Subjective well-being of internal migrants: evidence

from a sample of rural *hukou* holders in Chinese cities

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Abstract: The purpose of this article is to examine the determinants of subjective well-being among Chinese adults, with particular emphasis on internal migrants who hold a rural *hukou* and have settled in cities. Based on a sample of 7846 adults stemming from the 2011 wave of CHNS survey, we estimate different happiness functions using ordered probit regressions. We first confirm the influence of traditional demographic and socioeconomic characteristics (*i.e.* age, marital status, gender, illness/injury, income and education). Second, our results emphasize the importance of taking into account regional differences, but also the positive impact of leisure time and social connections. Third, we find evidence of differences in subjective well-being depending on work status, type of work unit and occupation. Finally, our results highlight that being a rural-to-urban migrant is significantly associated with a decrease in the probability of reporting good or very good life satisfaction. We show that this relationship seems to be shaped by direct and indirect effects, and we identify the mediating role of work and employment characteristics, regional patterns, and social relations.

1. Introduction

In recent years, there has been growing interest among economists in the analysis of subjective well-being (SWB) - most often referred to as 'happiness'- and particular attention has been given to its measure and determinants. For example, Easterlin published a research article entitled "The economics of happiness" in 2004, and the 2015 Nobel Prize in Economic Sciences was awarded to Deaton for his analysis of consumption, poverty and welfare. McGillivray and Clarke (2006: 4) argue that "subjective wellbeing involves a multidimensional evaluation of life, including cognitive judgments of life satisfaction and affective evaluations of emotions and moods". However, most economists use the terms "happiness" and "life satisfaction" interchangeably with subjective well-being (Easterlin 2004). A wide range of economic studies has been undertaken to investigate this issue in many industrialized countries and have allowed establishing some stylized facts on the main drivers of happiness (see for instance Dolan et al. (2008) for a survey). By comparison, studies on subjective well-being in developing countries are relatively scarce due to the lack of reliable data, and more particularly long-run series (Conceiçao and Bandura, 2008). However, the increased number of household surveys aiming at collecting detailed information at the household and individual levels could help to improve our understanding of the causes of happiness in the developing world, as emphasized by the pioneer work of Banerjee, Deaton and Duflo (2004).

In this respect, we propose to contribute to the literature on the determinants of SWB by focusing on the Chinese context and relying on data from the *China Health and Nutrition Survey*. This country-specific study is motivated by three main elements. Firstly, over the past 40 years, China has experienced a huge increase in GDP while poverty rate has fallen dramatically (Ravallion and Chen, 2007). Between 1980 and 2015, its GDP rose from 191 to 11,007 billion US \$, allowing China to become today the second global economic power. At the same time, the Chinese GDP per capita (at constant 2010 US \$) was multiplied by 17, and the share of people living with less than 3.90\$ a day dropped from 99% in 1981 to 11% in 2013 (World Bank). These changes might have positively impacted the happiness of Chinese citizens, since income or GDP has long been considered as the main determinants of happiness (Conceiçao and Bandura, 2008). Secondly, the rapid economic growth of China has been accompanied by the explosion of inequalities between provinces but also between and within urban and rural areas (see for instance Bonnefond and Clément, 2012). With a Gini coefficient equal to 42.16 in 2012, China is considered as a country with severe income inequality by World Bank standards. The rise in disparities between Chinese people could have negatively impacted SWB, has noticed be previous cross-sectional or country-specific studies (Wang and VanderWeele, 2011). Thirdly, the Chinese Communist Party adopted the concept of 'harmonious society' in 2006, which aims at achieving a fairer and more balanced development. While the main leitmotiv in the era of Deng Xiaoping was to 'let some people get rich first', the administrations of Hu Jintao and Xi Jinping decided to create inclusive growth and therefore promote the emergence of a 'moderately well-off society' (*xiaokang*). As a consequence, improving people's livelihoods to ensure the transition toward a 'happier society' has been at the heart of the 12th and 13th five-year plans (2011-2015 and 2016-2020).

A growing number of studies have examined the main drivers of SWB in urban or rural China (e.g. Appleton and Song, 2008, Knight et al. 2009). A few papers have also focused on rural-to-urban migrants samples in order to explain their reported lower happiness compared to rural and urban non-migrants (Zhang et al. 2009; Knight and Gulatinaka, 2010; Akay et al., 2012; Cheng et al. 2014, Jin, 2016). As mentioned by Jin (2016), these studies have made valuable contributions to our understanding of migrants' relative concerns, underlying the impact of migrants' relative income in the receiving community and of migrants'

expectations. However, further research is needed to provide a broader understanding of the multiple factors than can influence SWB and of how the migration status interact with other happiness drivers.

Our paper proposes a recent investigation on the main drivers of subjective well-being in China, with a particular focus on rural-to-urban migrant status. Our main objective is two-fold: First, we aim at identifying a large set of characteristics that can explain differences in SWB among Chinese citizens, including personal and socio-economic characteristics, the impact of regional patterns, leisure time and social connections, but also the potential effect of work and employment status. Second, we contribute to the debate on the relationship between migration and happiness, by assessing whether rural-to-urban migrants report significantly lower happiness, and assuming that this impact is composed of direct and indirect effects. The paper contribute to the literature on the determinants of SWB in three major ways: (i) We use a large set of control variables that can allow us to identify the interactions between different determinants of SWB and the potential channels by which the migration status impacts SWB; (ii) We focus on the most recent wave of CHNS survey (2011), which allow us to be one of the first studies to our knowledge that provides an overall analysis of SWB in China since the economic slowdown. Consequently, our results may show differences in the determinants of SWB compared to previous studies focusing on China before 2009. Globally, our results show that rural-to-urban migration is significantly associated with a decrease in the probability of reporting good or very good life satisfaction. Traditional demographic characteristics, regional differences, leisure time and social connections, work status, type of work unit and occupation also influence the subjective well-being of Chinese citizens; (iii) Our results allow us to draw several important policy implications in the Chinese context. The rest of the paper is organized as follows, section two reviews the related literature, section three describes the data and the construction of variables, section four outlines the methodology and presents the results while section five provides a discussion and concludes.

2. The subjective well-being of Chinese rural-to-urban migrants: a review of literature

2.1. The context of internal migration in China

Since the beginning of economic reforms in 1978, Chinese urban areas have offered more and more job opportunities, encouraged by market liberalization, foreign trade and the rapid development of the country. As a consequence, the rapid industrialization of China has been accompanied by massive internal migrations from the countryside to the cities. Scholars focusing on rural-urban migration in China agree that this phenomenon has been different from that in most other developing countries (Knight and Song, 1999).

During the Mao era, the Chinese government implemented a restrictive system to control movement of persons from communes to cities. Starting from 1958, the Chinese authorities delivered residential permits (*hukou*) which determined where citizens are allowed to live depending on their mother's place of residence. As a consequence, each Chinese citizen was broadly categorized as "urban" or "rural". Changes in the *hukou* status were tightly controlled, and only a few rural workers were allowed to move to urban areas to take-up non-agricultural jobs. Even after the economic reforms in 1978, internal migration was very limited due to the continuation of the system of residential registration, which hindered rural

people from settling and working in the cities. However, temporary migration was permitted when urban demand exceeded the resident supply (Knight and Gulatinaka, 2010). With China's coastal economic boom, rural-to-urban migrant workers (*nong mingong*) started to flock to cities in order to find a job and better living conditions. The major consequence of this registration system is that rural-to-urban migrants are treated as 'second-class citizens' due to their rural *hukou*, and they are victims of discriminations in access to jobs, housing, education and health care (Knight and Song, 1999). In spite of these drawbacks, rural-urban migration has been continuously increasing over the past decades, as the control of population movement has been eased in the 1990s and 2000s and the demand for urban labor force has increased. For instance, an important reform of the *hukou* system was adopted in July 2014 and aims at helping rural migrants which have settled down in smaller and medium-sized cities (less than 500.000 inhabitants) to change their *hukou* status. Nevertheless, the government still require the largest cities (such as Beijing, Shanghai, Guangzhou or Shenzhen) to tightly control their population inflow. In a country willing to control its urbanization process, the issue of rural-to-urban migration is still of a particular concern.

Due to their illegal nature, rural-to-urban migrations are difficult to quantify. According to the annual survey of migrant workers conducted by the National Bureau of Statistics, the stock of rural *hukou* migrants working in Chinese cities increased from nearly 30 million in 1989 to 277.5 million in 2015. As mentioned by Knight and Gunatilaka (2010: 114), it is likely to be the 'greatest migration in human story. Rural laborers working in cities can be considered as one of the pillar of the Chinese economy since in 2015 they were estimated to represent about 36 percent of China's total workforce of around 770 million (NBS).

Internal migration in China involves many risks such as a rapid change in working and living conditions, mental stress caused by the prospect of being unemployed or by working in a difficult and dangerous workplace. Moreover, the Chinese health care system is attached to the *hukou* status. As a consequence, rural-to-urban migrants who have not changed their rural *hukou* to an urban *hukou* cannot benefit from public medical insurance and assistance programs (Tong and Piotrowski, 2012). The *hukou* system is, therefore, responsible for health inequalities between Chinese citizens. Moreover, the particular conditions of rural-to-urban migrants in Chinese cities seem to negatively impact their SWB, since several studies find that migrants who decided to settle in cities report lower happiness than both rural and urban dwellers with local *hukou* (e.g. Knight and Gulatinaka, 2010). In view of this, why do migrants continue to settle in cities if this situation makes them feel more unhappy than their rural counterparts? Undoubtedly, further research on the relationship between internal migration and SWB is needed to better understand the underlying mechanisms.

2.2. How can rural-to-urban migrant status affect subjective well-being?

The relationship between rural-to-urban migrant status and subjective well-being is potentially ambiguous due to a number of factors that can act as mediators and have opposite effects. This section provides a review of the potential channels through which migration impacts on life satisfaction.

2.2.1. Settling in cities: between opportunities and false expectations?

Using the 2008 wave of rural-to-urban migration in China and Indonesia (RUMICI) survey, Akay et al. (2012) implement simple regressions and show that migrants' well-being is positively influenced by local urban income. The authors explain that when young migrants aspire to settle in urban areas, they treat urban workers' income as a signal for their future prospects. On the contrary, Knight and Gunatilaka (2010) use a 2002 national household survey and notice that the sample of migrants who decided to settle in cities has a lower mean

happiness score than both the rural and urban samples. They estimate happiness functions and use decomposition and show that the lower happiness score of migrants is mainly due to their false expectations about their living conditions in the city at the time of migration. Wang et al. (2010) also conclude that the discrepancy between migrants' expectation and reality is negatively associated with quality of life.

2.2.2. Physical and mental health

Based on a rural-to-urban migrant sample from Beijing and Nanjing in 2002, Li et al. (2006) show that migrants experienced many health risk behaviors, including physical and mental health problems. As regards physical health, a review of literature by Mou et al. (2013) emphasizes that rural–urban migrants are more likely to acquire infectious diseases due to unfavourable working and living conditions, low awareness of disease prevention, and lower economic status. Their review also underlines that compared to urban residents, migrants record a significantly higher incidence of work injury and occupational diseases. Poor or fair health and physical problems are likely to reduce or even prevent work activities, and therefore impact on life satisfaction.

Studies focusing on the link between migration and mental health in China produce mixed results. Li et al. (2007) explore the mental health behavior of migrant's workers in Hangzhou city and Zhejiang Province in 2004. The cross-sectional study compares 3 populations groups: rural to urban migrant's workers, permanent urban residents and permanent rural residents. Their results show that rural to urban migrant's workers in China are not vulnerable to poor mental health. The authors explain this by the well-being associated with upward economic mobility, improved opportunities and high social capital in migrant communities. On the contrary, Wang et al. (2010) find that rural-to-urban migration can develop depression and anxiety because of social exclusion and discrimination. This finding is consistent with the study by Mao and Zhao (2012), who show that low socioeconomic status, social exclusion and fragmentation of social support networks may lead to poor self-esteem, depression, and anxiety among Chinese migrants. In the same line, Cui et al. (2012) examine the link between work and life stress behavior during the period of rural–urban migration in China. Their results show that rural–urban migrant workers manifested a high incidence of life and work stress, which is associated with a heavy prevalence of smoking. Using cross-sectional data of rural-to-urban migrants in Beijing for 2004 and 2005, Li et al. (2008) also conclude that rural-to-urban migrants suffer from poorer mental health status than both urban and rural residents

2.2.3. Discrimination and social stigma

Wang et al. (2010) investigate the link between several direct and indirect determinants of psychological distress and quality of life. To do so, they use a sample of 1006 rural-to-urban migrants in Beijing in 2004-2005. Their results emphasize that higher level of social stigma and discrimination is directly associated with higher psychological distress and lower quality of life. Moreover, stigma and discrimination are found to have an indirect effect on psychological distress and quality of life through expectation-reality discrepancy. Nevertheless, the authors notice that migrants who rapidly cope to the cities register better quality of life.

This finding is consistent with the work of Guan and Liu (2014), which indicates that rural to urban migrants are stigmatized due to the *hukou* system which generates social discrimination. Another relevant outcome stems from Jia and Liu (2016) study which underlines that rural to urban Chinese migrant adolescents who experience more discrimination are more likely to be engaged in antisocial behavior.

3. Data and measures

3.1. Data

Data used in this paper come from the China Health and Nutrition Survey (CHNS), a collaborative project between the Carolina Population Center (University of North Carolina) and the Chinese Center for Disease Control and Prevention. The CHNS survey consists of multi-wave longitudinal survey that provides detailed information about households and each of their members, including income, labor market, education, employment, health and nutrition. The survey covers nine provinces with coastal provinces (Shandong and Jiangsu), North-Eastern provinces (Heilongjiang and Liaoning) and inland provinces (Henan, Hubei, Hunan, Guangxi and Guizhou). Since 2011, three municipalities (Beijing, Shanghai and Chongqing) have also been included. Even if the survey is not nationally representative, provinces have been selected to provide a highly-diversified picture of Chinese provinces in terms of geography, economic development and health and nutritional outcomes. The sample was selected through a multistage random cluster procedure and CHNS data are representative of rural and urban areas. For the purpose of our study, we consider the 2011 sample that covers 7846 adults (among which 4673 rural residents and 3173 urban dwellers) aged 18 and over. No ethics approval was necessary to use the data insofar as the CHNS survey is a public-use dataset with no identifiable information on the surveyed participants.

3.2. Identification of rural-to-urban migrants

CHNS data do not include questions that allow to directly identify rural-to-urban migrants. Most researchers who study internal migration in China using CHNS data combine two variables of the household questionnaire to construct the migration status of household members : (i) the individual was in a previous wave of CHNS but is no more residing in the same household in the current survey; and (ii) this individual has left his former household because he is seeking work elsewhere. This method for the identification of migrants is well appropriate for the study of left-behind children or parents. In such cases, the researcher has detailed data on the study population since these persons were home to answer the survey at the time of the interview. The absence of the migrant parent is not a problem because he does not belong to the study population. The researcher does not need further information about the migrant, except maybe the duration of his absence (which is available in CHNS data despite a lot of missing values in recent waves). However, this method is not appropriate in the case of our study since migrants are part of our study population. As a consequence, it is necessary that they were in the household at the time of the survey to answer the questions (which is impossible if we consider that the migrant has left the household to seek work elsewhere). Besides, another drawback of the identification method described above is that it does not reflect the link between migration and the *hukou* system.

In China, two kinds of internal migration can be identified (Chan, 2013). The first one is *hukou* migration, which implies that the migrant does not have to change his *hukou* status, and can benefit from the same social advantages and rights than local residents. We are not interested in this category since this kind of migrants is relatively scarce and does not suffer from discriminations. The second category is non-*hukou* migration, which means that the migrant has not obtained the right to change his *hukou*, and is supposed to stay temporarily in the destination place without being eligible for the same local benefits and rights than permanent residents. This second category, also known as 'floating population' (*renkou liudong*), has been growing in Chinese cities since the early 1980s. The majority of the floating population in China consists of rural migrant workers (*nong mingong*) with rural hukou, who have become non-*hukou* residents when they settled in cities. Rural-to-urban

migrants are victims of a lot of discriminations which can be associated with a lower subjective well-being.

We, therefore, combine two variables of CHNS data and we identify as rural-to-urban migrant every individual who is living in urban areas and holds a rural *hukou*. Based on this criterion, 617 of the 3173 urban residents of our sample were identified as migrants.

3.3. Subjective well-being measure

There are four possible measures of subjective well-being in CHNS data, stemming from questions about psychological well-being which are asked in the adult questionnaire. For each of these questions, the respondents were given a 5-point Likert scale. The first question available in the dataset is: "How do you rate your life at present?". The five possible answers are: very good, good, ok, bad, or very bad. Individuals also have to indicate to what extent they agree with the three following statements: "I have as much peps as I had last year", "I am as happy now as I was younger", "As I get older, things are better than I thought they would be". The five possible answers to each of the three statements are: strongly disagree, disagree, neutral, agree, or strongly agree.

In the literature, the most commonly used indicator of subjective well-being is related to happiness or satisfaction with life (e.g. Knight et al., 2009). As a consequence, we choose to use the answers to the first question ("How do you rate your life at present?") so as to construct our subjective well-being index (*SWB*). This index ranges between 1 and 5, with a higher value indicating a better subjective well-being. Table 1 presents the descriptive statistics of the SWB index for the whole sample, for the urban and rural samples, and also for rural hukou holders living in urban areas[1]. Based on this sample, rural *hukou* holders living in cities record a mean SWB index of 3.46, which is lower than the one of their rural counterparts (3.66) and well below the index of urban citizens (3.71). Moreover, 55,5% of people living in cities and 56.1% of people living in the countryside rate their life are good or very good, whereas this felling is shared by only 42.3% of rural *hukou* holders in urban areas. Overall, this is consistent with our hypothesis that rural-to-urban migrants settled in cities are more dissatisfied with their life than their urban or rural counterparts.

Table 1: Descriptive statistics and percentage of respondents by level of *SWB*

	All	Urban	Rural	Rural *hukou* holders living in cities
% of respondents				
Very bad	0.8	0.5	1	1
Bad	4.8	3.6	5.7	5.2
Ok	38.5	40.4	37.2	51.5
Good	37.2	35.2	38.5	31.4
Very good	18.7	20.3	17.6	10.9
Descriptive statistics				
Mean	3.68	3.71	3.66	3.46
Std deviation	0.857	0.844	0.865	0.793
Coef. of variation	0.233	0.227	0.236	0.229
Nb of observations	*7846*	*3173*	*4673*	*617*

Source: CHNS (2011)

Note: The SWB index ranges from 1 to 5, with a minimum value of 1 meaning that the person considers that his/her life is very bad, and a maximum value of 5 meaning that the person considers that his/her life is very good.

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[1] As a preliminary work, we also displayed the descriptive statistics for the other three psychological well-being variables. The results were really close to the one obtained using the first variable, which confirms our choice of subjective well-being measure.

3.4. Determinants of subjective well-being

Over the past decade, the issue of subjective well-being and its influencing factors has attracted the attention of researchers in different fields, such as economics, sociology or psychology (Easterlin, 2004). In line with existing literature, we decide to include a wide range of control variables that are supposed to be significantly associated with subjective well-being.

Baseline characteristics

The first set of control variables consists of demographic and personal characteristics that are included in most of empirical studies (Conceiçao and Bandura, 2008, Dolan et al., 2008; OECD, 2013): age, age squared, gender, matrimonial status, ethnicity, migrant status, occurrence of illness or injury during the past four weeks (as a proxy for personal health) and rural residence. We also include conventional socio-economic characteristics in our baseline model: logarithm of per capita household income, a dichotomous variable indicating that the individual has achieved secondary education or higher degree, and a dichotomous variable indicating that the individual is unemployed and seeking work.

Regional patterns

Since the beginning of the 1980s, China has experienced a spatially unbalanced growth, with coastal provinces recording higher level of socio-economic development than inland provinces. We therefore include a dichotomous variable in order to take into account regional differences. We also create a second dichotomous variable to distinguish the three megacities (Beijing, Shanghai and Chongqing) which are far more developed than the rest of the country.

The influence of leisure time and social connections

There is evidence that aspects of work/life balance, such as leisure time, impact on subjective well-being (OCDE, 2013). We therefore include a variable indicating that the individual has leisure time and participates in sport (such as martial arts, gymnastics, track and field, swimming, soccer, basketball, tennis, ping pong or tai chi). The advantage of this variable is linked to the fact that an individual who practises sport is more likely to meet people and to socialize. In fact, having social connections is one of the most important drivers of subjective well-being (Kahneman and Krueger, 2006). Consequently, we include three variables indicating than the individual is not living alone and/or has social connection: household size, possession of a cellular phone and access to the internet.

The potential effect of work and employment status

Most of empirical studies analysing the impact of work on subjective well-being focus on the fact of being unemployed and underline a significant negative effect on measures of life satisfaction (OECD, 2013). By comparison, there are fewer studies that explore the impact of work conditions in a more comprehensive way. However, employment conditions can have differential effects on satisfaction with job and therefore affect subjective well-being (Krause, 2014). In this line, we introduce three groups of work and employment variables: work status (self-employed or independents, paid employees, temporary or contractor workers), type of work unit (government or state service, SOE, family contract farming, private enterprise) and occupation (professionals, office staff, skilled and non-skilled workers, service workers, farmers).

4. Empirical evidence on the drivers of subjective well-being in China

4.1. Econometric framework

In the literature on the determinants of happiness, there is a debate on how to deal with reported subjective well-being or happiness levels. Sociologists and psychologists generally treat SWB as a cardinal variable. In this case, the dependent variable is considered as a score and simple OLS are appropriate to estimate a SWB function of the form:

$$Y_i = a + bX_i + u_i \qquad \text{Eq(1)}$$

where Y_i is a cardinal measure of well-being and X_i is a vector of explanatory variables.

However, economists widely prefer to assume an ordinal form and to treat the dependent variable as an ordered set of happiness levels. Under the ordinality assumption, ordered Logit or Probit models are used to estimate SWB functions of the form:

$$Y_i^* = a + bX_i + u_i \qquad \text{Eq(2)}$$

where Y_i^* is a latent variable and what is observed is different categories of an ordered categorical variable.

In a methodological paper, Ferrer-I-Carbonnel and Frijters (2004) address the issue of the importance of the methodology chosen to estimate SWB functions. The authors show that assuming a cardinal or an ordinal form of the dependent variable makes little difference to the results. These findings have been confirmed thereafter by the empirical literature (*e.g.* Knight at al. 2009). As a consequence, we choose to estimate different SWB functions relying on Eq(2) and using ordered Probit estimator[2].

In order to test the robustness of our results, we estimate several SWB functions which include different kind of control variables. Model 1 only includes baseline characteristics; model 2 adds regional characteristics while model 3 takes into account the impact of leisure and social connections. Finally, model 4 estimates the impact of these three set of potential determinants. Furthermore, we intend to analyze the impact of work and employment status on SWB. We therefore re-estimate our baseline model including variables linked to work status (model 5), type of work unit (model 6) and occupation (7).

4.2. Results

Tables 2 and 3 present the estimates of ordered probit regressions for the seven different models. The marginal effects associated to each variable and each value of the SWB variable are reported in Tables A1 and A2 in the Appendix.

The different pseudo-R2 underline a low degree of explanation of the control variables, however this statistic has a limited interpretation when the dependent variable is a scale variable (Amemiya 1981). In this particular case, the quality of the estimation results must be assessed by the individual statistical significance of the estimated coefficients (Gujarati and Porter 2009).

Broadly speaking, our results reflect the variety of factors affecting subjective well-being in China. It is important to note that the significance of variables accounting for baseline

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[2] The estimations using OLS estimator produce very similar results and are available upon request.

characteristics of an individual is found in each of the seven models estimated[3], which indicates that our results are stable. Moreover, the marginal effects associated with each significant variable are relatively close to one another whatever the specification of SWB functions. Consequently, we will not comment on the differences in the marginal effects among the different models, but rather refer to an "average" marginal effect for each significant variable and each value of the dependent variable (except when differences are worth mentioning).

Table 2. Determinants of SWB: ordered probit regressions

	Model 1	Model 2	Model 3	Model 4
Baseline characteristics				
Demographic and personal characteristics				
Age	0.0231*	0.0230*	0.0245*	0.0256**
	(0.0126)	(0.0126)	(0.0126)	(0.0126)
Age^2	-0.0131	-0.0132	-0.0123	-0.0134
	(0.0099)	(0.0099)	(0.0099)	(0.0099)
Male	-0.0843***	-0.0803***	-0.0839***	-0.0812***
	(0.0255)	(0.0256)	(0.0257)	(0.0257)
Married	0.1757***	0.1613***	0.2026***	0.1875***
	(0.0404)	(0.0404)	(0.0405)	(0.0406)
Ethnic majority	0.0183	-0.0086	0.0038	-0.0178
	(0.0422)	(0.0424)	(0.0423)	(0.0425)
Migrant	-0.2106***	-0.1514***	-0.1417***	-0.0952*
	(0.0480)	(0.0485)	(0.0486)	(0.0491)
Sick or injured	-0.2650***	-0.2782***	-0.2643***	-0.2726***
	(0.0308)	(0.0315)	(0.0308)	(0.0315)
Rural resident	0.0108	0.0308	0.0909***	0.1002***
	(0.0294)	(0.0299)	(0.0306)	(0.0311)
Conventional socio-economic characteristics				
Ln per capita household income	0.1393***	0.1299***	0.1200***	0.1125***
	(0.0111)	(0.0110)	(0.0111)	(0.0111)
Education	0.2482***	0.2421***	0.1927***	0.1908***
	(0.0289)	(0.0299)	(0.0293)	(0.0293)
Unemployed and seeking work	-0.0296	-0.0040	-0.0434	-0.0182
	(0.1152)	(0.1146)	(0.1141)	(0.1137)
Regional variables (ref. = inner provinces)				
Megacities		0.1464***		0.1146***
		(0.0328)		(0.0330)
Coastal provinces		0.2249***		0.2094***
		(0.0302)		(0.0304)
Leisure time and social connections				
Household size			-0.0570***	-0.0522***
			(0.0083)	(0.0083)
Doing sport			0.1319***	0.1167***
			(0.0367)	(0.0369)
Cellphone			0.2639***	0.2577***
			(0.0392)	(0.0393)
Surfing internet			0.1444***	0.1543***
			(0.0478)	(0.0482)
Nb. Obs.	7846	7846	7846	7846
Log pseudolikelihood	-9410.47	-9380.76	-9360.01	-9335.51
Wald χ^2	476.57	540.17	592.32	639.62
(p. value)	(0.000)	(0.000)	(0.000)	(0.000)
Pseudo R^2	0.0274	0.0305	0.0326	0.0351

Notes: Robust standard-errors are reported into brackets. Levels of statistical significance: ***$p < 0.001$, **$p < 0.05$, *$p < 0.1$. The cut off points are not reported in the table due to lack of space.
Source: CHNS (2011).

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[3] Except for the rural resident variable, which is only significant in models 3 and 4. We will try to explain this result in the following section.

Table 3. Impact of work and employment characteristics on SWB: ordered probit regressions

	Model 5	Model 6	Model 7
Baseline characteristics			
Demographic and personal characteristics			
Age	0.0239*	0.0258**	0.0242
	(0.0130)	(0.0130)	(0.0129)
Age^2	-0.0140	-0.0152	-0.0142
	(0.0100)	(0.0101)	(0.0101)
Male	-0.0853***	-0.0852***	-0.0809***
	(0.0267)	(0.0266)	(0.0266)
Married	0.1824***	0.1835***	-0.1748***
	(0.0406)	(0.0406)	(0.0407)
Ethnic majority	0.0141	0.0201	0.0205
	(0.0424)	(0.0425)	(0.0425)
Migrant	-0.1890***	-0.1805***	-0.1748***
	(0.0485)	(0.0485)	(0.0484)
Sick or injured	-0.2649***	-0.2657***	-0.2664***
	(0.0309)	(0.0309)	(0.0309)
Rural resident	0.0297	0.0346	0.0368
	(0.0312)	(0.0309)	(0.0310)
Conventional socio-economic characteristics			
Ln per capita household income	0.1360***	0.1366***	0.1350***
	(0.0111)	(0.0111)	(0.0112)
Education	0.2345***	0.2310***	0.2242***
	(0.0293)	(0.0296)	(0.0297)
Unemployed and seeking work	-0.0480	-0.0348	-0.0451
	(0.1174)	(0.1167)	(0.1171)
Work and employment status			
Work status (ref. = not working)			
Self-employed / independent	-0.0490		
	(0.0342)		
Paid employees	0.1631***		
	(0.0477)		
Contractor / temporary workers	-0.1776***		
	(0.0480)		
Work unit (ref. = not working)			
Government / State workers		0.2074***	
		(0.0564)	
SOE workers		0.0902	
		(0.0597)	
Family contract farming		-0.0346	
		(0.0360)	
Private enterprise		-0.1155***	
		(0.0429)	
Occupation (ref. = not working)			
Professionals			0.2683***
			(0.0550)
Office staff			0.3134***
			(0.0965)
Farmers			-0.0436
			(0.0355)
Skilled and non-skilled workers			-0.1571***
			(0.0537)
Service workers			-0.1410***
			(0.0483)
Nb. Obs.	7846	7846	7846
Log pseudolikelihood	-9391.8927	-9395.515	-9379.7926
Wald χ^2	526.76	515.10	545.730
(p. value)	0.0000	0.0000	0.0000
Pseudo R^2	0.0293	0.0289	0.0306

Notes: Robust standard-errors are reported into brackets. Levels of statistical significance: ***$p < 0.001$, **$p < 0.05$, *$p < 0.1$. The cut off points are not reported in the table due to lack of space.
Source: CHNS (2011).

4.2.1. Demographic and personal characteristics

Among demographic and personal characteristics, the occurrence of illness or injury during the past four weeks has the highest impact on SWB (significant at the 1% level in each model). People who were ill or injured are respectively 2,5% and 7,5% more likely to answer that their life is "bad" and just "OK". Moreover, illness or injury decreases by about 6,4% the probability of answering "very good". This result is consistent with previous studies that emphasize a strong positive association between having a good health and SWB (Dolan et al., 2008). Using survey data from urban China in 2002, Appleton and Song (2008) show that reporting an ill health reduces the probability of being "satisfied" or "very satisfied" with life. Similar findings have been emphasized in rural China, where good health is associated higher levels of happiness (Knight et al., 2009).

Then, we analyze the impact of other demographic characteristics and compare our findings to the existing literature. First, our results confirm the conventional positive association between marital status and SWB (Dolan et al., 2008). After controlling for other characteristics, we find that married people record a higher probability of reporting good or very good satisfaction with life (significant at the 1% level in each model). The second important result arising from our study is linked to gender specificities. The empirical literature produces mixed evidence on the impact of gender on SWB. However, studies that detect gender differences show that women record slightly higher happiness (Alesina et al., 2004). Our findings confirm the existence of a significant negative association between SWB and gender (at the 1% level), with Chinese men recording a lower probability of rating their life as "good" or "very good". Although the lower SWB of men in China has also been emphasized by previous studies, it can be surprising given the existence of gender gaps in pay, especially in urban areas (Appleton and Song, 2008). Perhaps, this result can be linked to the combination of two factors: (i) the persistence of traditional values in contemporary China, such as patriarchal values (Xie, 2013); and (ii) the slowdown of economic activity since 2009. Due to the traditional role of men in Chinese society, men in our sample might have higher aspirations and expectations than women. The confrontation of these aspirations with the consequences of the economic slowdown, such as wage reduction or unemployment, could have result in a lower SWB. Third, we find evidence of a positive association between age and SWB (significant at least at the 10% level depending on the model estimated). As an individual gets older, he is significantly more likely to rate his life as good or very good, whereas the conditional probability of choosing lower degrees of life satisfaction decreases with age. Nevertheless, it is worth mentioning that the impact of this variable is relatively low. A one-point increase in the age of an individual results in a 0,67% rise in the probability of choosing the highest value of SWB (at best in model 6), and a 0,04% decrease in the probability of choosing the lowest value of SWB. This result does not confirm the U-shaped relationship emphasized by most empirical studies, with higher levels of life satisfaction among the younger and older generations, and the lowest subjective well-being occurring between about 32 and 50 years (Dolan et al., 2008). The main likely reason why we do not verify the first part of the U-shaped curve is linked to the age distribution of our sample. In fact, the average age of the study population is 60 years old, with the youngest adult aged 43, meaning that we have no young adults in our sample but only middle-aged and older persons.

A surprising result comes from the impact of rural residency on SWB. Given the important urban/rural gap in China (see for instance Knight and Song, 1999), we expected that rural residents recorded lower life satisfaction than their urban counterparts. Surprisingly, we found no evidence of a significant association, except for models 3 and 4. It seems that other factors have more importance in the determination of SWB, such as migration status, regional differences, socioeconomic characteristics or work and employment status. However, when

we control for leisure time and social connection variables (model 3 and 4), we find that rural residents are significantly more likely to rate their life as "good" or "very good". One possible explanation for this unexpected result can be linked to the persistence of the traditional Chinese culture in rural areas. Despite the rise of individualism in Chinese cities, traditional values are deeply rooted in the countryside (Shanhua, 2012), where a great number of rural dwellers (of which a lot of peasants) still values the family over individual well-being. As a consequence, lower income and worse living conditions might be counterbalanced by non-material conditions (such as better social relations), which can result in smoothing rural-urban differences in SWB.

Finally, we find no evidence supporting the fact that the Han people (i.e. the ethnic majority in China) report significantly higher levels of SWB. This may have arisen due to the fact that provinces with the highest proportion of ethnic minorities are not included in CHNS survey (Uighurs in Xinjiang for instance).

4.2.2. The influence of socio-economic factors

Among socio-economic variables included in our models, education has the strongest impact on SWB (significant at the 1% level). According to model 1, people who achieved secondary education or higher degree are 6.4% more likely than people with lower level of education to rate their life as "very good". However, the effect of education on SWB decreases when we include additional variables to our baseline model. Such finding has also been underlined by Knight et al. (2009) who suggest that education has its independent effect by moulding attitudes linked to the importance of community, lineages, family or friends. Such attitudes can be partially captured by our variables accounting for social relations (in models 3 and 4).

Income is traditionally the main variable used to account for material conditions (OECD, 2013). A large number of economic researches has therefore been undertaken in order to assess the relationship between income and SWB (for an overview, see Clark et al., 2008). This positive association has been confirmed for urban and rural China (Appleton and Song, 2008; Knight et al. 2009). Consistently with the existing literature, our results emphasize that a one-point increase in per capita household income results in a rise in the probability of feeling "very good" (significant at the 1% level). However, we can notice that the effect of income is weakened when we use a larger set of control variables, such as variables accounting for leisure and social connections. Among the additional control variables in models 3 and 4, we include cellular phone ownership and internet surfing which can also be considered as measures of material conditions. As a consequence, the inclusion of other variables measuring the material situation of an individual contributes to reduce the positive impact of income on SWB.

Furthermore, we find no evidence of a significant association between SWB and the fact of being unemployed and seeking work. This is a striking result in so far as most of previous studies consistently show a large negative effect of individual unemployment on SWB. However, as suggested by Dolan et al. (2008), the non-significance of our dichotomous variable can be linked to the small number of unemployed people in our dataset (only 1.2% of the sample).

4.2.3. Regional patterns and the influence of leisure time and social connections

Including variables accounting for regional differences and leisure time and social connections helps to provide a finer analysis of the determinants of SWB in China, since this

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inclusion involves a change in the marginal effects of some baseline characteristics (as already mentioned above). Firstly, living in the three megacities or in coastal provinces rather than in inland provinces is associated with an increased probability of rating life "good" or "very good" (significant at the 1% level). This probably reflects a wealth effect in so far as Chinese coastal provinces and megacities have achieved higher level of socio-economic development and provide better living conditions. Secondly, we find that people doing sport are significantly more likely to choose higher level of life satisfaction (at the 1% level), which is consistent with the existing literature (*e.g.* Biddle & Ekkekakis, 2005). This result is of particular importance regarding its policy implications, since promoting exercise can be not only associated with higher happiness, but also with the reduction of depressive symptoms or weight loss (Dolan et al., 2008). Thirdly, our results show that having a cellular phone or surfing internet significantly increases the probability of feeling "good" and "very good" (at the 1% level). These two means of communication can be seen as a way to maintain social relationships with family and friends, which is found to be positively associated with SWB (Pichler, 2006). Fourth, we find a negative association with the household size and life satisfaction (at the 1% level). In fact, the evidence with regard to the effect of having children on SWB is mixed and differs across measures and countries (Dolan et al., 2008). A bigger household size can also be due to the fact that the household head has to care for other family members (such as his parents or his step-parents) which might reduce global satisfaction by creating potential problems (Pichler, 2006).

4.2.4. Impact of work and employment characteristics

Our results first underline differences in SWB with regard to work status. Working as a paid employee is associated with a 4.5% increase in the probability of rating life "very good", and a 1.9% increase in the probability of rating life "good" (significant at the 1% level). On the contrary, contractor or temporary workers are significantly more likely to report lower levels of life satisfaction (at the 1% level) : in this category, the probability of reporting "OK" or "bad" are increased by respectively 5% and 1.7%. Compared to other work status, paid employees benefit from job security and insured earnings, which can explain their higher level of happiness. As for contractor and temporary workers, in China their specific work status is associated to bad working conditions and lower wages, which can be detrimental to their life satisfaction.

Furthermore, we also find evidence of differences in life satisfaction regarding the type of work unit. People working in government or state service and institute are significantly more likely to report "good" (+2.2%) or "very good" (+5.8%) life satisfaction, whereas workers in private enterprises have a lower probability of reporting "good" (-1.7%) or "very good" (-2.9%) (both results are significant at the 1% level). The happiness gap between public and private sectors can be linked to the monopoly position of the public bureaucracy in providing public services. This monopoly generates rents for government employees such as wage differentials, but also monetary and non-monetary fringe benefits. As emphasized by Luechinger et al. (2008), the existence of such advantages can explain that employees in the public sector are more likely to report higher level of life satisfaction than employees in private enterprises. Another possible explanation for the highest life satisfaction of workers in government or state service and institute might be related to the prestige and social status it confers. In China, serving in the civil service is still highly prestigious, as evidenced by the growing number of university graduates applying for the civil service entrance examination.

Finally, people are also found to report different SWB according to their primary occupation. Our results show a strong positive association between being a professional or an office staff

and life satisfaction (significant at the 1% level). Professionals or office staff are respectively 7.7% and 9.2% more likely to report "very good" life satisfaction, and both 2.6% more likely to report "good" life satisfaction. On the contrary, skilled / non-skilled workers and service workers have a lower probability of reporting the highest level of SWB (- 3.8% and -3.5% for "very good"), whereas they are more likely to answer "OK" (+4.5% and +4%) and "bad" (+1.5% and + 1.3%). This finding is consistent with the existing literature, which reports that white collar workers are more satisfied with life than blue collar workers (*e.g.* see Veenhoven (1984) for a review on the link between occupation and happiness). In fact, the work of skilled and non-skilled workers (and, to a lesser extent, service workers) is often associated with physical arduousness and tiredness but also lower wages, which may strengthen the sense of dissatisfaction among manual workers.

4.2.5. The subjective well-being of rural-to-urban migrants

As expected, being a rural-to-urban migrant is negatively associated with SWB since the coefficient of this variable is significant in each model (at least at the 10% level). This highest impact of the migration status is found in our baseline model (model 1), where being a migrant instead of a local *hukou* holder decreases by 5% the probability of rating life "very good" and by 3.3% the probability of rating it "good". On the contrary, migrants have an increased probability of feeling "OK" (+ 5.9%) and "bad" (+2.1%). We consequently confirm previous findings which also report a significantly lower SWB for rural-to-urban migrants (Zhang et al. 2009; Knight and Gulatinaka, 2010; Akay et al., 2012; Cheng et al. 2014, Jin, 2016).

However, our results show that the negative impact of migration status on SWB is reduced when we include a larger set of control variables. The marginal effects associated to the migrant dichotomous variables slightly decrease when we include variables accounting for work and employment status (models 5 to 7). This suggests that the relationship between migration and happiness might be partially mediated by the employment status, the type of work unit and the occupation of the migrant. Previous studies have emphasized that rural *hukou* holder migrants suffer from labor market discrimination, such as wage discriminations or differences in access to jobs (Song, 2014). Further research is needed to understand how work characteristics influence the SWB of rural-to-urban migrants.

The direct impact of migration status on SWB is even more reduced when we control for regional location and leisure time and social connections. While the coefficient associated to the migrant dichotomous variable is significant at the 1% level in the other six models, the significance of the coefficient in model 4 is just acceptable at the 10% level. It means that in this model, being a migrant is close to be interpreted as having no significant influence on SWB. Other thing being equal, being a migrant reduces by 1.4% and 2.4% the probability of reporting respectively a "good" or "very good" satisfaction of life. The most striking result lies in the very small impact of the migration status on the probability of feeling "very bad" and "bad" (+ 0.2% and + 0.8% respectively). We see two main reasons explaining this lower impact. First, it can be related to the inclusion of regional characteristics. We have previously shown that people living in the three megacities or in coastal provinces are more likely to report higher level of happiness compared to people in inland provinces. Consequently, our results suggest the existence of differences in the SWB of migrants depending on the place where they settled. In China, the biggest cities and coastal provinces offer better employment prospect and higher wages, which might positively affect rural-to-urban migrants' happiness. Second, it can be explained by the importance of social relations. Life in the city can be difficult for migrants who left behind their family member and friends. However, the

possibility to keep in contact with their families can help to maintain their satisfaction with life. Moreover, sporting activity is generally associated with human contact, which positively affects SWB (Kahneman and Krueger, 2006).

All in all, our results suggest that the associated between migration status and SWB is not so obvious since it is shaped by direct and indirect effects. Undoubtedly, further research is needed to better understand the role of transmission channels and to quantify their impact.

5. Discussion and conclusion

Based on a sample of 2011 CHNS data, the objective of this article was to investigate the determinants of subjective well-being among Chinese adults, with particular emphasis on rural-urban migration. Relying on ordered probit regressions, we first confirm the influence of traditional demographic and socioeconomic characteristics underlined by economic literature (*e.g.* Dolan et al. 2008): (i) age for middle-aged and older adults, being married, having secondary education or higher degree and per capita household income is significantly associated with a higher probability of rating life as good or very good; (ii) Males and people who were sick or injured during the past four weeks are significantly more likely to report lower level of life satisfaction (very bad, bad, or just ok). Second, our results emphasize the importance of taking into account regional differences in SWB (with people in megacities and coastal provinces being happier), but also the positive impact of leisure time and social connections on life satisfaction. Third, we also provide evidence on the influence of work and employment characteristics: (i) as regards work status, paid employees are more likely to be happy or very happy, whereas contractor or temporary workers significantly report lower life satisfaction; (ii) a public-private sector gap is observed, since workers in government or state service and institute are more likely to report higher SWB; (iii) with regard to occupation, white-collar workers are found to be significantly happier whereas blue-collar workers are more likely to report lower level of life satisfaction.

The main contribution of our paper lies in the analysis of the causal effect between migration status and SWB. Our results highlight that being a rural-to-urban migrant (*i.e.* having a rural *hukou* and living in urban area) is significantly associated with a lower probability of reporting good or very good life satisfaction. Nevertheless, we also find that negative impact of migration status on SWB is reduced when we include a larger set of control variables, which suggests that the relationship is shaped by direct and indirect effects. We identify the mediating role of work and employment characteristics, regional patterns, and social connections. All in all, these findings give us confidence in the idea that further research is needed in the literature on migration and happiness in order to better understand the role of transmission channels and to quantify their impact.

There are some limitations to this study. First, the number of rural-to-urban migrants identified in our CHNS sample is likely to be underestimated. In fact, some of the rural migrants settled in Chinse cities are seasonal. They move between the city and the countryside several times a year and therefore might not have been surveyed. As emphasized by Chan (2013) this limitation is shared by numerous empirical studies that require data on internal migration in China. It implies that our findings on the direct and indirect effect of migration status on SWB should be confirmed using other household survey data (such as CHIP or RUMiCI data) [4]. Second, our results might be affected by endogeneity issues, such

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[4] Our preference for CHNS data was linked to the fact that it provides the most recent data available (2011 against 2007 for CHIP data and 2008-2009 for RUMiCI data). Moreover, CHNS data consist of 9 waves from

as reverse causality. One the one hand, migration status has an influence on life satisfaction. On the other hand, the search for better happiness could be a significant determinant in the decision to migrate. Similarly, a reverse causality might be possible between SWB and other control variables, such as income, occupation, health or marital status. However, given the nature of subjective well-being, the identification of an instrumental variable that only affects the independent variable and not the individual happiness is somewhat problematic (Akay et al., 2014).

Our findings have several policy implications. First, in a view to achieve the shift towards a 'happier society', Chinese authorities should deepen the reform of the household registration system in order to facilitate the access of rural-to-urban migrants to public service and welfare programs but also to better labor conditions and job opportunities. Second, the lower level of happiness among rural-to-migrants compared to local *hukou* holders should raise concerns among Chinese leaders. In a study on income polarization in China, Bonnefond and Clément (2012) suggest that the risk of social tensions is more pregnant in Chinese cities due to the constitution of identified income groups. We believe that this risk could be increased by the constitution of a 'migrant group' sharing the common feeling of being less happy than their urban counterparts. As mentioned by Knight and Gulatinaka (2010), this common feeling might lead migrants to foment unrest. From this perspective, a better understanding of the link between social instability and happiness is needed because it can hinder the emergence of a *xiaokang* society in China.

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Appendix

Table A1. Marginal effects for SWB regressions[1] - Models 1 to 4

MODEL 1 : Baseline model

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0004**	**-0.0020**	**-0.0068**	**0.0031**	**0.0060**
Age^2	0.0002	0.0011	0.0038	-0.0018	-0.0034
Male	**0.0014**	**0.0072**	**0.0246**	**-0.0113**	**-0.0219**
Married	**-0.0033**	**-0.0165**	**-0.0499**	**0.0267**	**0.0431**
Ethnic majority	-0.0003	-0.0016	-0.0054	0.0025	0.0047
Migrant	**0.0043**	**0.0205**	**0.0589**	**-0.0334**	**-0.0503**
Sick or injured	**0.0052**	**0.0254**	**0.07451**	**-0.0411**	**-0.0641**
Rural resident	-0.0002	-0.0009	-0.0032	0.0015	0.0028
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0022**	**-0.01192**	**-0.0408**	**0.0187**	**0.0363**
Education	**-0.0041**	**-0.0216**	**-0.0721**	**0.0338**	**0.0640**
Unemployed and seeking work	0.0005	0.0026	0.0086	-0.0041	-0.0076

MODEL 2

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0004**	**-0.0019**	**-0.0068**	**0.0031**	**0.0060**
Age^2	0.0002	0.0011	0.0039	-0.0018	-0.0034
Male	**0.0013**	**0.0068**	**0.0236**	**-0.0109**	**-0.0208**
Married	**-0.0029**	**-0.0149**	**-0.0462**	**0.0244**	**0.0396**
Ethnic majority	0.0001	0.0007	0.0025	-0.0011	-0.0022
Migrant	**0.0028**	**0.0141**	**0.0433**	**-0.0232**	**-0.0369**
Sick or injured	**0.0054**	**0.0265**	**0.0784**	**-0.0436**	**-0.0667**
Rural resident	-0.0005	-0.0026	-0.0090	0.0042	0.0080
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0020**	**-0.0110**	**-0.03823**	**0.0176**	**0.0337**
Education	**-0.0039**	**-0.0208**	**-0.0706**	**0.0332**	**0.0622**
Unemployed and seeking work	0.0001	0.0003	0.0012	-0.0005	-0.0010
Regional variables (ref. = inner provinces)					
Megacities	**-0.0021**	**-0.0117**	**-0.0435**	**0.0180**	**0.0393**
Coastal provinces	**-0.0031**	**-0.01765**	**-0.0669**	**0.0267**	**0.0610**

MODEL 3

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0004**	**-0.0021**	**-0.0072**	**0.0033**	**0.0063**
Age^2	0.0002	0.0010	0.0036	-0.0017	-0.0032
Male	**0.0013**	**0.0071**	**0.0247**	**-0.0114**	**-0.0217**
Married	**-0.0038**	**-0.0190**	**-0.0577**	**0.0316**	**0.0488**
Ethnic majority	-0.0001	-0.0003	-0.0011	0.0005	0.0010
Migrant	**0.0025**	**0.0130**	**0.0407**	**-0.0216**	**-0.0346**
Sick or injured	**0.0050**	**0.0249**	**0.0749**	**-0.0414**	**-0.0635**
Rural resident	**-0.0014**	**-0.0078**	**-0.0267**	**0.0126**	**0.0233**
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0018**	**-0.0101**	**-0.0354**	**0.0163**	**0.0310**
Education	**-0.0030**	**-0.0164**	**-0.0565**	**0.0265**	**0.0495**
Unemployed and seeking work	0.0007	0.0038	0.0127	-0.0062	-0.0110
Leisure time and social connections					
Household size	**0.0009**	**0.0048**	**0.0168**	**-0.0077**	**-0.0147**
Doing sport	**-0.0018**	**-0.0104**	**-0.0394**	**0.0160**	**0.0356**
Cellphone	**-0.0052**	**-0.0255**	**-0.0741**	**0.0425**	**0.0623**
Surfing internet	**-0.0019**	**-0.0111**	**-0.0433**	**0.0169**	**0.0394**

Table A1 continued. MODEL 4

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0004**	**-0.0021**	**-0.0076**	**0.0035**	**0.0066**
Age^2	0.0002	0.0011	0.0040	-0.0018	-0.0034
Male	**0.0012**	**0.0068**	**0.0240**	**-0.0111**	**-0.0209**
Married	**-0.0034**	**-0.0173**	**-0.0538**	**0.0291**	**0.0453**
Ethnic majority	0.0003	0.0015	0.0053	-0.0024	-0.0046
Migrant	**0.0016**	**0.0084**	**0.0278**	**-0.0141**	**-0.0236**
Sick or injured	**0.0051**	**0.0256**	**0.07749**	**-0.0431**	**-0.0651**
Rural resident	**-0.0015**	**-0.0085**	**-0.0295**	**0.0140**	**0.0256**
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0017**	**-0.0094**	**-0.0333**	**0.0154**	**0.0290**
Education	**-0.0030**	**-0.0161**	**-0.0561**	**0.0264**	**0.0488**
Unemployed and seeking work	0.0003	0.0015	0.0054	-0.0025	-0.0046
Regional variables (ref. = inner provinces)					
Megacities	**-0.0016**	**-0.0091**	**-0.0342**	**0.0146**	**0.0303**
Coastal provinces	**-0.0028**	**-0.0163**	**-0.0627**	**0.0254**	**0.0563**
Leisure time and social connections					
Household size	**0.0008**	**0.0043**	**0.0154**	**-0.0071**	**-0.0134**
Doing sport	**-0.0016**	**-0.0091**	**-0.0349**	**0.0145**	**0.0312**
Cellphone	**-0.0050**	**-0.0246**	**-0.0728**	**0.0416**	**0.0607**
Surfing internet	**-0.0020**	**-0.0117**	**-0.0464**	**0.0179**	**0.0421**

Notes: Notes: (1) Marginal effects account for the change in the conditional probability of feeling very bad/bad/OK/good/very good for an infinitesimal or discrete change (respectively) in each continuous or dichotomous independent variable; Bold characters denote the fact that the coefficient associated to the variable is statistically significant (at least at 10%).
Source: CHNS (2011).

Table A2. Impact of work and employment characteristics on SWB: marginal effects[1] for models 5 to 7

MODEL 5

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0003**	**-0.0021**	**-0.0071**	**0.0034**	**0.0061**
Age^2	0 .0002	0.0012	0 .0042	0-.0019	-0.0037
Male	**0.0014**	**0.0073**	**0.0250**	**-0.0116**	**-0.0223**
Married	**-0.0035**	**-0.018**	**-0.0519**	**0.0280**	**0.0445**
Ethnic majority	-0.0003	-0.0013	-0.0042	0.0020	0.0037
Migrant	**0.0037**	**0.0181**	**0 .0534**	**-0.0297**	**-0.0455**
Sick or injured	**0.0052**	**0.0253**	**0 .0747**	**-0.0412**	**-0.0639**
Rural resident	-0.0005	-0.0026	-0.0087	0.0041	0.0077
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0022**	**-0.0116**	**-0.0399**	**0.0184**	**0.0354**
Education	**-0.0039**	**-0.0203**	**-0.0683**	**0.0321**	**0.0604**
Unemployed and seeking work	0.0009	0.0043	0 .0140	-0.0068	-0.0122
Work and employment status					
Work status (ref. = not working)					
Self-employed / independent	0.0009	0.0043	0.01429	-0.0067	-0.0126
Paid employees	**-0.0022**	**-0.0126**	**-0.0488**	**0.0186**	**0.0449**
Contractor / temporary workers	**0 .0035**	**0.0169**	**0.0503**	**-0.0276**	**-0.0430**

Table A2 continued. MODEL 6

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0005**	**-0.0022**	**-0.0076**	**0.0035**	**0.0067**
Age^2	0.0003	0.0013	0.0045	-0.0021	-0.0040
Male	**0.0014**	**0.0073**	**0.0250**	**-0.0115**	**-0.0221**
Married	**-0.0035**	**-0.0173**	**-0.0522**	**0.0281**	**0.0448**
Ethnic majority	-0.0004	-0.0018	-0.0059	0.0028	0.0052
Migrant	**0.0036**	**0.0172**	**0.0511**	**-0.0282**	**-0.0436**
Sick or injured	**0.0053**	**0.0254**	**0.0749**	**-0.0414**	**-0.0641**
Rural resident	-0.0006	-0.0030	-0.0102	0.0047	0.0090
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0022**	**-0.0117**	**-0.0401**	**0.0184**	**0.0356**
Education	**-0.0039**	**-0.0200**	**-0.0672**	**0.0316**	**0.0595**
Unemployed and seeking work	0.0006	0.0031	0.0102	-0.0049	-0.0089
Work and employment status					
Work unit (ref. = not working)					
Government / State workers	**-0.0027**	**-0.0154**	**-0.0622**	**0.0219**	**0.0584**
SOE workers	-0.0014	-0.0073	-0.0268	0.0110	0.0243
Family contract farming	0.0006	0.0030	0.0102	-0.0048	-0.0090
Private enterprise	**0.0021**	**0.0105**	**0.0332**	**-.00171**	**-0.0288**

MODEL 7

	Very bad	Bad	Ok	Good	Very good
Baseline characteristics					
Demographic and personal characteristics					
Age	**-0.0004**	**-0.0021**	**-0.0072**	**0.0033**	**0.0063**
Age^2	0.0003	0.0012	0.0042	-0.0020	-0.0037
Male	**0.0013**	**0.0067**	**0.0238**	**-0.0110**	**-0.0210**
Married	**-0.0036**	**-0.0174**	**-0.0529**	**0.0286**	**0.0452**
Ethnic majority	-0.0004	-0.0018	-0.0060	0.0029	0.0053
Migrant	**0.0034**	**0.01647**	**0.0496**	**-0.0272**	**-0.0423**
Sick or injured	**0.0052**	**0.0253**	**0.0752**	**-0.0416**	**-0.0642**
Rural resident	-0.0006	-0.0032	-0.0108	0.0051	0.0096
Conventional socio-economic characteristics					
Ln per capita household income	**-0.0022**	**-0.0115**	**-0.0397**	**0.0183**	**0.0350**
Education	**-0.0037**	**-0.0193**	**-0.0654**	**0.0307**	**0.0577**
Unemployed and seeking work	0.0008	0.0040	0.0132	-0.0064	-0.0115
Work and employment status					
Occupation (ref. = not working)					
Professionals	**-0.0032**	**-0.01900**	**-0.0808**	**0.0260**	**0.0770**
Office staff	**-0.0035**	**-0.0211**	**-0.0945**	**0.0267**	**0.0923**
Farmers	0.0008	0.0038	0.0128	-0.0061	-0.0112
Skilled and non-skilled workers	**0.0030**	**0.0148**	**0.0447**	**-0.0243**	**-0.0382**
Service workers	**0.0027**	**0.0131**	**0.0404**	**-0.0215**	**-0.0346**

Notes: Notes: (1) Marginal effects account for the change in the conditional probability of feeling very bad/bad/OK/good/very good for an infinitesimal or discrete change (respectively) in each continuous or dichotomous independent variable; Bold characters denote the fact that the coefficient associated to the variable is statistically significant (at least at 10%).
Source: CHNS (2011).