

INCOME AND HAPPINESS – EVIDENCE ON URBAN, RURAL
AND RURAL-URBAN MIGRANT POPULATION IN CHINA

by

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Abstract

Using the Chinese Household Income Project (CHIP) survey for 2013, this paper examines the relationship between income and happiness of China's urban, rural and migrant population. The dataset consists of a random sample of over 39,858 individuals from the Chinese population. Happiness here is measured by a five-point categorical measure of overall happiness (not happy at all, not very happy, so-so, happy, very happy), and an OLS model is used to identify the potential determinants of happiness among these different subsections of the Chinese population. According to the study, urban households report the highest household income and overall well-being, while the rural households report the lowest household income and overall well-being; the household income and overall well-being of migrant households positions them in the middle range. Despite a positive correlation between income and happiness, absolute income plays only a limited role in determining happiness. Demographic characteristics, unemployment, household net financial assets, accession of social welfare and relative income also influence an individual's happiness. The findings clarify the various reasons for happiness and point to the importance of both economic and social policies in improving the happiness of Chinese people.

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1. Introduction

Since the implementation of economic reform in 1978, the real GDP growth rate of China has averaged nearly 10 percent a year. With the speedy economic growth, GDP per capita grew from 947 Yuan (154.97 USD) in 1978 to 38,497 Yuan (6,416.18 USD) in 2013. By the end of 2012, the World Bank reclassified China from ‘low-income country’ to ‘lower middle-income country’. The success of the economic transition has resulted in immense improvement in both the material basis of the economy and living standards in China. However, along with the socioeconomic progress, regional and personal income inequality also increased. In fact, among developing and transition nations, China is the country with the greatest and most visible set of challenges relating to the issues of rural-urban inequality (Su & Heshmati, 2013).

Table 1 below illustrates urban and rural income per capita and the average annual growth rate of income from 1978 to 2013. The table demonstrates information in chronological order and was divided into four periods: 1978-1985, 1985-1995, 1995-2005, 2005-2013.

Table 1: Rural and Urban income per capita data in 2013 constant price (1978-2013)

	Rural Income per capita	Urban Income per capita	Urban/Rural income ratio
<i>Income at constant 2013 Prices (RMB)</i>			
1978	~ 500	1701	3.4
1985	1343	2728	2.03
1995	1780	4359	2.45
2005	3125	12475	3.99
2013	8896	26995	3.03
1978-1985	~ 17	7	N/A

1985-1995	3.2	5.2	N/A
1995-2005	5.1	7.5	N/A
2005-2013	5.4	7.9	N/A
In 2013, 1 RMB was worth \$0.125 at the official exchange rate.			

Source: National Bureau of Statistic of China (2013).

As can be seen from Table 1, both rural and urban income per capita has increased tremendously since 1978. As a result of the rural reform in the late 1970s, the rural income per capita ascended during the first period between 1978 and 1985, with an approximate annual growth rate of 17%. Urban income per capita also increased significantly during the first period with a 7% annual growth rate and the rural-urban income gap has shrunk. From the mid-1980s to early 1990s, the rural-urban difference has been minimized. However, the following urban economic reform including the privatization of non-monopolies state-owned companies (exclude banking and petroleum companies) and lifting of price controls and regulations between 1995 to 2005 had widened the rural-urban income disparity. Urban income per capita grew at an extremely rapid rate of 7.5% per year in the third period. The rapid economic growth in rural area could be a reflection of the elimination of deadweight losses associated with population distribution. In 2001, China's accession to the World Trade Organization (WTO) elevated the economic reform to a whole new level through opening up the world economy for China's export and attracting foreign investment. By the end of 2005, the private sector accounts for as much as 70% of total GDP, and 40% of it comes from export. On the other hand, rural income growth is not as significant as the urban's, but also maintained at a high level of growth rate of 5.1% per year. The rural-urban income gap had further enlarged in the fourth period. From 2005 to 2013, both rural and urban income have increased significantly, with the

growth rate of 5.4% and 7.9% per year respectively.

Along with the increase in rural and urban individual income in the last four decades, the Gini coefficient for rural-urban inequality has increased from 0.16 to 0.47. A national wealth report by Peking University Institute of Social Science Survey finds that a third of the country's wealth concentrated in the hands of 1% of its citizens. The survey also finds that the poorest quarter of Chinese citizens owned only 1% of the country's wealth, and most of the poor come from rural areas (Li et al., 2015).

It has been a long-held belief that material abundance would necessarily lead to improvement in human welfare in society, which brings more life satisfaction to people. China has made concerted efforts to promote economic growth to improve the standard of living. The existing literature has confirmed a positive correlation between income and happiness from cross-sectional studies. Easterlin (2001) proposed a unified theory of income and happiness relationship that at a point in time higher income people are on average happier than those with lower income. A cross-sectional study by Diener and Oishi (2000) find a mean income-happiness correlation coefficient of 0.13 by comparing 19 European countries. Diener (2002) suggest that the relationship between income and happiness is much stronger in developing countries than developed countries. The large sample size used in the above studies make statistically significant findings highly likely. While only a few happiness studies have been done in developing countries. Knight and Gunatilaka (2010) estimate Chinese rural and urban individual happiness by using 2002 Chinese national household survey, the paper finds that when holding other variables constant, a one

percent increase in income result in 0.0016 and 0.0032 increase in the likelihood of being happy for rural and urban respondents. However, the paper only includes rural and urban respondents who hold a validated government identifications to live in rural or urban areas but excludes those with an intermediate status such as rural-urban migrants. The rural-urban migrants in China have grown remarkably since the economic reform, especially in the last two decades. In 2012, there are 167 million migrant workers (36% of the total workforce) exists in China. Many of the migrants are temporarily living in the cities, and the higher urban income appears to be a strong incentive to the migration. Therefore, exam the happiness of migrant is essential to understanding Chinese happiness. In the view of the increased importance of the migrant group, this paper adopts the latest 2013 Chinese national household survey with rural, urban and migrant sub-surveys included to investigates how income differences translate into happiness and explore the plausible determinants of China's urban, rural and rural-urban migrant households' happiness.

Section 2 provides a brief literature review of existing happiness studies and identifies potential variables that influence individual's happiness based on previous findings. Section 3 provides a description of the survey data and methodology. The urban, rural and rural-urban migrant happiness regression result and robustness tests will be discussed in Section 4. Section 5 concludes this paper, and briefly discusses some policy implications based on the findings of the research.

2 Literature Review

2.1 The Theoretical Income-Happiness Relationship

The income-happiness relationship has been a debated issue for years. In 1974, Richard Easterlin wrote a seminal article on what has become known as the Easterlin paradox. Two apparently contradictory facts have been observed by using two methodologies. Cross-sectional evidence suggests that at a point in time, richer people are on average happier than poorer people. However, time-series evidence shows that over time within many societies, the population is not on average become happier when the country's income per head rises. In other words, at a point in time, comparison of happiness in richer and poorer countries, richer countries have a higher overall happiness; and within any country, richer people usually compare favorably with the poor. However, average happiness is not influenced by the rising in per capita income over the long term.

In line with Easterlin's finding, a survey study by Di Tella, MacCulloch and Oswald (2003) suggests that people's evaluation of happiness is positively tied to their income. The result finds that the higher their income, the more they feel their life is going well. According to Easterlin (2005) and Tejvan (2010), the income-happiness relationship also follows the law of diminishing marginal utility. In other words, the contribution of income on happiness yields less utility as individual's income level goes up.

In order to study the long-term happiness changes, Easterlin (2009) summarize 37 countries with a 21-year-range of data. From this study, a flat or negative relation

between changes in life satisfaction and income per head has found in both developed countries and developing countries. Unfortunately, due to lack of time-series data, we are unable to test the validity of Easterlin paradox, and this paper will only focus on testing the cross-sectional relationship between income and happiness in China's rural, urban and migrant population.

To reconcile the paradox, the Veblen Effect proposed by the American economist Thorstein Bunde Veblen in the 1900s provides an explanation to the cross-sectional fact. Veblen suggests that people compare themselves with others constantly; therefore, at any particular point in time, richer people would compare favorably with poorer people. On the other hand, Easterlin proposed the relative income hypothesis in 1974. He argues that it is relative income which is calculated with respect to certain social norm and standard rather than absolute income that matters. If the standard has been growing roughly at the same rate as absolute income over the last few decades, then the level of happiness would have remained approximately constant over time (explaining the time-series fact) (World Happiness Report, 2013). Coincident with the relative income hypothesis, growing literature show that individual's happiness is negatively related to other's income. A more general finding claims that the level of happiness decreases as the income of your comparators' increase. This statement has been confirmed in laboratory experiments (FlieBbach et al., 2007)). In this experiment, MRI techniques are used to measure the brain activity of pairs of individuals engaged in an identical task of guessing the number of dots on a screen, a more accurate guess will be monetarily rewarded. Each

individual's ensuring monetary reward is announced to both subjects, and both absolute and relative payments are varied. The scan shows that blood oxygenation responded strongly to both the subject's rewarded payment (positively) and the pair's rewarded payment (negatively). The effect of the pair's reward was at least two-thirds as large as the positive effect of the subject's own reward. In fact, the study finds that brain activity is completely relative in this respect, as there is no significant role for absolute income levels once relative income is introduced.

The relative income phenomenon has been observed in developing the countries as well. In 2010, Knight and Gunatilaka use cross-section data on 9,200 Chinese rural and urban household and find that happiness highly depends on individual's income aspiration and expectation; and the level of income aspiration and expectation are defined by the reference groups of the respondents'. The research suggests that more than 70% of Chinese respondents sees the others who live in the same city or village as their reference group (comparators) and make income comparison with them. As the comparators' income increases, individual's income aspiration increases, and happiness decreases. Therefore, a person's income position of the relevant reference group may govern happiness.

The population of rural-urban migrants in China has grown remarkably since the economic reform, especially in the last two decades. In 2012, 167 million migrant workers exist in China. The migrants often refer to rural issued ID holders who are temporarily living in the cities, and the high income in the cities appeared to be a strong incentive to the relocation. Nonetheless, most Chinese happiness studies

excluded migrant population as a subgroup. The 2013 Chinese Household Income Project (CHIP) survey that will be used in this paper contained a nationally representative subsample of the rural-urban migrants. Inspired by Knight and Gunatilaka's (2010) study on analyzing the happiness of 9,200 Chinese rural and urban resident base on the 2002 national survey, and in the view of the increased importance of the rural-urban migrant group, this paper includes rural-urban migrants as a subsample.

According to the 2013 CHIP data, the average level of migrant household income positions between rural and urban household income. Assuming higher income population brings more happiness, the overall level of happiness of the migrant are expected to be lower than that of the urban's, but higher than that of the rural's. Since the migrants move to urban areas for the purpose of better employment opportunities, and higher income; the influence of unemployment and income are expected to be greater than the other two subsamples (urban and rural). However, migrants' social norms and social values are mostly cultivated in rural areas; therefore, they are presumed to have a lower income aspiration and expectation than the other urban residents. Due to the lower income aspiration and expectation, the relative income positions of the migrants are supposed to be less important than that of the urban and rural population.

Unemployment reduces happiness independently from its negative influence on income. World Happiness Report (Winkelmann, 2014) suggest that work provides not only a livelihood but a source of meaning – feeling needed and able to contribute.

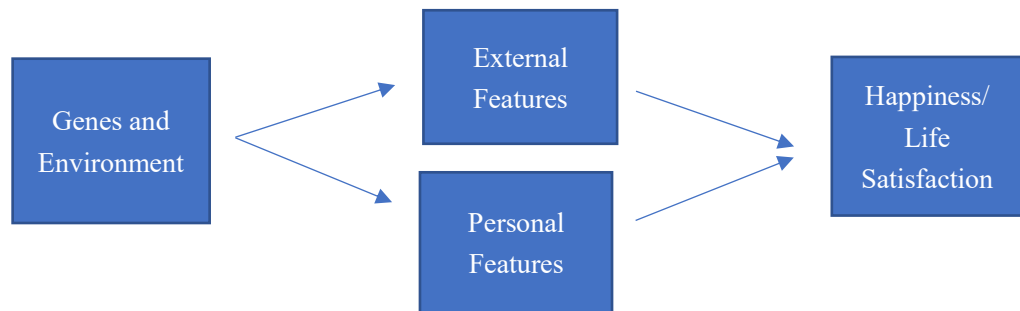
When people become unemployed, they experience the feeling of insecurity and loss of goals and purpose which reduce individual's happiness. Besides wealth and employment, happiness is also influenced by several non-economic factors, such as age, sex, ethnicity, material status, health status, political affiliations and so on. American researcher Taylor (2006) argues that a person's level of happiness is largely influenced by individual's traits such as life event (divorce decreases happiness, sickness or in poor health decreases happiness), and other personal characteristics (White and Hispanics are happier than Blacks in the U.S., Republicans are happier than Democrats). Therefore, look at happiness from a demographical standpoint provides an important insight into the happiness of the general population.

According to DiTella, Mac Culloch and Oswald (2003) and Easterlin (2009), the participation in social safety net programs also influence happiness. The multivariate analysis finds that among workers who are laid off, those with greater unemployment insurance benefits are significantly happier. From a political point of view, various literature (Radcliff, 2013; Schapiro & Morson, 2015) confirmed that social safety net provides a significantly positive effect on happiness. When comparing among countries, those with a more comprehensive social safety net have a higher overall well-being. In what follows, section 2.2 presents a detailed review of each variable that may potentially influence Chinese individual's happiness.

2.2 Empirical Evidence on the Determinants of Chinese Happiness

The following chart explains the cause of happiness:

Figure 1: Causes of Happiness (World Happiness Report 2013)



Based on the above chart, everyone has his own genetic make-up, but the person he/she becomes depends on the interaction of those genes with the environment the person encounters. Together, genes and environment determine individual's personal features and external features, and these features decide a person's life satisfaction in the meantime. Among the external features, the key determinants of happiness include income (Clark, Frijters & Shields, 2014), work (Winkelmann, 2014), social comparison (Schapiro & Morson, 2015), values, etc. For the more personal features, the key determinants include gender, age, health status (Gerdtham & Johannesson, 2001), marital status (Schoen et al., 2002), political affiliation, and the participation in social security programs (Schapiro & Morson, 2015), etc.

These external and personal features can be further divided into four categories: conventional economic variables (unemployment, income and net financial assets), demographic characteristics (sex, age, marital status, ethnicity, political affiliation, health status and the number of siblings), social safety net variables (participation in

medical insurance, social relief program, pension plan, labor insurance), and comparison variables (the position of the household income in the community). This section will briefly discuss each variable that will be used in this paper based on previous studies.

Conventional Economic Variables

In this category, unemployment, annual household disposable income, and household net financial assets are included. We expect a negative relationship between unemployment and happiness. When people become unemployed, they experience sharp falls in subjective well-being. The low level of well-being remains until they are re-employed. A raw difference in average life satisfaction between unemployed and employed workers aged 20-60 years in the German Socio-Economic Panel from 1984 – 2011 amounts to 1.3 points on a 0-10 scale. The panel data tracks the same individual over time, reveals that happiness drops substantially in the year of unemployment, and recovery in the following years, but it never fully regains its former level. In line with the German finding, Helliwell and Huang in 2014 use cross-section data and study the subjective well-being of 3.3 million Americans. The study finds a gap of 0.4 on a four-point life satisfaction scales (Helliwell & Huang, 2014). Oswald (1998, 2014) argues that the decrease in happiness by unemployment is not through the loss of income, but rather through psychological aspects such as loss of social status, self-esteem and other factors that matter.

The relationship between income and happiness has long been an area of interest to economists and sociologists. As shown in Section 2.1, having money clearly

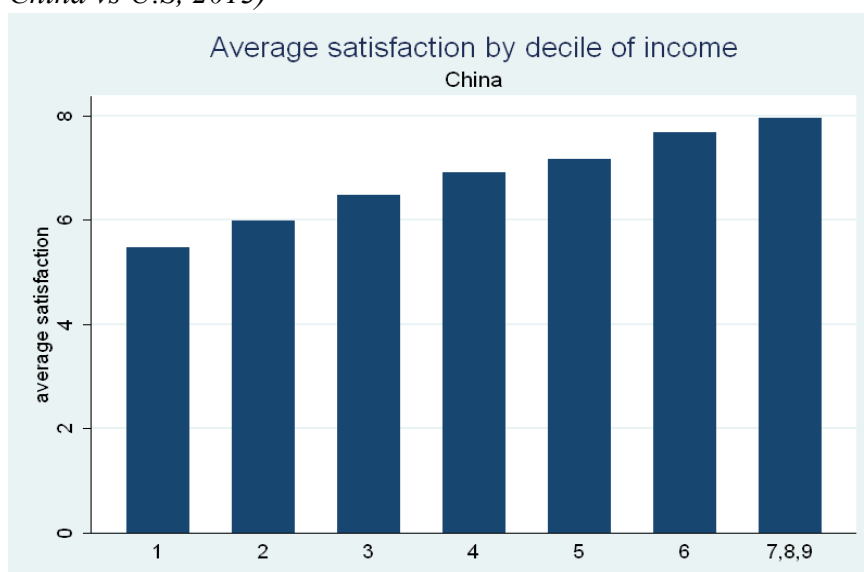
improve the likelihood of being happy. A study by economist Angus Deaton and psychologist Daniel Kahneman from Princeton University analyze the respondents of 450,000 Americans polled by Gallup and Healthways survey in 2009. The paper suggests that within-nation comparisons, income typically result in small but significant correlation with individual's happiness. The survey asks people their level of income and how they feel about their previous days. The result finds that lower income did not cause misery, but it makes people feel more ground down by the problems they already have. For instance, among people in poor health conditions, 41% of the low-income group reported feeling unhappy, compared with about 22% of the higher income group. Among divorced people, about 51% who earn less than 1,000 per month reported feeling unhappy in previous days, while only 24% of those earning more than 3,000 per month reported the similar feeling. Given above, we can safely conclude that richer people are more likely to have a higher level of happiness.

The positive relationship between income and happiness is also found in developing country. A South African happiness study suggest that at the macroeconomic level, African people enjoy an improvement quality of life with rising income, consumption and employment opportunities. From a microeconomic or individual level, although high income may enable people to live happier and fuller lives relative to those who are poor, the contribution of the increase in absolute income to happiness is very small (Mahadea, 2013).

The histogram below depicts the income decile – life satisfaction gradient in China in 2013. The x-axis shows the income deciles where income is divided into nine

groups and seven income deciles. The highest three income groups (7,8 and 9) are represented by the same income decile. The y-axis shows the average level of life satisfaction. As can be seen, when comparing with China, the average level of life satisfaction increases as income goes up. In other words, higher income people are more satisfied with their lives in China.

Figure 2: In China, richer individuals are more satisfied with their lives. (Source: China vs U.S, 2013)



Net financial assets are expected to have a positive influence on happiness through the feeling of security it brings about. Knight and Gunatilaka (2010) suggest that financial assets contribute to both Chinese rural and urban happiness. However, the contribution is very small. An American research based on the 2011 Wealth and Asset Survey (WAS) finds that an individual's level of happiness is strongly related to the household net wealth in which they live. As the level of household wealth increases, life satisfaction and the sense of worth are higher; but anxiety less.

Demographic Characteristic

According to Schoen (2002), men report lower happiness than women. We

expect men to have lower happiness score in China for two main reasons. Firstly, scientific studies have shown that men die younger than women, and burden more illness during life (Blari et al., 1989). Studies have proved that the level of happiness will decrease as worsening health (Post, S. G., 2005). The second explanation is associated with Chinese culture. Since the beginning of Agrarian Era, the male has become the main labor force and breadwinner of the household. Chinese tradition regard for slavish devotion to wealthy and powerful men has percolated overtime and firmly rooted in Chinese communities. Consequently, men often suffer more pressure and have higher work intensity than women, and indirectly decreases their happiness (Lu, Gilmour & Kao, 2001).

Age is one of the most significant and common personal factors in happiness research. In the early 1980s, some economists have noticed a ‘U-bend of life hypothesis’ in the relationship between age and happiness. Economists from Dartmouth College studies 72 countries and discovered that a great majority of countries, people experience the enjoyment and happiness dip in their middle age, and pick up thereafter (Stone et al., 2010; Gerstorf et al., 2008). The hypothesis suggests that initially, individual’s level of happiness declines with age, and reaches the bottom in the late 40s and early 50s due to work pressure and biological changes. Then, as getting mentally and emotionally mature, and being more realistic toward income aspirations, happiness starts to rise with age. However, after the mid-70s worsening health begins to take effect and happiness decreases again.

Researcher Stack (1998) and Lee (1991) find that being married rather than single,

cohabit with a partner, divorced or widowed. A retrospective study in German had shown that the life satisfaction peaks in the years before and after marriage. For those who remained married for a life course, happiness is permanently higher than before married. Besides the love and companionship marriage brought, married people also enjoy better physical and mental health and have a longer lifespan (Stutzer & Frey, 2006). However, American researchers Gardner and Oswald argue that poor-quality marriage does not contribute to happiness. Unfortunately, due to data limitation, we are only able to provide the general trend between marital status and individual's happiness, but cannot test how happiness is influenced by marriage quality.

Ethnicity is another essential personal factor that affects individual's happiness. Taylor (2006) suggest that American Blacks reported a lower happiness than Whites and Hispanics. Regarding China, the Han Chinese are the largest ethnic group. As of 2010, 91.51% of the population or 1.2 billion people were identified as Han Chinese. Besides the Han majority, 55 other ethnic groups are recognized in China, numbering around 105 million. However, due to culture and religion difference, for instance, Tibetans are Buddhists, and Uighurs are Muslimists, conflicts often occur between different ethnic groups and cause social instability. Ethnic minorities are observed to have significantly lower life satisfaction, and the result did not change at all when controlling other potential interesting variables, such as age, sex, education, and marital status.

General Social Survey (U.S.) began measuring the influence of political affiliation on happiness in 1972. The U.S. survey shows that 45% of all Republicans

report being very happy, compared with just 30% of Democrats and 29% of independent. People who have political affiliation is obviously happier than those without, and being a Republican are happier than Democrat. One plausible explanation is that Republicans tend to be richer than Democrats, and as above shown, people who have more money tend to be happier. Moreover, the research also presents that when controlling for household income, poor Republicans are still happier than poor Democrats; middle-income Republicans are happier than middle-income Democrats, and rich Republicans are happier than rich Democrats. One's political affiliation is often related to his/her political convictions, and affect one's value and belief. Therefore, the influence on happiness could vary depend on individual's political belief. China is a one-party state which Communist Party of China (CPC) is the founding and ruling political party of People's Republic of China. By the end of 2013, the Communist Party member of China exceeds 86,000,000 (CPC Statistics, 2013). Knight and Gunatilaka (2010) have shown that for urban Chinese, being a Communist Party member improves individual's happiness by 0.04 on a scale of 0 to 4. One hypothesized explanation is that in China, CPC members are highly regarded by others; therefore, they have higher social status. Another explanation is that participation in CPC enriches one's social activities and spiritual life. Socially activated people have generally reported a higher level of happiness (Kim, 2015). However, the above-hypothesized explanation cannot be validated, due to lack of information.

Only a few studies have been done on the relationship between happiness and the number of siblings. A British study covering 2,500 young people conclude that having

siblings greatly reduces children's happiness, and the sense of happiness decreases as the number of siblings increases. An only child is reportedly the happiest in Britain (Asthana, 2010). However, the British study could have a limited indication of China's situation. The targeted sample in the study is biased. In the research, the majority of the respondents are under the age of 18. Moreover, the national conditions of China are very different from Britain. Firstly, although GDP has increased tremendously since the economic reform, China remains a developing country, with approximately 50% of the population are peasants. The economic comparative advantage of China is labor-intensive industries including agriculture and manufacture industry. Therefore, having more siblings in China means that more people contribute to household income, especially for rural households. On the other hand, Britain is one of the most advanced countries in the world, and the economic system is classified as the technology-intensive economy. Consequently, the labor force is not as essential as it to China. In 1979, one-child policy was introduced to mainland China. The implementation of the one-child policy in urban China is very strict, most of the urban household only have one child. On the other hand, according to the Chinese national household survey 2013, 88 % of rural household have two or more children due to the loose regulation in rural areas. Therefore, this paper will not include siblings as an independent variable in urban happiness estimation but 'siblings' will include in rural and migrant estimation.

Education influence happiness indirectly. Firstly, education has a positive effect on income, and higher income increases happiness as proved before. Besides the positive effect through income. researchers have found that longer years of education

are associated with increased employability, job security, and faster promotion (Angrist & Krueger, 1991; Lemieux & Card, 2001). All above being factors conducive to higher happiness.

The causal interaction between health and happiness has been well documented for many decades. Worsening health is more likely to cause sadness and depression which lead to a pessimistic view of life. While good health often indicates a cheerful and vigorous life and causes greater contentment in daily life (Borghesi & Vervelli, 2008). This paper includes disability as a dummy variable as well. British Household Panel Survey 2012 compare the life satisfaction of the same individual before and after they become disabled. Having severe disability is estimated to lower the life satisfaction by 0.6 points on a 1 to 7 scale; and 0.4 lower for moderate disability. Therefore, we expect a negative relationship between disability and happiness.

Social Safety Net Variables

According to Richard Easterlin (2012), besides income and employment, the social safety net is also essential to happiness. Radcliff (2007) analyze the data from the World Value Survey for 21 Western industrial democracies from 1981 to 2007 and finds that people are happier if live in countries where the governments 'tax and spend' at higher rates, reflecting the greater range of service and protections offered by the state. In other words, people live in countries with a generous social safety net are happier. In 2013, the landmark survey of the state of global happiness -- World Happiness Report ranks 156 countries by their happiness levels. High welfare countries Denmark, Norway, Switzerland, Netherlands, and Sweden are the top five

on the happiness ranking. Political scientist Lyle Scruggs (2004) publish Benefit Generosity Index which studies the policies related to social safety net. The index takes account of income replacement rates and the duration of benefit coverage in three policies – unemployment, sickness, and pension. Scruggs find that people are aware of and have positive respond to more generous economic and social safety net policies. On average, those who live in ultra-welfare countries give consistently higher ratings of public services in health, pension and education. They also consistently expressed greater trust in the political system which contributes to individual's happiness.

In China, the social safety net level is relatively low, the total social insurance programs expenses account for approximately 10% of the total GDP by 2012, and 15% of the national fiscal expenses (Baiké). To test how the participation in social safety net programs affect Chinese happiness, the paper includes four sets of variables in this section, the participation in medical insurance, minimum living guarantee program (social relief/dibao program), pension, and labor insurance. Participation in the minimum living guarantee and labor insurance programs provide people the feeling of income and job security; pension and medical insurance programs provide the feeling of living security.

Comparison Variables

As mentioned in Section 2.1, cross-sectional evidence shows that income is expected to positively correlated to happiness, but the influence is very limited. Reacher Clark (2008) and Easterlin (1974) show a strong effect of income comparison.

Easterlin suggests that happiness is a positive function of income, but a negative function of aspiration and expectation which shaped by norms and standards of the community. Therefore, relative position in the community is essential in determining individual's happiness. According to World Happiness Report (2013), a representative sample of Chinese rural and urban respondents mentioned that they constantly compare themselves with other households in the same village in terms of living standards and income.

To investigate whether happiness is influenced by urban, rural and migrant people's relative income position, as set by their reference groups. All respondents were asked to compare their household income with the other households in the same city or village, and position their household income level by 'much above average', 'above average', 'average', 'below average' and 'much below average'. A full set of income comparison variables will be introduced in the urban, rural and migrant happiness estimations, with the level of household income about 'average' as the reference group.

3. Data and Methodology

3.1 Data

In this paper, the empirical analysis of the Chinese urban, rural and rural-urban migrant household happiness models are based on data from a sample of the Chinese population, the 2013 Chinese Household Income Project (CHIP). To track the dynamics of income distribution, the CHIP has conducted five waves of household surveys, in 1989, 1996, 2003, 2008 and 2013. The survey contained a multitude of

demographic, behavioral questions, but only 2003, 2008 and 2013 surveys contain questions on subjective well-being and migrant questionnaires. There is a possibility of running regression by pooling the cross-section data from 2003, 2008 and 2013 CHIP surveys. However, there are some important differences limits that possibility. The CHIP 2003 did not include information on years of formal education, but only contains information of the level of education (e.g. elementary school, high school, etc.). CHIP 2003 also exclude siblings and social safety net variables (participation of social relief program, the participation of pension plan, the participation in labor insurance) in the survey. The CHIP 2008 exclude social comparison variables (household income comparison variables) and siblings in the survey. Therefore, we are unable to proceed the pooled cross sections; and only analyze the CHIP 2013 which is the latest and the most sampled Chinese household income survey. The survey is composed of three parts: the urban household survey, the rural household survey and the rural-to-urban migrant household survey,

Table 2 below presents two sets of household income data of 2013 from the National Bureau of Statistic of the People's Republic of China (NBSC) and the Chinese Household Income Project (CHIP). The NBSC has a larger sample size compared to CHIP data. NBSC collects income information from 37 provinces and regions, but CHIP only contains household information from 14 provinces and regions including one autonomous region and two municipalities.

The NBSC data indicates that urban households receive the most income which is more than twice of that of the rural households and 1.3 times of rural-urban migrant

households. Rural-urban migrant households earn 1.8 times more than rural households. For the low-income group (the bottom 20% population), the urban/rural ratio of household disposable income exceeds 3. However, NBSC did not include income quantile information for the migrant households. Therefore, we are unable to calculate the average disposable income of the bottom 20% of the migrant household. For the CHIP data, the urban and rural-urban migrant income data are very close to the NBSC result; but the rural household disposable income is much higher than that of the NBSC data. One plausible explanation of the difference is that the coverage of CHIP survey is less than that of the NBSC, and most of the CHIP survey respondents located in relative high-income areas. Therefore, the average rural household disposable income of the CHIP data could be upwardly biased. As can be seen from Table 2, the rural ‘Median’ disposable income is lower than the average household disposable income in the CHIP dataset also suggest that the income data is asymmetrically distributed and skewed to the left. From Table 2, there is indeed a very large urban-rural income divide. It is also well established that most of the poverty households come from rural areas (Knight & Gunatilaka, 2010).

Table 2. 2013 Chinese Urban, Rural, Rural-Urban Migrants household disposable income in Yuan.

	<i>Urban</i>	<i>Rural</i>	<i>Migrant</i>	<i>Urban/ Rural</i>	<i>Urban/ Migrant</i>	<i>Migrant/ Rural</i>
<i>NBSC Data</i>						
<i>Household Disposable Income</i>	80865	35584	62616	2.3	1.3	1.8
<i>Bottom 20%</i>	34302	10332	-	3.3	-	-
<i>CHIP Data</i>						
<i>Household Disposable</i>	82103	51354	68715	1.6	1.2	1.3

<i>Income</i>						
<i>Bottom 20%</i>	29238	14325	26364	2.1	1.1	1.7
<i>Median</i>	70000	40000	56400	1.8	1.2	1.4

Table 3 below illustrates the distribution of happiness by income quantiles using CHIP data. The principle measure of well-being used here is a self-reported feeling of happiness with life. There are five possible answers to the question: All things considered, do you feel happy? Respondents rated their level of happiness on a scale of 1 to 5: 1 = not happy at all, 2 = not very happy, 3 = so-so, 4 = happy, 5 = very happy. Five income quantiles are presented below. Due to the different living standard in rural and urban areas, the income quintiles are adjusted based on the rural and urban Consumer Price Index of 2013.

It can be seen from the table that the probability of being very happy and happy increase monotonically by income quantile from the 1st to the 4th income quantile in all three subsamples. However, the overall happiness has a slight drop at the 5th quantile (income over 1 million Yuan or approximately 160,000 UDS). One plausible explanation for the decrease is the diminishing marginal utility of income hypothesis (Easterlin, 2005; Lane, 2000). Tejvan (2010) find that life satisfaction peaks when individual income achieves at 75,000 USD or 525,000 Yuan per year, and beyond that amount, there is a slight dip in life satisfaction. Nonetheless, due to the data limitation, there are only a few samples fall into the 5th income quantile, therefore, the result could be less precise due to the high variance. Although the sample size for migrant households is relatively smaller than the other two groups, it also shares the same pattern with the rural and urban subgroups.

Table 3: The proportionate distribution of happiness, overall and by income quintiles.

	Overall	1st	2nd	3rd	4th	5 th
Urban Happiness						
<i>very happy</i>	16.89	12.09	15.32	20.03	30.33	
<i>happy</i>	47.97	35.47	46.42	53.11	58.43	100
<i>so-so</i>	30.67	42.24	33.26	24.48	11.24	-
<i>not very happy</i>	3.64	7.57	4.07	2.09	-	-
<i>not happy at all</i>	0.82	2.47	0.92	0.27	-	-
<i>Total(number)</i>	13119	1321	6660	5048	85	7
Mean happiness	3.76	3.4	3.62	3.7	4.1	4
Rural Happiness						
<i>very happy</i>	12.16	9.71	12.17	18.04	23.76	10.00
<i>happy</i>	44.14	40.35	4.56	49.97	76.24	90.00
<i>so-so</i>	36.95	39.31	37.57	29.88	-	-
<i>not very happy</i>	5.61	8.72	44.89	1.69	-	-
<i>not happy at all</i>	1.14	1.92	12.17	0.42	-	-
<i>Total(number)</i>	25226	8899	12676	3554	97	7
Mean happiness	3.60	3.1	3.22	3.4	4.2	4.1
Migrant Happiness						
<i>very happy</i>	13.95	7.22	14.86	15.19	50.00	-
<i>happy</i>	42.38	36.59	39.28	52.72	50.00	100
<i>so-so</i>	37.91	47.42	39.66	28.99	-	-
<i>not very happy</i>	4.7	5.67	5.94	1.43	-	-
<i>not happy at all</i>	1.06	3.09	0.26	1.71	-	-
<i>Total(number)</i>	1313	192	770	348	2	1
Mean happiness	3.64	3.1	3.42	3.52	4.5	4

The CHIP 2013 survey is an appropriate dataset to analyze the happiness of Chinese urban, rural and migrant households. The survey contains specific and quantifiable information on the community, household, and each household member. The total sample of the urban population consists of 19,888 individuals, between the age 1-98 years. After correcting for missing values, the sample is reduced to 13,119 individuals, from the age 15 to 85. The total sample of rural population consists of 39,066 individuals between the ages 1-105 years. After correcting missing values, the sample is reduced to 25,426 individuals from the age of 15 to 84. The total sample of

the migrant population consists of 2,211 individuals between the age 1-86 years. After correcting missing values, the sample is reduced to 1,313 individuals, from the age 15-85. The survey contains information on demographic characteristics (age, gender, marital status, ethnicity, political affiliation, education, health status and siblings), conventional economic factors (household disposable income, household net financial assets and unemployment), social safety net factors (participation in labor insurance, medical insurance, pension and social relief program), and social comparison (household disposal income standard in the city or village). The descriptive statistics for urban, rural and migrant are presented in Appendix 1, 2, and 3 respectively.

There are only a few subjective well-being questions contain in the CHIP questionnaires that is available for all the three subsamples. The three sub-survey include a question of the sort: ‘All things considered, do you feel happy’; all the respondents are asked to answer the question with different levels of happiness (very happy, happy, so-so, not very happy, not happy at all). Then, we convert these answers into happiness scores (1 to 5, 1 = not happy at all, 5 = very happy), and use the data as dependent variables in the happiness estimations. Furthermore, the paper includes any available individual, household, community, external and internal features which can be plausibly hypothesized to influence individual’s happiness as the explanatory variables in the equation.

One of the main methodological issues in happiness studies is whether to treat the happiness data as cardinal or ordinal. For most happiness research, the main purpose of measuring happiness is not to compare the coefficients on an absolute level

but to identify the determinants of happiness. Knight and Gunatilaka (2010), Guo and Hu (2012) regard the happiness data as cardinal and find that OLS estimation is an effective mean to access the exact effect of these independent variables on happiness. Some other argues that the happiness categories should be treated as ordinal and estimated with ordered probit models. However, in line with existing literature, this paper find that the happiness regression results are insensitive to the choice of OLS or ordered probit model. The ordered probit regression result is shown in Appendix 6.

In order to establish the best model to estimate individual happiness and determine which of the potentially interesting variables have significant coefficients, an individual's happiness score will be regressed on demographic characteristics, conventional variables, social safety net variables and social comparison variables in referring the role of relative income on individual's happiness. The variables that will be used in urban, rural and rural-urban migrant household are defined in Appendix 4.

3.2 Model

The generic form of the happiness regression model is:

$$H_n = f(X_n, Y_n, Z_n, P_n) + u_n,$$

$$= a_{n0} + a_{ni}X_{ni} + b_{nj}Y_{nj} + c_{nk}Z_{nk} + d_{nm}P_{nm} + u_n$$

Where H is the level of happiness. $n = 1,2,3$; where 1 denotes the urban regression, 2 denotes the rural regression, and 3 denotes the migrant regression. a_0 is the intercept. X_i is a set of demographic characteristics variables; Y_j is a set of economic variables; Z_k is a set of social security variables; P_m is a set of social comparison variables. a_i , b_j , c_k , and d_m represent the coefficients of the explanatory variables under each category.

$i, j, k, m = 1, 2, 3, \dots, n$

Male, married, divorced, widowed, ethnic minority, communist party member, in good health status, in poor health status, disability, unemployed, participation in medical insurance, participation in social relief program, participation in pension program and participation in labor insurance are measured as dummy variables; =1 if yes, = 0 if not. Siblings denote the number of the respondents' siblings (included in rural and migrant estimation); education denotes the year of formal education; 'ln household disposable income' denotes the annual household disposable income in a natural logarithm form; 'ln net financial asset' indicates the household net financial asset in logarithm form. The comparison variables 'household income much above the average', 'household income above average', 'household income below average', 'household income much below average' are included in the three regressions and are estimated as dummy variables.

The explanatory variable 'Siblings' is only included in rural and migrant equations. Since the strict one-child policy in the urban area, the majority of the urban respondents are reported to be the only child in the household. Therefore, we exclude 'siblings' in urban estimation. Knight and Gunatilaka (2010) find that Chinese happiness appears to have some provincial variations. Beijing rural residents are reported to have the highest happiness, and Guangxi, Yunnan, and Shanxi provinces have the lowest overall happiness, while Liaoning and Shandong province reports a similar level of happiness with Beijing. They argue that the provincial variations are associated with provincial income per head. However, due to small sample size for

each province, we do not include provincial dummies in this paper. Kim-Cohen (2003) find that mental health is crucial in explaining the variation of happiness within a country. However, due to lack of information, we are unable to test the influence of mental illness on happiness.

4. Results

Table 4 presents the urban, rural and rural-migrant happiness results.

Table 4: Happiness regression result of Urban, rural and rural-urban migrant

	Urban	Rural	Migrant
Demographic Characteristics			
Male	-0.046 *** (-5.473)	-0.039*** (-4.088)	-0.065 (-1.479)
Age	-0.021*** (-7.003)	-0.012*** (-5.424)	-0.016 (-1.375)
Age ²	0.0003*** (8.276)	0.0002*** (7.603)	0.0002* (1.816)
Married	0.177*** (5.622)	0.083*** (4.501)	0.085 (1.017)
Divorced	-0.103 (-1.670)	-0.204*** (-4.066)	-0.21 (-1.098)
Widowed	-0.015 (-0.299)	-0.018 (-0.557)	-0.083 (-0.333)
Ethnic Minority	-0.048 (-1.562)	-0.071*** (-3.912)	-0.135 (-1.392)
Communist Party Member	0.077*** (4.267)	0.073*** (3.554)	0.278** (2.386)
Years of Formal Education	0.003 (1.231)	0.013*** (6.949)	0.012 (1.487)
In Good Health	0.228*** (13.493)	0.172*** (13.042)	0.248*** (3.744)
In Poor Health	-0.097*** (-2.893)	-0.106*** (4.807)	-0.129 (0.877)
Disabled	-0.033 (-0.897)	-0.061 (-2.427)	-0.025 (-0.143)
Siblings (rural, migrant)	-	0.012*** (3.865)	0.003 (0.185)
Conventional Economic Variables			
Unemployment	-0.029	-0.073*	-0.192

	(-0.675)	(-1.843)	(-1.270)
Ln Household Disposable income	0.086*** (6.682)	0.034*** (4.658)	0.136*** (3.345)
Ln Household Net Financial Assets	0.002 (0.354)	0.018*** (4.939)	0.02 (1.804)
Social Security Variables			
Medical Insurance	0.001 (0.021)	0.021 (0.546)	0.0376 (0.517)
Social Relief (Minimum living guarantee/Dibao)	-0.028 (-0.786)	-0.085*** (-3.828)	-0.072 (-0.676)
Pension	0.012 (0.614)	0.013 (1.409)	0.037 (0.733)
Labor Insurance	0.039 (2.482)	0.046** (2.524)	0.084 (1.367)
Comparison Variables			
Household Income Much above average in your community	0.430*** (6.517)	0.779*** (15.167)	0.075 (0.481)
Household Income Above average in your community	0.220*** (12.053)	0.275*** (21.520)	0.046 (0.671)
Household Income Below average in your community	-0.341*** (-21.294)	-0.413*** (-33.764)	-0.263*** (-5.007)
Household Income Much below average in your community	-0.776*** (-23.719)	-0.859*** (-35.283)	-0.532*** (-6.787)
Intercept	2.972***	2.979***	1.923***
Number of observation	13119	25426	1313

*The results are rounded off to three decimal digits; t-values are presented in the parentheses; ***, ** and * indicates the coefficient is significant at 1%, 5%, and 10% level respectively. Standard errors are robust to heteroskedasticity.*

Table 4 presents the result of ordinary least squares (OLS) equations estimating the determinants of happiness in urban, rural and migrant subsamples. The first column provides the result of urban happiness function, the second column presents the rural regression result, and the third column presents the rural-urban migrant regression result. Due to the small sample size for the migrant (1,313) estimation, as indicated above, most of the coefficients for the migrant subsample are insignificant.

Demographic Characteristic

As expected, men have significant lower happiness than women in all three subsamples. Both the effect of age (negative) and age-squared (positive) on happiness are statistically significant in urban and rural subsamples. With 'single' status as the reference category, marriage contributes to happiness, and the influence is significant in urban and rural subsamples; on the other hand, divorce and widowhood reduce happiness. The negative influence of divorce for rural respondents is much greater than that of the urban and migrant results. One plausible explanation is that rural respondents attach greater importance to Chinese tradition than the others. In Chinese tradition, the stigma of being a divorcee is likely to haunt a person for the rest of his/her life; but along with the social progress, people become more open-minded and more acceptable to divorce. However, rural areas are relatively left behind in China's social development. Therefore, the negative influence of divorce is larger compared to the other two groups. In line with previous findings, if the individual is a non-Han ethnic minority, his/her reported happiness is lower than Han people in all three subsamples, and the ethnicity coefficient is significant in the rural subsample. All respondents enjoy more happiness if as a member of the Chinese Communist Party. One plausible explanation is that political activities enrich one's spiritual life and social life; for instance, through political connections, party members may have more employment opportunities. Furthermore, Chinese Communist Party member has a higher social status compared to common civilians.

On average, years of formal education indirectly raises individual's happiness. Due to poor economic condition in rural areas, education opportunities are very limited.

During 2013, high school enrollment rate for urban is 90%, but the enrollment rate for rural is only 37% (China Labor Economist Forum). The main reason for not continuing education is the lack of financial support. Therefore, respondents who have more years of education indicates that their household's economic condition is well enough to cover more education-related fees. As proven before, richer people are happier. Many existing literatures have confirmed that education also raises happiness indirectly through its impact on people's ability to earn. People with more years of education receives higher income, and therefore, raises the level of happiness (Layard, 2005). Besides the positive influence of education on income, education also increase the level of happiness directly through providing job security and developing assertive thinking skills. Some economists concern that income and education have collinearity, in order to detect the multicollinearity problem, a VIF test will be conducted and the result will be presented in Appendix 5.

With the 'average' health status as the reference category, respondents who are in good health report higher level of happiness than who are in poor health, and the result are statistically significant in all three subsamples. Good health status increases happiness for urban, rural and migrant respondents. As expected, poor health status and disability decrease people's happiness.

Due to the strict implementation of one-child policy in the urban area, we exclude 'siblings' for urban estimation. As mentioned in Section 2.2, unlike developed countries, where having more siblings decreases happiness; in China, the level of happiness increases by having more siblings in rural and migrant households. Since

the main income source of rural household comes from agriculture; therefore, the labor force is essential for peasant households. Having more siblings in rural and migrant households can provide extra labor force to farm and contribute to household income. Therefore, the number of siblings is positively correlated with happiness in rural and migrant estimations.

Conventional Economic Variables

Unemployment is negatively related to happiness as expected. The coefficient of migrant unemployment is much greater compared to the other two subsamples. This can be explained by the fundamental incentive of the rural-urban migration. Rural labor moves to urban for the purpose of a better employment opportunity and income; consequently, employment is essential to them. Once migrants become unemployed, they lose their purpose to stay in the cities. Therefore, the negative impact of unemployment on happiness is larger for migrants. For the rural subsample, Although the result is significant at 10% level, the coefficient itself is statistically insignificant.

In line with basic economic theory, household disposable income has a significant positive effect on happiness in all three subsamples. In CHIP 2013 dataset, household disposable income is the total amount of household disposable income in 2013, including wage income, property income, transferred income, and family business income. Holding other variables constant. A one percent increase in household disposable income is associated with a 0.00086, 0.00034 and 0.00136 increase in happiness for urban, rural and migrant respondents. Although the numbers do not have an economic significance, they are statistically significant in the estimation. The result

suggests that income brings more happiness to migrant households compared to the other two groups. The World Happiness Report 2013 suggests that the contribution of absolute income raises for migrant households during the first several years when they move from rural to urban areas as their income increases tremendously, but the effect of absolute income tends to decrease with the length of stay in urban areas. Suggesting that there is a process of income adaptation, or the migrants may become more materialistic as they lay down deeper urban roots. However, due to lack of panel information, we cannot proceed a further test on the hypothesis. On the other hand, household net financial assets also increase happiness, but the contribution is very small.

A pattern has been found in urban and rural subsamples that the positive effect of absolute level of income and net financial assets is weakened as income per capita increases. In other words, lower income group are more sensitive to the change in absolute income and net financial assets. Table 5 presents the regression result of the relationship between ln disposable income, net financial assets, and happiness in low, middle and high-income households.

Table 5: The low-income group is more sensitive to the change in household disposable income and net financial assets.

	Lowest Income	Middle Income	Highest Income
Urban			
Ln disposable Income	0.143***	0.129***	0.119***
Ln net financial Assets	0.063***	0.026	0.015
Rural			
Ln household disposable income	0.177***	0.157***	0.127***
Ln net financial assets	0.079***	0.039	0.034

As Table 5 suggests, the positive effect of income and net financial assets is the

greatest and the most significant in the lowest household disposable income tercile for both urban and rural subsamples. Coincident with the law of diminishing marginal utility of income. Suggesting that household disposable income and net financial assets are the most valued in the condition of poverty. Due to the small sample size for each household disposable income tercile, Table 5 do not report the migrant regression result.

Social Safety Net

As Section 2.2 suggests, the participation in medical insurance, labor insurance, and pension programs provides the feeling of security. However, as shown in Table 4, the participation in social relief program is negatively related to happiness in urban and rural samples. Social relief program also namely minimum living guarantee program or Dibao, which topped off individual's income to a minimum level set by local government. For instance, in Beijing, the monthly social relief standard is 1050 Yuan (161.5 USD), approximately 5 USD per day. If a person from Beijing urban areas whose monthly income below 1050 Yuan, the person is eligible to participate the social relief program and receive subsidies from local government. Although the variable 'social relief' program provides financial security to low-income people; in our estimation, it is more like an indicator of low income. In other words, respondents who participate social relief program are the lowest income earners; as proven before, low-income people are less happy. For rural social relief participants, the negative influence is the most significant. This is possibly caused by the lower social relief program baseline for the rural residents. Beijing monthly social relief standard is 1050

Yuan for urban, but 800 Yuan (123.04 USD) for rural residents. Compare to urban social relief participants, the monthly income of the rural residents who are eligible to participate the social relief program is much lower than that of urban. Therefore, the coefficient is the most significant for rural respondents.

Comparison Variables

The happiness estimation includes income comparison variables to test if happiness influenced by people's relative income. Respondents were asked to compare their income with others in the same city or village. The effect of these variables is all statistically significant in urban and rural estimation, and the coefficient of 'household income below average', and 'household income much below average' are statistically significant in the migrant estimation. As Table 4 presents, the coefficients are monotonic, Having 'household income much above average' increase happiness scores by 0.43, 0.779 and 0.075 respectively; 'above average' increases happiness by 0.22, 0.275 and 0.046 respectively; 'below average' decrease happiness by 0.34, 0.41 and 0.26; for those whose household income position 'much below average' report significantly lower happiness than the others by 0.776, 0.859 and 0.53 respectively for urban, rural and migrant respondents.

The evidence of the strong effect of income comparison on happiness can be found worldwide. The European Social Survey asks the respondents 'How important is it for you to compare your income with other people's income?'. One common finding is that for people who says income comparisons are important are less happy compared to those who disregards it. A one-year only set of question in the German

Socio-Economic Panel (GSOEP) also found a similar result. In the study, respondents were asked to rank their income compared with their colleagues, friends, neighbors, etc. The study also confirms the strong effect of perceived relative income on happiness, and the finding suggests that people from advanced countries often regard their colleagues as their income comparison reference group. Unlike advanced countries, Chinese respondents often compare themselves with others who live in the same village or city.

Coincident with Knight and Gunatilaka (2010), the comparison variables show that the largest coefficients among all the variables and the relative income position in rural subsample are the most important compared to the other two samples. One plausible explanation is that rural residents are more bound up with each other compared to urban households. Therefore, rural respondents are easier to compare themselves with others in the same village. On the other hand, urban and migrant households are more independent from the community. The coefficients of the comparison variables of the migrants are very small compared to the urban and rural result. This can be caused by the low-income aspiration and expectation of migrants'. Chinese migrants are mostly classified as the 'second-class citizens' who are not well-educated and skilled (The Globe and Mail, 2011). Rationally, migrants expect their income to be lower than the other urban citizens. Based on the theory that happiness is negatively correlated with aspiration. Therefore, the relative income position for migrants is not as important as that of urban and rural residents.

Robustness Tests

Firstly, we rescale the 'health' status. In the CHIP 2013 survey, respondents were asked to rate their health status by: excellent, good, average, poor and very poor. In this paper, the health status is set into three categories 'in good health', 'in poor health', with the 'average' as the reference group. Respondents' health status above average is classified as 'in good health status', for those below average is classified as 'in poor health status'. To proceed the robustness test, we rescale the health status, and set 'poor' as the reference group, and classified 'excellent', 'good' and 'average' as 'in good health'; 'very poor' is classified as 'in poor health'. Then, we re-run the regression, to test if any changes in the parameters and significances. However, the result did not show any substantial differences.

Secondly, Following the existing literature (Knight and Gunatilaka, 2010; Guo and Hu, 2012; Di Tella and MacCulloch, 2001; Blanchflower and Oswald, 2014; I used the OLS method. However, I also conducted the Ordered Probit estimation, the results of which will be included in Appendix 6. Our results from Ordered Probit estimation is in line with the OLS results regarding the signs and significance after running the marginal effects.

Thirdly, in this paper, we use VIF tests to exam the multicollinearity. The VIF for most of the variables (except age and age²) are below 4. However, age and age² are the most significant and common personal factors that determine individual's happiness and multiple happiness researches include age and age² (Knight & Gunatilaka, 2010; Stone et al., 2010; Gerstorfet et al, 2008). Therefore, I keep the age and age-squared in the analysis. Therefore, we can claim that our results are robust.

5. Conclusion and Policy Recommendations

The study tries to explore the income-happiness relationship and ascertain the determinants of happiness for urban, rural and migrant population of China. The regression result displays powerful regularities and offers plausible explanations given credence to the exercises.

First of all, happiness increases with the absolute level of income. But when holding other variables constant, the income difference explains only a small proportion of the variation in happiness among people. This indicates that there are other, more important factors affect individual's subjective well-being. Furthermore, the result follows the law of diminishing marginal utility of income. The importance of one's absolute income on happiness will be weakened as one's income increases. In other words, the absolute level of income contributes more happiness to lower income earners than higher income earners. This hypothesis is verified in urban and rural subsamples. Due to the small sample size for migrant (1,313 samples), we are unable to give a solid verification of this hypothesis to migrant households.

Secondly, the happiness largely depends on relative income defined by the reference group or the reference time that people have in mind. It appears that happiness is not only a positive function of income but also a negative function of aspiration and expectation. One's income expectation and aspiration are influenced by the norms and standards of the community the person lives in. Therefore, a person's position in the income distribution of the relevant reference group may govern happiness. In China, people compare themselves to others who live around them, such

as the fellow villagers or the other citizens. If one's income places in a relative higher position among his fellows, he is more satisfied with his life. This statement has been verified in all three subsamples. On the other hand, compared to urban and rural respondents, migrant respondents have lower income aspirations. Therefore, the importance of relative income on happiness tend to be smaller. However, Easterlin (2009) argue that the migrants' aspiration may increases when they spend a longer time in urban areas.

Besides income, employment is also an important factor in determining happiness independently from its effect on income. For those who are unemployed, the level of happiness drops sharply, and the low level of happiness will not recover until they are reemployed. The negative effect of unemployment is the most significant for migrant respondents since they value employment opportunities the most. The regression results of demographic characteristics in this paper behave in line with expectations and the participation in social safety net programs provides a feeling of security which increases happiness as expected.

5.1 Policy Recommendations

One of the reasons for measuring happiness is to enable the policy-makers to know what their problems and opportunities are. Therefore, governments should systematically conduct subjective well-being survey of their people. It should also be possible to link the survey results to information on poverty reduction, unemployment reduction, improvement in the education system and the improvement in the social welfare system.

At the individual level, this paper has shown that income and other economic wellbeing affect life satisfaction in a positive way, but the effect is very limited. The impact of income is largely mediated by social comparisons. Therefore, elimination of income inequality is essential to increase individual's happiness. As a developing country, China should continue to concentrate on economic development, and meanwhile, make efforts to promote a more equitable income distribution. As shown above, the result follows the law of diminishing marginal utility of income. In other words, the contribution of an extra dollar to poor people's happiness is much larger than that to the rich people; on the contrary, the effect of losing a dollar to the rich people's happiness is negligible. Given the law of diminishing marginal return of income, income redistribution could be a feasible solution to improve the overall happiness of Chinese. For instance, the progressive tax can be a powerful tool to reshape the income distribution and reduce income inequality and therefore improve overall happiness.

Since the incremental gains in income may be much less beneficial to the population measures to ensure the vibrancy of local community (World Happiness Report 2013), maintaining a high employment rate is critical to the stability of the community. Unemployment not only reduces happiness for those who are unemployed but also infects those who have jobs with the fear of losing their jobs. China has kept the official unemployment rate about 4.5% since 2012. However, many have argued that the figure fails to reveal China's real unemployment conditions. According to the unemployment report from Fathom Consulting 2013, the real unemployment rate of

China can be three times higher than the official estimation. Firstly, the figure is calculated based on the number of government registered unemployed population, but excluded the non-registered unemployed population. Secondly, a large amount of excess rural labors is not included in the calculation either. The omission led to a shoddy calculation of the official unemployment rate. To reduce the unemployment rate, China's government should give great weight to policies that reduce involuntary unemployment, including provide retraining sessions, increase public employment, offer education supports to raise long-term skills, and enlarge the coverage of unemployment insurance. As shown in the result section, the negative effect of unemployment to the migrants is significant than that to the urban and rural respondents due to the fundamental reason for the migrants' relocation. Therefore, in order to ensure the migrant happiness, the government should offer extra training sessions to under-educated and low-skilled migrant workers to improve their employability. Furthermore, the government can offer extra subsidy to migrant workers to ensure their basic living standard in the cities while unemployed.

Since the promulgation of the 'Compulsory Education Law' in 1986, the nine-year compulsory education has been implemented by governments at various levels and has made significant progress. However, the educational investment of China only accounts for 4% of the total GDP and places on the bottom half of the 'World Ranking of Government Education Expenditure' (Wiki, List of countries by spending on education % of GDP). The Chinese government should extend the year of compulsory education and reduce educational fees to improve the overall quality of population and

increase their happiness. As mentioned above, the education is more valuable for rural respondents, and they have the least opportunities to be well-educated. Therefore, the Chinese government should offer more education opportunities to rural residents through providing educational subsidize to encourage school education and opening more educational facilities in rural areas.

On the other hand, promoting a fair and sustainable welfare system in China also contribute to the overall happiness of Chinese. Although the public social spending of China rose to 9% in 2013, against 6% in 2007, the level of spending is still considerably lower than the advanced countries of 22% of the total GDP (Gurria, 2014). As the increasing importance of the migrant group, the demand for migrant workers to have access to basic social services has increased. For the current social welfare system, migrant workers who lived in adopted cities are not entitled to the same benefits as locals since they do not have a household registration for their new places of residence. In 2015, China has passed an ordinance on its nationwide registration permit system to allow millions of migrant workers living in the cities have access to welfare services and compulsory education. China should continue to expand the accession of welfare services which provide public the feeling of security, and therefore improve the overall happiness.

5.2 Limitations

Firstly, the determinants of happiness may vary across provinces, however, our dataset is not large enough to extract information about provincial variation. Therefore, we are unable to explore the provincial happiness variations in this paper.

Secondly, given the available data at hand, we are unable to proceed the endogeneity tests. There is a possibility of having reverse causality between happiness and some socio-economic factors, e.g. income which leads to endogeneity problem. Due to lack a suitable instrument in the dataset, we could not run the instrumental variable regression.

Last but not least limitation for this research is the small sample size of the migrant subsample (1,313). As presents in Table 4, the migrant result shows that many of the coefficients are insignificant. However, the coefficient results behave in line with the rural and urban regression results and safely passed the robustness tests. Therefore, we have reasons to believe that the migrant regression results provide some important insights. But a more detailed happiness research based on a larger sample size of migrant households is necessary for the future study.

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Appendix

Appendix 1. Urban Descriptive Statistics

VARIABLES	Proportion (dummies, %) or Mean
<i>MALE (dummy)</i>	49.8
<i>AGE</i>	45.05
<i>AGE^2</i>	2,279.14
<i>MARRIED (dummy)</i>	79.3
<i>DIVORCED (dummy)</i>	2.2
<i>WIDOWED (dummy)</i>	3.3
<i>ETHNIC MINORITY (dummy)</i>	5.1
<i>COMMUNIST PARTY MEMBER (dummy)</i>	18.7
<i>FORMAL EDUCATION (YRS)</i>	10.85
<i>IN GOOD HEALTH (dummy)</i>	73.2
<i>IN POOR HEALTH (dummy)</i>	5.4
<i>DISABILITY (dummy)</i>	3.2
<i>UNEMPLOYED (dummy)</i>	2.4
<i>MED INS (dummy)</i>	94.6
<i>LIV GUARANTEE/ SOCIAL RELIEF (dummy)</i>	3.7
<i>PENSION (dummy)</i>	79.3
<i>LABOUR INS (dummy)</i>	62.4
<i>LN DISPOSABLE INCOME</i>	11.12
<i>LN NET FINANCIAL ASSETS</i>	11.3
<i>HOUSEHOLD INCOME MUCH ABOVE AVERAGE (dummy)</i>	1
<i>HOUSEHOLD INCOME ABOVE AVERAGE (dummy)</i>	16.2
<i>HOUSEHOLD INCOME BELOW AVERAGE (dummy)</i>	24.4
<i>HOUSEHOLD INCOME MUCH BELOW AVERAGE (dummy)</i>	4.5
<i>VERY HAPPY (dummy)</i>	16.4
<i>HAPPY (dummy)</i>	47.9
<i>SO-SO (dummy)</i>	30.7
<i>NOT VERY HAPPY (dummy)</i>	4
<i>NOT HAPPY AT ALL (dummy)</i>	1

Appendix 2. Rural Descriptive Statistics

Variables	Proportion (dummies, %) or Mean
<i>MALE (dummy)</i>	53
<i>AGE</i>	42.62
<i>AGE^2</i>	2,081.09
<i>MARRIED (dummy)</i>	74.7
<i>DIVORCED (dummy)</i>	1
<i>WIDOWED (dummy)</i>	3.4
<i>ETHNIC MINORITY (dummy)</i>	7.6
<i>COMMUNIST PARTY MEMMBER (dummy)</i>	5.7
<i>SIBLINGS</i>	2.47
<i>FORMAL EDUCATION (YRS)</i>	7.91
<i>IN GOOD HEALTH (dummy)</i>	75.6
<i>IN POOR HEALTH (dummy)</i>	6.8
<i>DISABILITY (dummy)</i>	4.2
<i>UNEMPLOYED (dummy)</i>	1.4
<i>MEDICAL INSURANCE (dummy)</i>	98.5
<i>MIN LIV GUARANTEE/SOCIAL RELIEF (dummy)</i>	5.1
<i>PENSION INSURANCE (dummy)</i>	76.5
<i>LABOUR INSURANCE (dummy)</i>	7.5
<i>LN DISPOSABLE INCOME</i>	10.57
<i>LN NET FINANCIAL ASSET</i>	10.7
<i>HOUSEHOLD INCOME MUCH ABOVE AVERAGE (dummy)</i>	1
<i>HOUSEHOLD INCOME ABOVE AVERAGE (dummy)</i>	17.9
<i>HOUSEHOLD INCOME BELOW AVERAGE (dummy)</i>	20.2
<i>HOUSEHOLD INCOME MUCH BELOW AVERAGE (dummy)</i>	4.1
<i>VERY HAPPY (dummy)</i>	12.2
<i>HAPPY (dummy)</i>	44.1
<i>SO-SO (dummy)</i>	37
<i>NOT VERY HAPPY (dummy)</i>	5.6
<i>NOT HAPPY AT ALL (dummy)</i>	1.1

Appendix 3. Migrant Descriptive Statistics

Variables	Proportion (dummies, %) or Mean
<i>MALE (dummy)</i>	52.8
<i>AGE</i>	37.87
<i>AGE^2</i>	1,593.35
<i>MARRIED (dummy)</i>	78.5
<i>DIVORCED (dummy)</i>	1.6
<i>WIDOWED (dummy)</i>	1.1
<i>ETHNIC MINORITY (dummy)</i>	5.5
<i>COMMUNIST PARTY MEMBER (dummy)</i>	3.8
<i>SIBLINGS</i>	2.2
<i>EDUCATION(YRS)</i>	9.21
<i>IN GOOD HEALTH (dummy)</i>	83.8
<i>IN POOR HEALTH (dummy)</i>	2.8
<i>DISABILITY (dummy)</i>	1.7
<i>LN DISPOSABLE INCOME</i>	10.963
<i>LN FINANCIAL ASSETS</i>	10.78
<i>UNEMPLOYED (dummy)</i>	2.3
<i>MEDICAL INSURANCE (dummy)</i>	89.1
<i>MIN LIV GUARANTEE/SOCIAL RELIEF (dummy)</i>	0.8
<i>PENSION (dummy)</i>	62.1
<i>LABOUR INSURANCE (dummy)</i>	17.9
<i>HOUSEHOLD INCOME MUCH ABOVE AVERAGE(dummy)</i>	2.2
<i>HOUSEHOLD INCOME ABOVE AVERAGE (dummy)</i>	12.7
<i>HOUSEHOLD INCOME BELOW AVERAGE (dummy)</i>	28
<i>HOUSEHOLD INCOME MUCH BELOW AVERAGE (dummy)</i>	9.4
<i>VERY HAPPY (dummy)</i>	13.9
<i>HAPPY (dummy)</i>	42.4
<i>SO-SO (dummy)</i>	37.8
<i>NOT VERY HAPPY (dummy)</i>	4.8
<i>NOT HAPPY AT ALL (dummy)</i>	1.1

Appendix 4. Definition of the variables used in the Urban, Rural and Migrant happiness.

Variables	Definition
Dependent Variable	
<i>HAPPINESS</i>	Self-reported feelings of happiness with life (1=not happy at all, 2=not very happy, 3=so-so, 4=happy, 5=very happy)
Independent Variables	
Demographic Characteristics	
<i>MALE</i>	=1 if male
<i>AGE</i>	=age of each respondent
<i>AGE^2</i>	=age squared of each respondent
<i>MARRIED</i>	=1 if married
<i>DIVORCED</i>	=1 if divorced
<i>WIDOWED</i>	=1 if widowed
<i>ETHNIC MINORITY</i>	=1 if the respondent is a non-Han ethnic minority
<i>COMMUNIST PARTY MEMBER</i>	=1 if the respondent is a communist party member
<i>SIBLINGS</i>	=the number of the siblings of the respondent
<i>EDUCATION (YRS)</i>	=how many years of formal education
<i>IN GOOD HEALTH</i>	=1 if in good health condition
<i>IN POOR HEALTH</i>	=1 if in poor health condition
<i>DISABILITY</i>	=1 if you have any physical disabilities
Conventional Economic Variables	
<i>UNEMPLOYED</i>	=1 if unemployed
<i>LN DISPOSABLE INCOME IN 2013</i>	=natural log of the household disposable income of 2013
<i>LN FINANCIAL ASSETS</i>	=natural log of the household net financial assets of 2013
Social Security Variables	
<i>MEDICAL INSURANCE</i>	=1 if have medical insurance
<i>MIN LIVING GUARANTEE/SOCIAL RELIEF</i>	=1 if have minimum living guarantee/social relief
<i>PENSION INSURANCE</i>	=1 if have pension insurance
<i>LABOUR INSURANCE</i>	=1 if have one or any of labor benefit insurances – work

	injury insurance, unemployment insurance, housing insurance, housing provident fund, maternity insurance.
Comparison Variables	
<i>HOUSEHOLD INCOME MUCH ABOVE AVERAGE</i>	=1 if the respondent considers his/her household's income standard is substantially above average
<i>HOUSEHOLD INCOME ABOVE AVERAGE</i>	=1 if the respondent considers his/her income standard is somewhat above average
<i>HOUSEHOLD INCOME BELOW AVERAGE</i>	=1 if the respondent considers his/her living standard is somewhat below average
<i>HOUSEHOLD INCOME STANDARDS BELOW AVERAGE</i>	=1 if the respondent considers his/her income standard is substantially below average

Appendix 5. Test of Multicollinearity in urban, rural and migrant subsamples.

Urban		Rural		Migrant	
<i>Variables</i>	<i>VIF</i>	<i>Variables</i>	<i>VIF</i>	<i>Variable</i>	<i>VIF</i>
Age	56.97	Age	56.70	Age	44.24
Age ²	49.08	Age ²	47.94	Age ²	38.22
Married	3.29	Married	2.96	Married	2.56
Years of formal education	1.69	Years of formal education	1.70	Years of formal education	1.43
Widowed	1.64	Widowed	1.61	Siblings	1.41
Ln household disposable income	1.63	In good health	1.50	Pension insurance	1.36
Pension insurance	1.59	In poor health	1.45	Ln household disposable income	1.34
Ln household financial assets	1.48	Ln household disposable income	1.37	Ln household financial assets	1.31
Labor insurance	1.48	Siblings	1.36	Widowed	1.30

In good health	1.37	Ln household financial assets	1.36	In good health	1.29
Divorced	1.35	Pension insurance	1.25	In poor health	1.28
In poor health	1.25	Disabled	1.18	Medical insurance	1.24
Communist party member	1.21	Household income above average	1.13	Labor insurance	1.21
Medical insurance	1.19	Household income below average	1.13	Household income below average	1.21
Household income below average	1.16	Social relief	1.12	Divorced	1.19
Household income above average	1.12	Divorced	1.11	Household income above average	1.15
Household income much below average	1.11	Household income much below average	1.10	Household income much below average	1.14
Disabled	1.10	Labor insurance	1.09	Disabled	1.11
Social relief	1.07	Communist party member	1.08	Household income much above average	1.09
Male	1.05	Male	1.06	Communist party member	1.06
Unemployment	1.03	Medical insurance	1.03	Ethnic minority	1.05
Household income much above average	1.02	Ethnic minority	1.02	Male	1.04
Ethnic minority	1.01	Household income much above average	1.02	Social relief	1.04
		Unemployed	1.01	Unemployment	1.03
Mean VIF	5.87	Mean VIF	5.55	Mean VIF	4.60

* The above VIF is listed from the highest to the lowest.

Appendix 6. Ordered probit regression result

	Urban	Rural	Migrant
Demographic Characteristics			
Male	-0.076 *** (-3.31)	-0.058* (-3.68)	-0.091 (-1.31)
Age	-0.029*** (-5.45)	-0.019* (-5.37)	-0.031* (-1.74)
Age^2	0.0004*** (6.81)	0.0003* (7.37)	0.0004** (2.26)
Married	0.246*** (4.97)	0.135* (4.47)	0.226* (1.74)
Divorced	-0.146 (-1.61)	-0.264* (-3.36)	-0.236 (-0.82)
Widowed	-0.097 (-1.17)	-0.036 (-0.68)	-0.054 (-0.14)
Ethnic Minority	-0.129 (-2.52)	-0.083 (-2.48)	-0.258* (-0.081)
Communist Party Member	0.142*** (4.35)	0.122* (3.39)	0.236 (0.228)
Years of Formal Education	0.005 (1.28)	0.017* (5.77)	0.025 (0.047)
In Good Health	0.349*** (12.16)	0.266* (12.45)	0.439*** (0.0001)
In Poor Health	-0.149*** (-2.72)	-0.149* (-4.23)	-0.112 (-0.51)
Disabled	-0.071 (-1.02)	-0.549 (-1.36)	-0.021 (-0.008)
Siblings (rural, migrant)		0.015 (2.85)	0.168 (0.68)
Conventional Economic Variables			
Unemployment	-0.039 (-0.54)	-0.066 (-1.02)	-0.158 (-0.7)
Ln Disposable income	0.0899*** (7.76)	0.059* (4.98)	0.204*** (3.07)
Ln financial assets	0.0067 (0.72)	0.028* (4.59)	0.041 (1.46)
Social Security Variables			
Medical Insurance	0.061 (0.31)	0.052 (0.83)	0.077 (0.61)
Social Relief (Minimum living guarantee/Dibao)	-0.118 (-0.0346)	-0.123* (-3.47)	0.144 (0.36)

Pension	0.016 (0.48)	0.019 (0.95)	0.294 (0.36)
Labor Insurance	0.045 (1.63)	0.039 (1.25)	0.656 (0.67)
Comparison Variables			
Income Much above average in your community	0.792*** (4.67)	0.888* (7.57)	0.324 (1.18)
Income Above average in your community	0.469*** (12.58)	0.607* (25.20)	0.291** (2.43)
Income Below average in your community	-0.549*** (-20.76)	-0.628* (-32.44)	-0.468*** (-5.79)
Income Much below average in your community	-1.227*** (-21.74)	-1.260* (-32.85)	-0.963*** (-8.13)
Log likelihood	-16788.65*	-19722.041	-1011.238
Pseudo R2	0.11	0.11	0.1
Number of observations	13119	25426	1313

CURRICULUM VITAE

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