The Relationships Between the Housing Arrangements and Subjective Wellbeing of Rural-to-Urban Migrants in China

Preliminary Draft

May 26, 2013

Joseph Friedman

Professor of Economics

Temple University, Philadelphia, PA 19122

Email: jfriedman@temple.edu

1.   Introduction

In recent years economists and social scientists have become interested in assessing the well-being of people using broader indicators than GDP or income. But what is *Well-Being*? According to the CDC (Center for Disease Control):

> *"Well-being is a positive outcome that is meaningful for people and for many sectors of society, because it tells us that people perceive that their lives are going well. Good living conditions (e.g., housing, employment) are fundamental to well-being. Tracking these conditions is important for public policy. However, many indicators that measure living conditions fail to measure what people think and feel about their lives, such as the quality of their relationships, their positive emotions and resilience, the realization of their potential, or their overall satisfaction with life—i.e., their "well-being."[1, 2] Well-being generally includes global judgments of life satisfaction and feelings ranging from depression to joy.[3, 4]*

There are two broad   and complementary concepts of well- being: the 'hedonic' and 'eudaimonic' approaches. The hedonic approach emphasizes happiness (pleasant affect, life satisfaction) whereas the eudaimonic approach emphasizes optimal psychological and social functioning such as autonomy, personal growth, self-accepting, purpose in life, environmental mastery and positive relation with others C. D. Ryff (1989). The hedonic approach is often called Subjective Well Being (SWB), whereas the eudaimonic approach is often called Psychological Well-Being (PWB).

This paper explores the relationship between mental health or SWB, demographic variables and the housing conditions of rural to urban migrants in China.   The data for the paper are from the 2008 wave of the Rural to Urban Migration in China (RUMiC) survey, which collected data on migrants in major urban destinations. Only heads of household and single persons were included in the analyses. As part of the survey, respondents were asked the widely used 12 questions of the *General Health Questionnaire* (GHQ-12). The GHQ-12 questionnaire was developed by Goldberg (1972) to screen subjects for psychiatric morbidity or "caseness." The GHQ-12 was the subject of numerous psychometrics analyses and is accepted as having excellent psychometric properties.

The GHQ consists of 12 items that reflect the enduring positive and negative affective states associated with SWB (See Appendix A.1 for the list of the questions and the response alternatives). More specifically, SWB is the average mood of positive and negative affective experiences, in a specified time period (Eid & Diener, 2004). Responses to each question were recorded on a four point Likert scale (0,1,2,3). The 12-item GHQ-12 comprises six 'positive' and

six 'negative' items concerning the past few weeks. Positive items included 'Have you recently felt capable of making decisions about things?', while negative items included 'Have you recently felt constantly under strain?' Items were classified in this way according to wording, with positively worded items having responses arranged along a typical ordinal scale: 'Better than usual', 'Same as usual', 'Less than usual' and 'Much less than usual.' Responses to negatively worded items use converse scaling: 'Not at all', 'No more than usual', 'Rather more than usual' and 'Much more than usual.' Questions 1, 3, 4, 7, 8 and 12 are regarded as positively worded items. The other questions are negatively worded. **Positively** worded items were coded so that a high score indicated endorsement of an item (e.g. 'better than usual'). Higher score on **negative** items indicate rejection of an item (e.g. 'not at all').

In econometric studies, the GHQ-12 is commonly used as a proxy measure for SWB. For example, Clark (2003) studied the effect of unemployment upon SWB while Akay et al (2012) examined the relationship between the amount of remittance and the SWB of remitters. These and other studies consider the GHQ-12 to be, as its developer, Goldberg, intended, a one dimensional instrument wherein the sum of responses yields a single composite score. However, when one turns to the body of psychometric studies of the GHQ-12, there is evidence that the 12 questions are proxies for two or even three distinct latent variables or factors (cf. Smith et al, 2010 and the references therein). The issue of dimensionality is an important one since if the GHQ-12 is indeed multi-dimensional, treating it as a measure of a single factor with a single summary score **may** mask other salient relationships and insights. This paper is one of the few econometric analyses that directly address the property of multi-dimensionality with respect to this frequently used measure of SWB. In brief, the principal finding is that, based on exploratory factor analysis (EFA) conducted on this RUMIC sample of Chinese rural- to-urban migrants, two distinct factors emerge. The first factor can be described as measuring "coping/engagement," the second factor can be described as measuring "depression/stress."

2.   The Factorial Structure of GHQ-12 for Chinese Rural to Urban Migrants

The original use of GHQ-12 was conceived as a unitary screening measure, thus only takes into account the sum of all the items. In contrast, many studies of the factorial structure of GHQ-12 conclude that it can best be thought of as multidimensional scales that assess several distinct measures of affective states. This section uses exploratory factor analysis to examine the dimensionality of the GHQ-12 as applied to Chinese migrants.

The twelve items of the GHQ were coded using a four points Likert scale. The six **positive** questions (1, 3, 4, 7, 8 and 12) were coded from the most positive to the least positive: 3 = Better than usual, 2= Same as usual, 1= Less than usual, 0=Much less than usual. The six **negative** questions (2, 5, 6, 9, 10 and 11) were coded from the least negative to the most negative: 3 = Not at all, 2 = No more than usual, 1 = Rather more than usual, 0 = Much more than usual. Table 1 shows the correlations among the items as well as their means and standard deviations.   All the correlations are statistically significant different from zero at the 1% level but they are all quite small. All the means are greater than 1.5 suggesting that the majority of respondents considered themselves mentally healthy.

Exploratory factor analysis was performed using the maximum likelihood estimation with the oblique factor rotation of SPSS. In the next stage of this research a Structural Equation Model using AMOS will be estimated. Oblique (non-orthogonal) factors were estimated for two reasons. First, Graetz (1991) concluded that oblique factor rotation better approaches the criterion of simple structure, and allows separate components of the GHQ to be identified and measured using factor scores. Second, some of the tests described in section 3 are performed using Seemingly Unrelated regressions models (SUR) are more efficient when the factors are correlated.

Two factors have Eigen values that exceed one, thus a two factor model is selected. Based on the items that load the first and largest factor it can be described as a measure of "Coping/Engagement"; the second factor can be describe as measuring "Depression/ Stress. The factor loadings are presented in Table 2, columns 1 and 2. In Addition, to allow comparisons with the unitary approach of just summing the 12 GHQ items, a single factor was estimated and its factor loadings are shown in Table 2, column 3.

Examination of the item weights for the single factor model shows that they are not too different from one another. The implication is that in empirical research the single factor estimated using factor analysis and the sum of the GHQ-12 (SUMGHQ) can be good proxies for each other. Indeed the correlation between the single factor and SUMGHQ is 99.6%. Turning to the two factors model, the correlation between SUMGHQ and the first factor (coping) is 97.1%, while the correlation between SUMGHQ and the second factor is -89.1%. This suggests that the two factors model reveals a dimension of well-being (stress/depression) that is masked by the

single factor approach that is commonly used.

Table 2.1
Correlation Matrix

	Been able to concentrate on whatever you are doing	Lost much sleep over worry	Felt that you are playing a useful part in things	Felt capable of making decisions about things	Felt constantly under strain	Felt you couldn't overcome your difficulties	Been able to enjoy your normal day to day activities	Been able to face up to your problems	Been feeling unhappy and depressed	Been losing confidence in yourself	Been thinking of yourself as a worthless person	Been feeling reasonably happy, all things considered
P1	1.000	.308	.283	.273	.252	.252	.249	.278	.296	.305	.239	.218
N2		1.000	.204	.172	.367	.290	.255	.199	.341	.274	.222	.222
P3			1.000	.363	.164	.265	.291	.283	.233	.306	.249	.249
P4				1.000	.163	.233	.261	.311	.221	.298	.271	.237
N5					1.000	.330	.277	.177	.386	.247	.208	.285
N6						1.000	.300	.272	.317	.366	.294	.274
P7							1.000	.284	.306	.290	.295	.428
P8								1.000	.285	.330	.301	.258
N9									1.000	.333	.286	.294
N10										1.000	.422	.262
N11											1.000	.311
P12												1.000
Mean	1.660	1.640	1.680	1.630	1.80	1.58	1.76	1.58	1.61	1.45	1.37	1.79
Std Dev	.744	.623	.656	.650	.633	.580	.722	.688	.590	.558	.537	.652

Table 2.2
Factor Loadings and Factor score for One and Two Factors Models

Item	Factor Matrix				Factor Score Coefficient Matrix		
	One Factor Model	Two Factors Model			One Factor Model	Two Factors Model	
		Factor 1	Factor 2			Factor 1	Factor 2
Been able to concentrate on whatever you are doing	.504	.332	.213		.119	.110	.092
Lost much sleep over worry	.489		.551		.113	.044	.196
Felt that you are playing a useful part in things	.493	.596			.114	.177	.018
Felt capable of making decisions about things	.477	.630			.108	.185	.003
Felt constantly under strain	.492	-.189	.790		.114	.000	.336
Felt you couldn't overcome your difficulties	.555	.269	.338		.141	.108	.139
Been able to enjoy your normal day to day activities	.559	.370	.230		.143	.131	.108
Been able to face up to your problems	.513	.562			.122	.171	.035
Been feeling unhappy and depressed	.572		.508		.149	.087	.208
Been losing confidence in yourself	.601	.528			.165	.189	.087
Been thinking of yourself as a worthless person	.542	.512			.135	.164	.060
Been feeling reasonably happy, all things considered	.525	.319	.248		.127	.111	.105
Extraction Method:	Maximum Likelihood.	Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. a. Rotation converged in 3 iterations.			Maximum Likelihood. Rotation Method: Oblimin with Kaiser Normalization. Factor Scores Method: Regression.	Maximum Likelihood. Rotation Method: Promax with Kaiser Normalization. Factor Scores Method: Regression.	

3.   Regression Analysis

This section explores the relationships between the measures of well-being discussed above and selected socioeconomic and housing related variables. Results are presented for the sample as a whole (Table 3.1) and separately for two types of housing tenure: employer provided dorms (Table 3.2) and renters/owners (Table 3.3 and 3.4). As noted above, the correlation between SUM GHQ and the single factor model is almost perfect. Thus, not surprisingly, exactly the same variables are significant in the first two columns of each table, where column one presents the regression coefficients for the dependent variable SUM GHQ and column two presents the regression coefficients for the single factor as dependent variable. The coefficients for the same variable in the first and second columns are different because the corresponding dependent variables are measured on different scale.

For the entire sample, based on the single factor model, SWB increases with income, age, years of education, being married and being in better than average health. Variables that reduce SWB are being divorced and in worse than average health. SWB declines with years since first migration but the rate of decline is smaller the longer is the time since first migration. The two factors model is presented in the third and fourth columns of Table 3.1. The variables affecting Factor 1, coping/engagement, are almost the same as the single factor model. The exceptions are "years since first migration" which has no effect and "age" which has positive effect. These results are very similar to those in Akay, at al (2012), which, is not surprising since we use the same RUMiC data. The more interesting findings are reported in the fourth columns where the dependent variable is Factor Two, "stress/depression (SD)."   It should be noted that higher values of SD and positive regression coefficients imply worse mental health and negative coefficients imply better mental health. Each of the following variables reduces SD: higher income, years of education, better than average health and being married. Variables that increase SD are: being female, widowed, worse than average health and years since first migration.

Table 3.2 shows the regression coefficients for migrants that live in employers provided dorms. The main difference between the results in this table and the results for all "income" has no effect on any of the four measures of SWB.

Table 3.3 shows the regression coefficients for migrants that live in owned or rented housing. Again we see that higher income and better than average health improve SWB and decreases SD, while worse than average health reduce SWB and increase SD. Number of Children in the household (a variable that was not included in regressions on dorm residence) increases SD. Table 3.4 is similar to Table 3.3 with four additional variables that measure housing attributes. These dummy variables indicate whether the household owns or rent its dwelling unit, the existence of a kitchen, the existence of a shared kitchen and whether the housing is shared. I expected that these variables will affect SWB and SD but this is not what the data show. None

of the housing variables is statistically significant. Variance ratio tests (not shown) that tested the hypothesis that the four housing variables are significant as a group also showed no effect.

Table 3.1
Regression results for all

	SUM GHQ	One Factor Model	Two Factors Model	
			Coping	Depression
(Constant)	24.298	-.778	-.943	.303
	(0.762)***	(0.156)***	(0.152)***	(0.148)**
TOTAL INCOME	.122	.026	.028	-.016
	(0.034)***	(0.007)***	(0.007)***	(0.007)**
FEMALE	-.620	-.127	-.142	.075
	(0.136)***	(0.028)***	(0.027)***	(0.026)***
AGE	.065	.010	.017	.003
	(0.047)	(0.010)	(0.009)*	(0.009)
AGE SQUARED	-.001	.000	.000	.000
	(0.001)	(0.000)	(0.000)	(0.000)
MIGRATION YEARS	-.067	-.013	-.007	.022
	(0.031)**	(0.006)**	(0.006)	(0.006)***
MIGRATION YEARS SQ	.002	.000	.000	-.001
	(0.001)**	(0.000)**	(0.000)	(0.000)***
EDUCATION	.203	.041	.044	-.024
	(0.028)***	(0.006)***	(0.006)***	(0.005)***
MARRIED	.628	.132	.136	-.082
	(0.204)***	(0.042)***	(0.041)***	(0.040)**
DIVORCED	-.838	-.178	-.165	.136
	(0.548)	(0.112)	(0.110)	(0.106)
WIDOWED	-1.336	-.289	-.222	.341
	(0.904)	(0.186)	(0.181)	(0.176)*
BAD HEALTH	-3.191	-.629	-.446	.803
	(0.580)***	(0.119)***	(0.116)***	(0.113)***
EXCELENT HEALTH	2.215	.450	.429	-.376
	(0.125)***	(0.026)***	(0.025)***	(0.024)***
R SQ	0.103	0.101	0.093	0.078
N	4751	4751	4751	4751

Table 3.2
Dependent Variable

	SUM GHQ	One Factor Model	Two Factors Model	
			Coping	Depression
(Constant)	24.588	-.705	-.939	.122
	(1.064)***	(0.218)***	(0.214)***	(0.205)
TOTAL INCOME	.072	.014	.015	-.008
	(0.066)	(0.014)	(0.013)	(0.013)
FEMALE	-.664	-.142	-.138	.119
	(0.203)***	(0.042)***	(0.041)***	(0.039)***
AGE	.030	.002	.011	.013
	(0.066)	(0.014)	(0.013)	(0.013)
AGE SQUARED	.000	.000	.000	.000
	(0.001)	(0.000)	(0.000)	(0.000)
MIGRATION YEARS	-.055	-.011	-.005	.021
	(0.048)	(0.010)	(0.010)	(0.009)**
MIGRATION YEARS SQ	.002	.000	.000	-.001
	(0.002)	(0.000)	(0.000)	(0.000)**
EDUCATION	.243	.050	.054	-.027
	(0.041)***	(0.008)***	(0.008)***	(0.008)***
MARRIED	.327	.074	.101	.003
	(0.311)	(0.064)	(0.062)	(0.060)
DIVORCED	-.976	-.212	-.198	.163
	(0.735)	(0.151)	(0.148)	(0.141)
WIDOWED	-1.832	-.381	-.304	.406
	(1.141)	(0.234)	(0.229)	(0.220)*
BAD HEALTH	-2.887	-.566	-.407	.695
	(0.843)***	(0.173)***	(0.169)**	(0.162)***
EXCELENT HEALTH	2.107	.423	.408	-.351
	(0.182)***	(0.037)***	(0.036)***	(0.035)***
R SQ	0.091	0.093	0.096	0.074
N	2273	2273	2273	2273

Table 3.3
Owners and Renters

	SUM GHQ	One Factor Model	Two Factors Model	
			Coping	Depression
(Constant)	24.943	-.705	-.712	.611
	(2.572)***	(0.529)	(0.511)	(0.512)
TOTAL INCOME	.161	.035	.035	-.026
	(0.046)***	(0.010)***	(0.009)***	(0.009)***
FEMALE	-.512	-.101	-.152	-.011
	(0.264)*	(0.054)*	(0.053)***	(0.053)
AGE	.139	.025	.021	-.032
	(0.124)	(0.026)	(0.025)	(0.025)
AGE SQUARED	-.002	.000	.000	.000
	(0.002)	(0.000)	(0.000)	(0.000)
MIGRATION YEARS	.011	.001	.007	.009
	(0.058)	(0.012)	(0.012)	(0.012)
MIGRATION YEARS SQ	-.001	.000	.000	.000
	(0.002)	(0.000)	(0.000)	(0.000)
EDUCATION	.062	.012	.013	-.004
	(0.052)	(0.011)	(0.010)	(0.010)
NUMBER OF CHILDREN	(0.018)	(0.006)	0.032	0.080
	(0.231)	(0.047)	(0.046)	(0.046)*
MARRIED	-.553	-.065	-.048	.054
	(1.755)	(0.361)	(0.349)	(0.349)
DIVORCED	-2.487	-.453	-.378	.408
	(2.021)	(0.415)	(0.402)	(0.402)
WIDOWED	-2.509	-.498	-.397	.550
	(2.364)	(0.486)	(0.470)	(0.470)
BAD HEALTH	-3.662	-.712	-.512	.933
	(1.141)***	(0.235)***	(0.227)**	(0.227)***
EXCELENT HEALTH	2.061	.420	.396	-.353
	(0.239)***	(0.049)***	(0.047)***	(0.047)***
R SQ	0.091	0.089	0.089	0.076
N	1291	1291	1291	1291

Table 3.4
Owners and Renters with Housing Attributes

	SUM GHQ	One Factor Model	Two Factors Model	
			Coping	Depression
(Constant)	24.932	-.708	-.729	.588
	(2.577)***	(0.530)	(0.512)	(0.512)
TOTAL INCOME	.149	.033	.033	-.023
	(0.047)***	(0.010)***	(0.009)***	(0.009)**
FEMALE	-.535	-.105	-.155	-.003
	(0.266)**	(0.055)*	(0.053)***	(0.053)
AGE	.152	.028	.023	-.035
	(0.125)	(0.026)	(0.025)	(0.025)
AGE SQUARED	-.002	.000	.000	.000
	(0.002)	(0.000)	(0.000)	(0.000)
MIGRATION YEARS	.007	.000	.007	.010
	(0.058)	(0.012)	(0.012)	(0.012)
MIGRATION YEARS SQ	-.001	.000	.000	.000
	(0.002)	(0.000)	(0.000)	(0.000)
EDUCATION	.054	.010	.012	-.002
	(0.052)	(0.011)	(0.010)	(0.010)
NUMBER OF CHILDREN	(0.024)	(0.007)	0.031	0.082
	(0.231)	(0.048)	(0.046)	(0.046)*
MARRIED	-.580	-.068	-.041	.078
	(1.762)	(0.362)	(0.350)	(0.350)
DIVORCED	-2.474	-.448	-.369	.416
	(2.031)	(0.418)	(0.404)	(0.404)
WIDOWED	-2.385	-.470	-.369	.533
	(2.372)	(0.488)	(0.472)	(0.472)
BAD HEALTH	-3.751	-.729	-.526	.955
	(1.145)***	(0.235)***	(0.228)**	(0.228)***
EXCELENT HEALTH	2.061	.420	.398	-.350
	(0.239)***	(0.049)***	(0.048)***	(0.048)***
NO KITCHEN	(0.082)	(0.017)	0.004	0.050
	(0.263)	(0.054)	(0.052)	(0.052)
SHARED KITCHEN	0.020	0.008	0.047	0.064
	(0.398)	(0.082)	(0.079)	(0.079)
SHARED HOUSING	(0.187)	(0.042)	(0.046)	0.018
	(0.356)	(0.073)	(0.071)	(0.071)
OWNER	0.557	0.109	0.100	(0.113)
	(0.424)	(0.087)	(0.084)	(0.084)
R SQ	0.093	0.091	0.09	0.078
N	1291	1291	1291	1291

Appendix

Table A1: GHQ-12 Questionnaire

1:      Been able to concentrate on whatever you are doing (P)

2:      Lost much sleep over worry (N)

3:      Felt that you are playing a useful part in things (P)

4:      Felt capable of making decisions about things (P)

5:      Felt constantly under strain (N)

6:      Felt you couldn't overcome your difficulties (N)

7:      Been able to enjoy your normal day to day activities (P)

8:      Been able to face up to your problems (P)

9:      Been feeling unhappy and depressed (N)

10:     Been losing confidence in yourself (N)

11:     Been thinking of yourself as a worthless person (N)

12:     Been feeling reasonably happy, all things considered (P)

The six **positive** questions are 1, 3, 4, 7, 8, and 12. They were coded from the most positive to the least positive: 3 = Better than usual, 2= Same as usual, 1= Less than usual, 0=Much less than usual.

The six **negative** questions are 2, 5, 6, 9, 10, and 11. They were codded from the least negative to the most negative: 3 = Not at all, 2 = No more than usual, 1 = Rather more than usual, 0 = Much more than usual

For an individual the scores are usually added so that the total score ranges from 0 to 36; an individual with total score of 12 or less is often considered a "case."

Source: RUMiC 2008.

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