land	0.0609	0.2392	0	1
Gender	0.4976	0.5000	0	1
Age	44.8869	19.3614	9	102
Helping	6.1385	2.7494	0	10
Income	10.5979	1.3423	0	14.5086

Edu	7.7279	4.8292	0	23
Healthy	3.0213	1.2501	1	5
Healthcare	3.6334	0.8048	1	5
Future	4.1254	0.9564	1	5

Main results

Table 2 shows the regression results of losing land on the happiness of farmers. Model 1 only includes the independent variable. Model 2 controls demographic variables. We further control socioeconomic variables in Model 3. In addition, other variables are included in Model 4. From the results in Model 1, the experience of land loss had a significantly negative impact on the happiness of farmers ($p < 0.01$). The coefficient was -0.202, which indicated that the happiness score of land-lost farmers was 0.202 lower than that of farmers without land loss. Model 2 shows the results after controlling for various demographic variables, such as gender and age. The land loss was also significantly and negatively associated with the happiness of farmers. Considering that socioeconomic factors also affected happiness, Model 3 controlled for education, income (Logarithm), and receipt of social assistance in addition to demographic variables. Land loss still severely reduced the happiness of farmers, according to data. Meanwhile, previous studies have found that self-reported health affects well-being, so in the fourth column, Model 4 controls for the respondent's self-reported health, satisfaction with health services, and confidence for the future. The results show that landlessness continues to be significantly and negatively associated with happiness ($p < 0.01$). Farmers who have lost their land are 0.175 units

less happy than farmers who have not lost their land after controlling variables from three aspects. Losing land has a side effect on farmers' happiness because it makes them less connected to the people in their village. Their attachment to the land also leads to decreased happiness after confiscating the land.

In terms of control variables, gender, age, income, education, self-reported health, satisfaction with health services, and confidence for the future affected farmers' happiness. Men's happiness is 0.172 units lower than women's hap-

piness. Each unit increase in age raises happiness by 0.014 units. Each unit increase in income increases happiness by 0.097 units. Each unit increase in education enhances happiness by 0.027 units. Each unit higher in an individual's state of health enhances happiness by 0.249 units. For each unit, higher satisfaction with health care and happiness increases by 0.158 units. For every unit with higher expectations of the future, happiness increased by 0.764 units. Meanwhile, the effect of social help on happiness is not significant.

Table 2 Regression results

	(1)	(2)	(3)	(4)
Land	-0.202*** (0.057)	-0.200*** (0.057)	-0.212*** (0.061)	-0.175*** (0.056)
Gender		-0.061** (0.030)	-0.102*** (0.033)	-0.172*** (0.030)
Age		-0.001 (0.001)	0.006*** (0.001)	0.014*** (0.001)
Income			0.133*** (0.012)	0.097*** (0.011)
Edu			0.024*** (0.004)	0.027*** (0.004)
Helping			0.006 (0.006)	0.008 (0.005)
Healthy				0.249*** (0.013)
Healthcare				0.158*** (0.019)
Future				0.764*** (0.016)
Constant	7.433*** (0.016)	7.503*** (0.047)	5.602*** (0.153)	1.168*** (0.168)
Observations	22,152	22,152	19,228	19,128
Adjusted R-squared	0.001	0.001	0.010	0.164

Note: Standard errors are in parentheses. * p<0.1, **<0.05, ***<0.01

Mechanism

Income

First, the experience of land loss can decrease farmers' happiness by decreasing their income. Losing land reduces farmers' income sources, which decreases their income. The reduced income negatively affects farmers' happiness. To prove this mechanism, this paper uses the logarithm of income as the mediating variable. However, in Table

3, columns (1) and (2) indicate that the land-lost experience increased income and income increased happiness of farmers. Thus, the results suggest that this path is exactly the opposite of what is expected. Even though the land-lost experience increases farmers' income and income increases happiness, farmers are not happy when they lose their land. This also implies that more important mechanisms influence the happiness of land-lost farmers.

Social support

Second, the experience of land-lost can reduce the social-support farmers get from their neighbors. Land-lost farmers are used to living close to other villagers. They get plenty of social support from the villagers. However, after moving into cities or urban areas, land-lost farmers leave their neighbors and lack social support, which may lead to less happiness. Column (3) and (4) in Table 3 estimates the influence of land-lost on their trust of neighborhoods. It shows that the land-lost experience negatively affects their trust toward neighbors, and happiness is positively associated with trust. This means that the land-lost farmers have less social trust, which in turn also reduces

their happiness.

Mental health

Third, the experience of land-lost can reduce happiness because they feel bad on psychological level. We used cesd8 in columns (5) and (6) in Table 3 to prove this hypothesis. Cesd8 is a depression self-assessment form. The higher the number was, the more depressed the interviewee was. Columns five and six showed that the experience of land loss led to higher cesd8, and the increase of cesd8 decreased happiness. This proves that the experience of land loss leads to bad psychological conditions and reduced happiness.

Table 3 Mechanisms

	Income	Happiness	Trust	Happiness	Cesd8	Happiness
	(1)	(2)	(3)	(4)	(5)	(6)
Land	0.111***		-0.169***		0.382***	
	(0.036)		(0.057)		(0.101)	
Lfincome		0.095***				
		(0.011)				
Trust				0.222***		
				(0.007)		
Cesd8						-0.136***
						(0.004)
Control Variable	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,138	19,138	19,133	19,133	19,096	19,096
Adjusted R ²	0.065	0.164	0.059	0.207	0.181	0.215

Note: Standard errors are in parentheses. * p<0.1, **<0.05, ***<0.01

Subgroup analysis

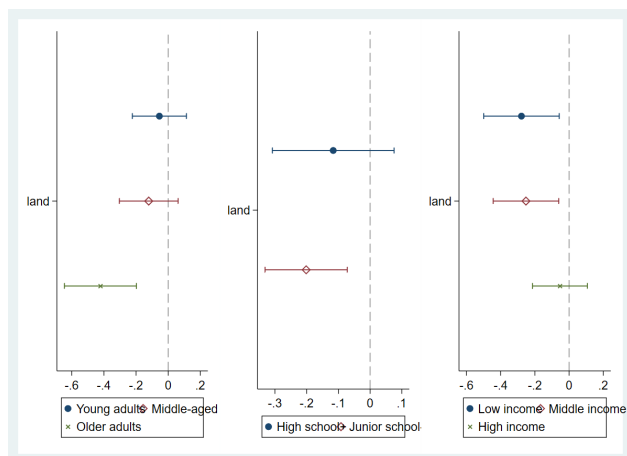


Figure 1 Subgroup analysis of land-lost on happiness

This study shows which group's happiness is more likely

to be affected by the experience of land-lost. I chose three aspects to study: age, education, and income. The results clearly showed that some groups are affected more by land loss.

Firstly, the age aspect. This study divides interviewees into the 16-39 group, the 40-59 group, and those older than 60. The first group is the young adults group, the second group is the middle-aged group, and the third group is the old adults group. The results showed that the experience of land had no significant effect on the first and second groups but had a significant impact on the third group, which is the old people group. In summation, the experience of land-lost has the biggest impact on low-income, low-educated and old people.

Secondly, in the education aspect, I divided interviewees by whether they have attended school for nine years. The reason is that students who spend more than nine years in school will likely go into higher technical school. They may learn skills or knowledge that can give them a better

job. The model showed interviewees who spend more than 9 years in school's happiness weren't significantly affected by the experience of land-lost. In contrast, for respondents who spend less than 9 years in school, their happiness is significantly affected by the experience of land-lost.

Thirdly, in the income aspect, as income decreases, the coefficient of land changes from non-significant to significant. The coefficient is negative, meaning that the less income an interviewee had, the more negative impact the experience of land-lost have on farmers' happiness. The graph shows that the experience of land loss has a greater impact on the low-income group's happiness.

PSM analysis

We implemented the matching test to ensure the reliability of PSM. According to previous literature, an effective

PSM process must meet two conditions. [39]Firstly, after matching, most of the characteristics of the treatment and control group are no longer significantly different. Secondly, the absolute value of the standard deviation needs to be less than 20%. After using the radius matching technique, the control variables have become insignificant or less significant. As shown in Table 4, gender, age, income, and education have become insignificant. Social support, health conditions, healthcare, and future expectations have become less significant. Also, none of the deviations are more than 20%. After all variables are controlled and insignificant, the experience of land-lost still shows clear negative effect to happiness. I also used Kernel matching and K-Nearest Neighbors to examine the results shown in Table 5. Both show that the experience of land-lost negatively affects happiness.

Table 4 Balance test

	Unmatched	Mean			%reduct	t-test		V(T)/
Variable	Matched	Control	Treated	%bias	bias	t	p>t	V(C)
Gender	U	0.518	0.492	5.2		1.89	0.059	.
	M	0.518	0.492	5.2	0.9	1.38	0.169	.
Age	U	46.397	46.232	1.0		0.36	0.722	0.98
	M	46.397	46.219	1.1	-8.3	0.28	0.777	0.98
Income	U	10.511	10.413	7.0		2.62	0.009	1.18*
	M	10.511	10.427	6.0	14.1	1.62	0.105	1.28*
Edu	U	6.948	7.118	-3.6		-1.31	0.191	0.95
	M	6.948	7.120	-3.7	-1.6	-0.99	0.324	0.95
Helping	U	5.888	6.083	-7.1		-2.53	0.011	0.95
	M	5.888	6.083	-7.1	0	-1.88	0.060	0.95
Healthy	U	2.909	2.986	-6.3		-2.24	0.025	0.94
	M	2.909	2.986	-6.2	0.4	-1.66	0.097	0.94
Healthcare	U	3.592	3.660	-8.4		-3.09	0.002	1.03
	M	3.592	3.661	-8.5	-1	-2.28	0.023	1.04
Future	U	4.132	4.139	-0.7		-0.26	0.794	0.99
	M	4.132	4.139	-0.7	0.5	-0.19	0.848	0.99

Table 5 Results of PSM

Matching method	Sample Size		Happiness
	Land-lost	Didn't experience land-lost	ATT(se)
Radius matching	1,425	17,703	-0.259*
Kernel matching	1,425	17,703	-.2060*
Nearest Neighbor matching	1,425	17,703	-.1575*

Note: Standard errors are in parentheses. * p<0.1, **<0.05, ***<0.01

Discussion and conclusion

Land-lost farmers have lost their land and often live in cities, needing to adapt to a different lifestyle. The experience of land loss decreased their happiness in several ways, such as psychological health and the amount of social support they receive. The population of land-lost farmers is huge. Suppose the government fails to manage this group effectively and neglects their needs. In that case, they may destabilize society, as they lack a sense of belonging and have lost their former identity.

The results of this study indicate that the experience of land loss hurts farmers' happiness. After controlling for other variables, farmers who have experienced land loss scored 0.175 units lower in happiness than other farmers. This finding aligns with our initial hypothesis. There are several reasons for this. Firstly, land-lost farmers receive less support from their former communities, leaving them feeling isolated, which can lead to psychological issues. Secondly, the experience of land loss can also result in poorer health conditions due to the feelings of imbalance caused by the conversion of agricultural land into industrial land. The value of the land rapidly increases, creating further imbalance. In February 2012, land rights surveys conducted since 1999 by research organizations such as the Renmin University of China and the American Institute for Rural Studies in 17 major agricultural provinces and autonomous regions of China showed that the average amount of compensation paid by local governments to landless farmers was RMB 18,739 per mu. However, the average land sales price was 778,000 yuan per mu, more than 40 times the expropriation price. [40]

Similar findings can be found in other literature sources. [41][42] Previous studies have examined various factors influencing farmers' well-being and satisfaction, which helped validate my control variables. However, previous literature did not specifically focus on the influence of land loss experience on farmers' happiness, which is the main objective of our study. Furthermore, the data used in previous studies were either collected through online questionnaires or based on CFPS data before 2016. In contrast, our study utilizes more recent CFPS 2018 data collected through a larger sample size and interviews, making it more representative of the situation in China.

Our study has important policy implications. Firstly, it serves as a warning to local governments to carefully consider the speed of industrialization. Policies aimed at accelerating urbanization can harm farmers' happiness on average. Secondly, this research highlights the significant number of farmers suffering from land-loss and currently struggling in urban areas. This emphasizes the need for attention and support for this vulnerable group.

However, it is important to acknowledge the limitations of this study. There may be additional variables that were not considered or controlled for, which could influence the results. Further research is needed to explore these factors and provide a more comprehensive understanding of the challenges faced by land-lost farmers.

Reference

- [1] National Bureau of Statistics. The city has taken on a new look. Nov, 4, 2001. http://www.stats.gov.cn/zt_18555/ztfx/yjsld/202303/t20230301_1920333.html
- [2] Coulibaly, B., Li, S., 2020. Impact of agricultural land loss on rural livelihoods in periurban areas: empirical evidence from Sebougou, Mali. *Land* 9 (470), 1–20. <https://doi.org/10.3390/land9120470>.
- [3] Tong, W., Zhu, L., Lo, K., 2019. Livelihood adaptation and life satisfaction among land-lost farmers: critiquing China's urbanisation-driven land appropriation. *Bull. Geogr. Soc. Econ. Ser.* 46 (46), 149–161.
- [4] Qu, S., Heerink, N., Xia, Y., Guo, J., 2018. Farmers' satisfaction with compensations for farmland expropriation in China: evidence from micro-level data. *Chin. Agric. Econ. Rev.* 10 (4), 572–588. <https://doi.org/10.1108/CAER-07-2016-0094>.
- [5] Tong, W., Zhu, L., Lo, K., 2019. Livelihood adaptation and life satisfaction among land-lost farmers: critiquing China's urbanisation-driven land appropriation. *Bull. Geogr. Soc. Econ. Ser.* 46 (46), 149–161.
- [6] Wang, D., Qianb, W., Guo, X., 2019a. Gains and losses: does farmland acquisition harm farmers' welfare? *Land Use Policy* 86, 78–90. <https://doi.org/10.1016/j.landusepol.2019.04.037>.
- [7] Yanjiang, Z., Xinjun, D., Xiaofen, Y., Nan, G., 2020. Urban integration of land-deprived households in China: quality of living and social welfare. *Land Use Policy* 96, 1–17. <https://doi.org/10.1016/j.landusepol.2020.104671>.
- [8] Tang, L., Luo, X., Yu, W., & Huang, Y. (2020). The effect of political participation and village support on farmers happiness. *Journal of Chinese Political Science*, 25, 639-661.
- [9] Kumar, P., Kumar, P., & Garg, R. K. (2021). A study on farmers' satisfaction and happiness after the land sale for urban expansion in India. *Land Use Policy*, 109, 105603.
- [10] Hori, M., & Kamo, Y. (2018). Gender differences in happiness: The effects of marriage, social roles, and social support in East Asia. *Applied Research in Quality of Life*, 13, 839-857.
- [11] Brakus, J. J., Chen, W., Schmitt, B., & Zarantonello, L. (2022). Experiences and happiness: The role of gender. *Psychology & Marketing*, 39(8), 1646-1659.
- [12] Rosenfield, S., Vertefuille, J., & McAlpine, D. D. (2000). Gender stratification and mental health: An exploration of dimensions of the self. *Social Psychology Quarterly*, 63, 208–223.
- [13] Dowd, M. (2009). *Blue is the New Black*. New York

Times. https://www.nytimes.com/2009/09/20/opinion/20dowd.html?_r=1%26scp=1%26sq=blue%20is%20the%20new%20black%26st=cse

[14] Graham C (2009) Happiness around the world: the paradox of happy peasants and miserable millionaires. Oxford University Press, Oxford

[15] Stone AA, Schwartz J, Broderick J, Deaton A (2010) A snapshot of the age distribution of psychological well-being in the United States. *Proc Natl Acad Sci* 107:22

[16] Cheng TC, Powdthavee N, Oswald AJ (2015) Longitudinal evidence for a midlife nadir in human well-being: results from four data sets. *Econ J* 125:589

[17] Graham, C., & Ruiz Pozuelo, J. (2017). Happiness, stress, and age: How the U curve varies across people and places. *Journal of Population Economics*, 30, 225-264.

[18] Easterlin, R. A., McVey, L. A., Switek, M., Sawangfa, O., & Zweig, J. S. (2010). The happiness–income paradox revisited. *Proceedings of the National Academy of Sciences*, 107(52), 22463-22468.

[19] Easterlin, R. A. (2001). Income and happiness: Towards a unified theory. *The economic journal*, 111(473), 465-484.

[20] Albert, C., & Davia, M. A. (2005). Education, wages and job satisfaction. Paper presented at the Epunet Conference 2005, Colchester.

[21] Blanchflower, D., & Oswald, A. J. (2008). Hypertension and happiness across nations. *Journal of Health Economics*, 27, 218–233.

[22] Hartog, J., & Oosterbeek, H. (1998). Health, wealth and happiness: Why pursue a higher education? *Economics of Education Review*, 17, 245–256.

[23] Tan, C. S., Low, S. K., & Viapude, G. N. (2018). Extraversion and happiness: The mediating role of social support and hope. *PsyCh journal*, 7(3), 133-143.

[24] Malinowski, P., & Lim, H. J. (2015). Mindfulness at work: Positive affect, hope, and optimism mediate the relationship between dispositional mindfulness, work engagement, and well-being. *Mindfulness*, 6, 1250–1262. <https://doi.org/10.1007/s12671-015-0388-5>

[25] Uchino, B. N. (2004). Social support and physical health: Understanding the health consequences of relationships. Yale university press.

[26] Zhou, X., Chen, S., Chen, L., & Li, L. (2021). Social class identity, public service satisfaction, and happiness of residents: the mediating role of social trust. *Frontiers in Psychology*, 12, 659657.

[27] Ding, Y. Z. (2022). Public Service and Public Happiness: Inferences From Big Weibo Datasets for 31 Chinese Provincial Governments. *Frontiers in big Data*, 5, 833703.

[28] Arafa, S. (2019). Why governments should care more about happiness. https://greatergood.berkeley.edu/article/item/why_governments_should_care_more_about_happiness

[29] Coulibaly, B., Li, S., 2020. Impact of agricultural land loss on rural livelihoods in periurban areas: empirical evidence from Sebougou, Mali. *Land* 9 (470), 1–20. <https://doi.org/10.3390/land9120470>.

[30] Wang, Y., Li, W., Xiong, J., Li, Y., Wu, H., 2019b. Effect of land expropriation on land-lost farmers' health: empirical evidence from rural China. *Int. J. Environ. Res. Public Health* 16 (16), 2934. <https://doi.org/10.3390/ijerph16162934>.

[31] He, S., Liu, Y., Webster, C., Wu, F., 2009. Property rights redistribution, entitlement failure and the impoverishment of landless farmers in China. *Urban Stud.* 46 (9), 1925–1949. H

[32] A. Rodríguez-Pose and V. von Berlepsch, “Social capital and individual happiness in Europe,” *Journal of Happiness Studies*, vol. 15, no. 2, pp. 357–386, 2014.

[33] Wang, Y., Li, W., Xiong, J., Li, Y., Wu, H., 2019b. Effect of land expropriation on land-lost farmers' health: empirical evidence from rural China. *Int. J. Environ. Res. Public Health* 16 (16), 2934. <https://doi.org/10.3390/ijerph16162934>.

[34] Liu, Y., & Zhang, W. (2020, August). The Impact of Family Education Savings on Children's Academic Performance—An Empirical Research Based on CFPS2018 Data. In 2020 4th International Seminar on Education, Management and Social Sciences (ISEMSS 2020) (pp. 989-995). Atlantis Press.

[35] Bourguignon, F. (1979). Decomposable income inequality measures. *Econometrica: Journal of the Econometric Society*, 901-920.

[36] Warr, P. (2017). Happiness and mental health: A framework of vitamins in the environment and mental processes in the person. *The handbook of stress and health: A guide to research and practice*, 57-74.

[37] Weech-Maldonado, R., Miller, M. J., & Lord, J. C. (2017). The relationships among socio-demographics, perceived health, and happiness. *Applied research in quality of life*, 12, 289-302.

[38] Peiró, A. (2006). Happiness, satisfaction and socioeconomic conditions: Some international evidence. *The Journal of Socio-Economics*, 35(2), 348-365.

[39] Rosenbaum PR, Rubin DB. 1985. Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *The American Statistician* 39: 33–8.

[40] Over the past 12 years, 43 percent of Chinese farmers' farmland has been expropriated by local governments. 2012, February 8th. https://web.archive.org/web/20120214210607/http://www.zaobao.com/zg/zg120208_011.shtml

[41] Wang, D., & Qian, W. (2018). Gains and losses: Does farmland expropriation harm farmers welfare?.

[42] Liu, L., Wang, T., Xie, L., & Zhan, X. (2020). Influencing factors analysis on land-lost farmers' happiness based on the rough DEMATEL method. *Discrete Dynamics in Nature and Society*, 2020, 1-10.