IJW Chuluun, T., Graham, C., & Myanganbuu, S. (2016). Who is happy in the land of eternal blue sky? Some insights from a first study of wellbeing in Mongolia. *International Journal of Wellbeing*, *6*(3), 49-70. doi:10.5502/ijw.v6i3.506

ARTICLE

Who is happy in the land of eternal blue sky? Some insights from a first study of wellbeing in Mongolia

Tuugi Chuluun · Carol Graham · Sarandavaa Myanganbuu

Abstract: We conducted the first extensive study of wellbeing in Mongolia, a country that has experienced a dramatic transition in both its economy and polity in recent decades. We found that most of the standard determinants of wellbeing were no different in Mongolia than they are for most countries in the world, despite the unique context and the extreme changes there, with individual income, health, marital status, and exercise all positively associated with life satisfaction. The same variables had positive but weaker correlations with our measure of hedonic wellbeing. When we split our sample into those above and below median income, however, there were some important differences in the findings. As in many other contexts, stress is negatively correlated with wellbeing in Mongolia, and the primary triggers were concerns about income, family, and the living environment. Finally, we found that freedom of expression has an important positive association with wellbeing in Mongolia, perhaps reflecting the extent to which it is an island of political freedom compared to its neighbors.

Keywords: subjective wellbeing, Mongolia, community income, stress, freedom of expression

1. Introduction

There is a burgeoning literature on wellbeing around the world, much of which finds consistent patterns in its determinants in countries and cultures around the world. Many of these patterns are predictable: income matters to individual wellbeing, but after a certain point other things such as the incomes of others also start to matter. Health is essential to wellbeing, and stable partnerships, stable marriages, and social relationships also play a role. Women are typically happier than men, except in contexts where their rights are severely compromised (Graham & Chattopadhyay, 2013). And because these patterns are so consistent across diverse countries and cultures, scholars in the field can control for these factors and explore the wellbeing effects of phenomena that vary more, such as inflation and unemployment rates, crime and corruption, smoking, drinking, and exercising, and the nature of public goods, among others (Frey & Stutzer, 2002; Blanchflower & Oswald, 2004; Graham, 2009; Graham, 2008; Helliwell, Layard, & Sachs, 2013). There is also a nascent literature on the causal properties of wellbeing, which finds that happier people are, for the most part, healthier and more productive (Graham, Eggers, & Sukhtankar, 2004; DeNeve & Oswald, 2012).

Within this broader framework, we undertook the first extensive survey of wellbeing in Mongolia, a unique context for a number of reasons. Mongolia, landlocked between China and Russia, is home to one of the world's last surviving nomadic cultures, and the country is not only very remote, but also the least densely populated one in the world after Greenland. Citizens in Mongolia recently experienced an unusually dramatic transition in the nature of their economy and political system. After 70 years under a socialist rule, the country made a transition to a

Carol Graham
The Brookings Institution
cgraham@brookings.edu

market economy in the early 1990s, and recently experienced economic growth rates which were among the highest in the world (17.2% in 2011), fueled by a mining boom. Mongolia also ranks number one in the world in terms of having the smallest gender gaps in economic participation and opportunity, and in health and survival.[1]

For all of these reasons, one could expect that wellbeing trends in Mongolia might diverge from the usual patterns that we find elsewhere, and a primary question for us was whether the basic patterns in the determinants of wellbeing trends would hold in Mongolia. On the one hand, the basic determinants of wellbeing are fairly consistent in countries around the world (Graham, 2009). On the other, there are some departures for the transition economies in general compared to the EU and to Latin America, such as a higher correlation between income and wellbeing but a smaller one for unemployment (this may be due to generous unemployment benefits in some transitions economies and/or to the increasing importance of the informal economy in others). The transition economies also display a stronger correlation between freedom to choose and wellbeing than do those in Latin America (but not compared to Europe) (Graham & Nikolova, 2015).

Because of the detailed and disaggregated nature of the data that we collected through our survey, we were able to explore additional questions that larger scale, less fine-grained data sets do not allow for.[2] In particular, we focused on the standard determinants of wellbeing and how they varied, depending on where in the income distribution respondents were, as well as some additional determinants that are unique to the Mongolian context and available through the survey. As is increasingly common in the literature, we analyzed two distinct dimensions of wellbeing – hedonic and evaluative – separately, comparing our findings across these dimensions in Mongolia to those that we have based on worldwide data (Graham & Nikolova, 2015). These two distinct and measurable dimensions of wellbeing capture different aspects of human lives.[3] The first is hedonic wellbeing, which captures the manner in which individuals experience their daily lives, the quality of those lives, and their moods (both positive and negative) during those experiences. The second is evaluative wellbeing, which captures how people think about and assess their lives as a whole. The latter dimension implicitly includes eudaimonic wellbeing – how much purpose or meaning people have in their lives – although there are also aspects of daily experiences which can be purposeful but not pleasurable (such as reading the same story over and over again to a child) and others which are pleasurable but not purposeful (such as watching television).

Hedonic wellbeing is typically measured with questions that gauge positive affect on the one hand (smiling yesterday or happy yesterday, for example) and negative affect (anger or stress yesterday) on the other. Psychologists emphasize that there is not a simple continuum running from positive to negative dimensions, as people can experience both at the same time, such as happiness and stress (e.g., Stone & Mackie, 2013). Evaluative wellbeing, meanwhile, is typically measured with questions which ask respondents about their satisfaction with their lives as a whole, or to compare their lives to the best possible life they can imagine.

[1] This is according to the Global Gender Gap Index 2012 from the World Economic Forum, which measures gender-based gaps in access to resources and opportunities around the world rather than the actual levels of the available resources and opportunities.

[2] While the Gallup World Poll has included Mongolia for several years, and the basic questions in our survey are similar, our survey has, in addition, a number of questions which are tailored to the unique Mongolian context.

[3] For a detailed discussion among many scholars in the field and their report for the National Academy of Sciences on wellbeing metrics and their distinct dimensions, see Stone and Mackie (2013).

Evaluative wellbeing typically correlates more closely with individual income than hedonic wellbeing, not least as life course evaluations extend well beyond momentary experiences and encompass the opportunities and choices that people have in their lives. A nascent body of research suggests that the dimension of wellbeing individuals value most may be mediated by their agency and capacity to control their lives (Kahneman & Deaton, 2010; Graham & Nikolova, 2015). Kahneman and Deaton (2010) find that income correlates much more closely with evaluative than hedonic wellbeing in the United States. The positive correlation between hedonic wellbeing and income tapers off at roughly USD75k, or, median income, but the association between income and evaluative wellbeing continues in a log-linear fashion. This suggests that beyond a certain point, additional income cannot make people enjoy their daily lives more (although insufficient income is clearly linked to suffering and negative moods), but higher levels of income offer people many more choices about how to live and what to do with their lives.

Graham and Nikolova (2015) find that individuals emphasize one wellbeing dimension over the other, depending on their agency and capabilities. Respondents with more means and agency (e.g., the capacity to make choices over the course that their life takes) tend to emphasize evaluative wellbeing more, while those with limited means and opportunities tend to emphasize daily experience more. They also find that income and agency are less important to the wellbeing of respondents who are at the highest levels of the wellbeing distribution. As noted above, income and freedom to choose have a relatively high importance for the wellbeing of transition economy respondents compared to other regions, while unemployment status seems to matter less. This may be because both differential monetary rewards for effort and skills, and freedom to choose were sorely lacking in many countries under central planning, and are thus more appreciated in the post-transition context.

There is a wide literature and extensive debate on the relationship between relative income and wellbeing. This is, in part, because the effects of inequality on individual welfare – which seem to partially hinge on comparisons with peers, neighbors, or other relevant cohorts – are rarely captured by large-scale aggregate measures. In part, it is because inequality signals different things to different people, depending on the context. Some studies in the transition economies find that inequality has positive signaling effects rather than negative comparison effects (Senik, 2004; Cojocaru, 2012); we explore this in the Mongolian context below.

2. Mongolia in transition: The context

Mongolia is one of the most sparsely populated countries in the world, with a population of around 2.8 million in 2012 and land area of 1.56 million square kilometers (see Table 1 below). It is also home to one of the world's last surviving nomadic cultures, with approximately 40% of the country's workforce still maintaining a nomadic lifestyle and herding livestock. With a GDP per capita of around $3,600 and a GDP of $10.32 billion in 2012, Mongolia falls into the lower middle income category, according to the World Bank classifications.

After 70 years under socialist rule, the country experienced a relatively peaceful transition from a centrally planned socialist economy to a market economy, following the fall of the Soviet Union, and democratic government quickly emerged. Currently, the country is governed by a mixed presidential-parliamentary system, and despite political crises from time to time, Mongolia is considered free and relatively stable with little violence. Many, in fact, highlight how on the Freedom House global map, Mongolia appears as an island with its "free" status surrounded by other nations rated as "not free."

Table 1. Key statistics for Mongolia, 2012

		Average	
	Mongolia	Lower Middle Income	Global
GDP (current $ billion)	10.32		
Population (million)	2.79		
Human Development Index rank	103/187		
Poverty at national poverty line (% of population)	27.40		
Gini coefficient, 2003-2012	36.52		
Population density (People per sq.km of land area)	1.80	121.40	54.29
GDP per capita (current $)	3,691.05	1,998.64	10,437.76
GDP growth (%)	12.40	4.55	2.26
Life expectancy at birth (years)	67.34	66.21	70.78
Unemployment (% of total labor force)	5.20	5.29	5.95
Adult literacy rate (% of people ages 15+), 2010	98.26	70.58	84.29
Female labor force participation rate (% of female population ages 15+)	56.10	36.28	50.20
Ratio of female to male labor force participation rate (%)	81.54	48.11	68.25

Source: World Development Indicators, UNDP

The transition period, however, also brought deep recession, hyperinflation, and food shortages – common in many other post-Soviet countries. Overall, the transition economies experienced substantial drops in both income and wellbeing during the change from centrally planned to market economies, with wellbeing demonstrating a U-shaped curve over time: falling dramatically in the initial transition years and then recovering as economies stabilized and grew. The extent to which wellbeing recovered to its pre-transition levels, though, depends on particular countries and the state of their economies. When split into specific domains, meanwhile, wellbeing recovered more in pecuniary areas – such as financial satisfaction – than it did in others, such as health satisfaction and satisfaction with family life. Given the dramatic changes that occurred in most post-Soviet countries' social welfare systems, this is not a surprise (e.g., Easterlin, 2009).

In recent years, however, the Mongolian economy has been growing rapidly, fueled by a mining boom. The economy grew by 17.2% in 2011 and 12.4% in 2012, among the highest in the world and expected to grow at a double-digit rate over the period from 2013 to 2017, according to the World Bank. Although the rapid economic growth raised the GDP per capita from $514 in 2005 to $3,691 in 2012, Mongolia ranked 103rd out of 186 countries in 2012 in terms of human development, according to the United Nations Human Development Index. In addition, about one-third of the population lives in poverty, according to Mongolian national statistics. The Gini coefficient for the 2003-2012 period was a relatively low 36.52, as shown in Table 1 above. Hence, it faces many challenges that are common to transition economies, as well as many that are unique to the country and its people.

Some of the notable features of the country and its people include a high adult literacy rate of 98.26% and high female labor force participation. As noted briefly above, gender gaps are relatively small in Mongolia, and labor force participation as a percentage of the female population and the ratio of female to male labor force participation are higher than the global

and lower middle income country averages (see Table 1 above), and Mongolia ranks number one in the world in terms of small gender gaps in the two categories of economic participation and opportunity, and health and survival, according to the Global Gender Gap Index 2012. Moreover, approximately half of the population follows Tibetan Buddhism, and about 40% of the people do not practice any religion, according to various national statistics, in part due to the ban that was placed on religious practice under the communist government. Shamanism/Tengrism, which was the dominant religion historically, is also experiencing a modern revival, and Mongolians commonly refer to their homeland as "the Land of Eternal Blue Sky".

As for wellbeing data, unfortunately, we do not have good time trend data for Mongolia, as the Gallup World Poll only began polling there in 2005. Trends from 2005 on have been fairly stable, although with a significant downward dip in 2012. It is also important to note that wellbeing levels in Mongolia are quite low compared to the rest of the world and even in comparison to the rest of the transition economies, with Mongolia scoring higher than some countries such as Bulgaria, Georgia, and Ukraine, but lower than many others, including China, Kyrgyzstan, and Serbia (see Table 2 below).

Table 2. Best possible life for Mongolia, all available years

Year	Obs.	Mean	Std. Dev.	World Rank	Transition Countries Rank
2007	943	4.611	1.690	81/104	21/26
2008	979	4.392	1.606	98/114	15/16
2010	995	4.590	1.729	98/125	20/27
2011	995	5.057	1.672	73/126	16/28
2012	993	4.785	1.566	98/140	24/30
All years	4,905	4.689	1.668		

Source: Gallup World Poll Data, 2008-2009, 2011-2013

Note: "Best possible life" (BPL) measures the respondent's assessment of her current life relative to her best possible life on a scale of 0 to 10, where 0 is the worst possible life, and 10 is the best possible life. The table shows the country means and standard deviations for each year. World rank means that Mongolia was ranked 81 out of 104 countries in 2007, for example, where Denmark was ranked as being 1 (i.e., having the highest possible BPL score). Transition countries rank gives the respective rank among transition countries. Transition countries are defined as in Guriev and Zhuravskaya (2009), and are as follows: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, FYROM, Moldova, Poland, Romania, Russia, Serbia and Montenegro, Slovak Republic, Slovenia, Tajikistan, Ukraine, and Uzbekistan. Given recent world developments, Kosovo and Montenegro are added to this list. Not all countries are surveyed for all years.

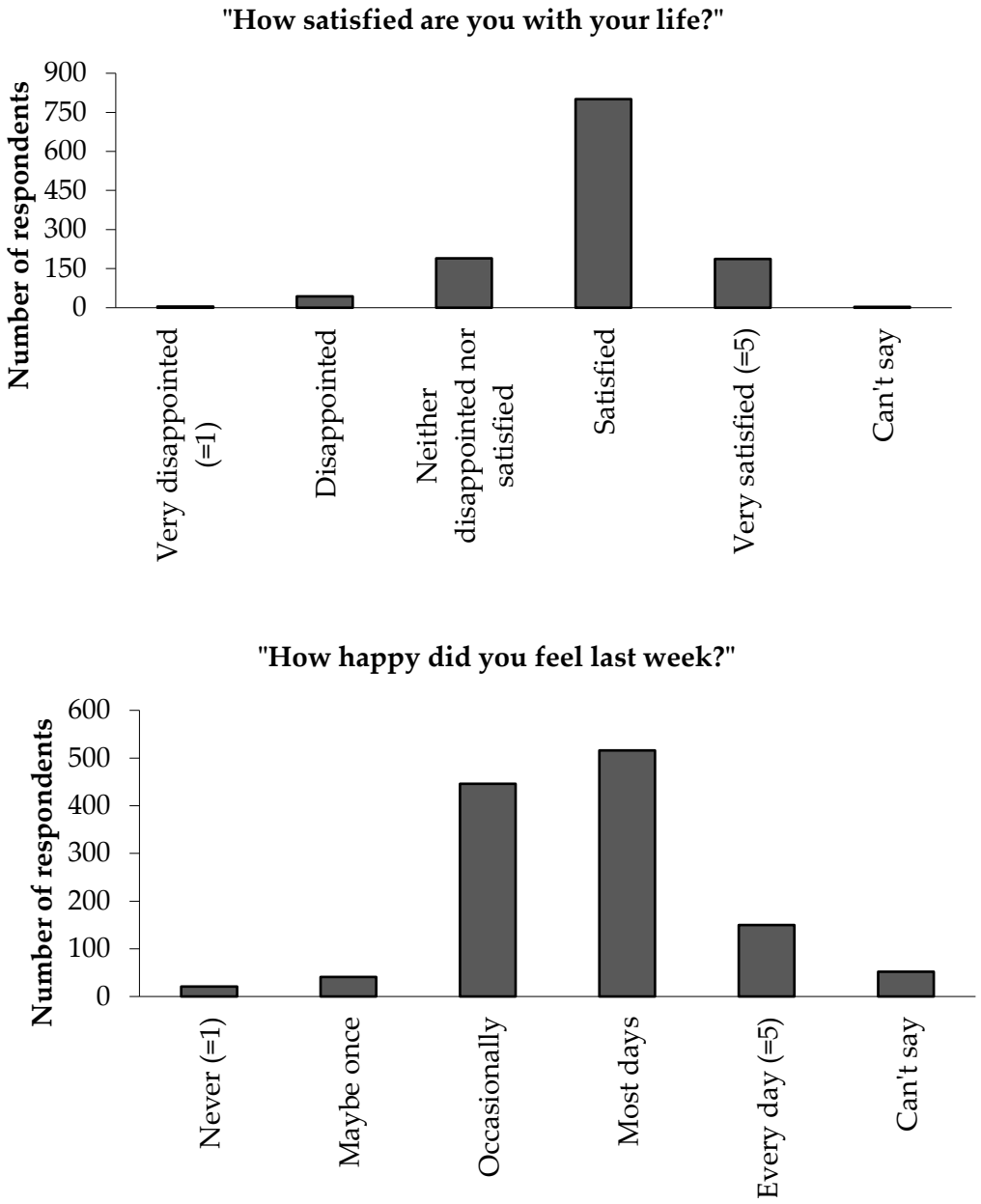
Meanwhile, Mongolia ranks in the top third of countries (41 out of 125) making positive changes in wellbeing rankings from 2005 to 2015. And compared to other factors such as GDP per capita, health status, and freedom to make life choices, social support plays an important relative role in overall determinants of Mongolia's life satisfaction rankings compared to other countries (Helliwell, Layard, & Sachs, 2015).

The most recently released Gallup data, for 2013 and 2014, show consistency in Mongolia's mean levels of wellbeing – rising slightly to 4.90 in 2013 and then down a little to 4.77 for 2014, but still in the same range. Mongolia's average world ranking for 2010-2012 was 102, and then 100 for 2013-2014. That may reflect a slight improvement in ranking, but also the fact that several additional countries were added to the poll in the last two years (Gallup World Polls data, 2013-2014).

3. Data and methods

Our survey was modeled on a wide range of other wellbeing surveys around the world and included the usual socio-demographic information, as well as an evaluative wellbeing question (life satisfaction on a 5-point scale) and a hedonic wellbeing question (how happy an individual felt last week, also on a 5-point scale). Typically, evaluative questions are more susceptible to question framing effects, and thus the life satisfaction question was asked before the hedonic (happy last week) question.[4] The correlation between the responses to the two questions is .27, which confirms that while they are indeed related, they are capturing different facets of wellbeing. For the distribution of responses across these two main wellbeing variables, see Figure 1 below.

Figure 1. Frequency distribution of *life satisfaction* and *"happy last week"*



[4] For details about question framing and other measurement issues, please see the recent National Academy of Sciences report on wellbeing measurement, to which one of the authors contributed; Stone and Mackie (2013).

While the two questions are related, we used both separately in different regressions (as discussed below). In the last set of regressions, we also used an additional question about enjoying life as a control for innate affect/personality traits. In the absence of panel data and the ability to control for person fixed effects, including a question which gauges positive affect/optimism in cross section data is a next best approach, which is increasingly common in the literature.[5] For details on the variables in the questionnaire, see the Appendix.

Mongolia has a capital city of Ulaanbaatar and 21 provinces (*aimags*), which are subdivided into 329 counties (*soums*). Soums, in turn, are further divided into *bags*, which are less formal administrative units. Our survey was carried out by the Chamber of Commerce and Industry of Orkhon-Bulgan provinces in Orkhon Province during the period of October-December 2012, and it is the first-ever conducted survey of its kind in Mongolia. It covered 1,225 randomly selected respondents between the ages of 15 and 65 from 1,225 households across 20 *bags*, which represents 5.1% of all households in the province. Compared to other provinces, Orkhon is geographically smaller, and is centered around Erdenet, the second largest city in Mongolia. Hence, Orkhon province is essentially the outer regions of the second largest city in Mongolia (which is still a relatively small city – 80,000 in population, given Mongolia's largely rural nature). Therefore, urban-rural differences, which can be a big issue in some contexts, are less of an issue in this case, as there are no major differences in urban/rural settings across the province. Summary statistics of the survey are provided in Table 3 below.

Our baseline regression in Table 4 below is an ordered logistic model, as this specification is usual for categorical variables which are ordinal but not cardinal in nature. We also re-ran the same baseline regression with an ordinary least squares (OLS) specification and got essentially identical results.[6] Therefore, we have utilized OLS regressions and both raw and standardized coefficients throughout the rest of the analyses. The linear specification makes it easier to compare the coefficients across the equations, as, for example, when we split our sample (Table 5 below). Standardized coefficients, meanwhile, provide a measure of relative influence of the various explanatory variables. While OLS results usually demonstrate the effect of a one-unit change in the independent variable on the dependent variable, one cannot interpret the results the same way when the various independent variables have different scales (as is common with wellbeing data) and thus it is necessary to standardize the coefficients, following Fields (2004).

[5] For a summary of the approach, see Graham and Lora (2009), Chapter 2.

[6] It is increasingly common to treat wellbeing data as "cardinal," at least in practice, if not in theory, and to use OLS specifications when they are more adequate for the question at hand. See Van Praag and Ferrer-i- Carbonell (2008).

Table 3: Descriptive statistics

Variable	Mean	Median	Min	Max	St. Dev	N
Measures of Well-Being						
Life satisfaction	3.92	4	1	5	0.69	1,223
Happy last week	3.62	4	1	5	0.82	1,174
Explanatory Variables						
Income	2.91	3	0	5	1.45	1,226
Relative income	-0.02	0	-4	3	1.42	1,226
Unemployed	0.12	0	0	1	0.32	1,226
Married	0.65	1	0	1	0.48	1,226
Lives with extended family	0.19	0	0	1	0.39	1,226
Age	35.81	34	15	65	12.88	1,226
Enjoys life	3.09	3	1	4	0.53	1,225
Freedom satisfaction	3.62	4	1	5	0.86	1,209
Dream fulfillment	3.12	3	1	5	0.95	1,225
Health	3.54	4	1	5	0.71	1,226
Exercise	1.58	1	1	5	1.05	1,225
Alcohol use	0.28	0	0	1	0.45	1,226
Female	0.51	1	0	1	0.50	1,226
Education	4.54	4	1	6	1.15	1,226
Home ownership	0.88	1	0	1	0.32	1,226
Lives in *ger* dwelling	0.58	1	0	1	0.49	1,226
Religion	0.69	1	0	1	0.46	1,226
Income-related stress	0.47	0	0	1	0.50	1,226
Health-related stress	0.16	0	0	1	0.36	1,226
Living environment-related stress	0.20	0	0	1	0.40	1,226
Family-related stress	0.08	0	0	1	0.27	1,226
Job-related stress	0.13	0	0	1	0.36	1,226
Number of stress triggering areas	1.14	1	0	6	1.06	1,226

Table 4: Determinants of wellbeing in Mongolia, baseline regressions (ordered logistic and linear)

	Ordered Logistic				OLS					
	(1)		(2)		(3)			(4)		
	Life satisfaction		Happy last week		Life satisfaction			Happy last week		
	Raw coeff.	p-value	Raw coeff.	p-value	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value
Income	0.225***	0.00	0.127***	0.00	0.069***	0.146***	0.00	0.043**	0.076**	0.02
Unemployed	-0.604***	0.00	-0.504***	0.00	-0.198***	-0.093***	0.00	-0.231***	-0.091***	0.00
Married	0.541***	0.00	0.014	0.91	0.186***	0.130***	0.00	0.011	0.006	0.85
Lives with extended family	-0.323**	0.04	-0.229	0.11	-0.095**	-0.054**	0.04	-0.092	-0.044	0.13
Age	-0.055*	0.08	-0.073**	0.01	-0.019*	-0.358*	0.05	-0.031**	-0.491**	0.01
Age^2	0.001*	0.09	0.001**	0.03	0.000*	0.339*	0.06	0.000**	0.427**	0.03
Health	0.532***	0.00	0.289***	0.00	0.166***	0.171***	0.00	0.118***	0.102***	0.00
Exercise	0.166***	0.00	0.053	0.33	0.050***	0.077***	0.01	0.011	0.014	0.63
Alcohol use	-0.306**	0.03	-0.088	0.50	-0.084*	-0.055*	0.05	-0.039	-0.021	0.48
Female	-0.140	0.27	-0.040	0.74	-0.039	-0.028	0.32	-0.019	-0.012	0.70
Education	0.027	0.64	0.056	0.31	0.010	0.017	0.57	0.028	0.039	0.23
Lives in *ger* dwelling	-0.184	0.16	0.133	0.27	-0.056	-0.041	0.16	0.052	0.032	0.30
Home ownership	0.398**	0.03	0.177	0.31	0.129**	0.060**	0.03	0.067	0.026	0.37
Religion	0.153	0.25	0.001	1.00	0.061	0.041	0.13	-0.019	-0.011	0.71
Constant					3.189***		0.00	3.529***		0.00
Observations	1,222		1,174			1,222			1,174	
R-squared						0.134			0.056	
Log likelihood	-1124.29		-1348.45							
Nagelkerke *R*-square	0.150		0.069							
Cox-Snell *R*-square	0.129		0.063							

* p<0.10, ** p < 0.05, *** p<0.01

Table 5: Determinants of wellbeing in income subsamples, linear regression

	Life satisfaction						Happy last week					
	(1)			(2)			(3)			(4)		
	< Median income			> Median income			< Median income			> Median income		
	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value
Income	0.082	0.072	0.13	0.047	0.038	0.43	0.133**	0.104**	0.04	0.035	0.021	0.68
Unemployed	-0.106	-0.058	0.22	-0.296**	-0.114**	0.02	-0.094	-0.046	0.34	-0.339*	-0.094*	0.06
Married	0.212***	0.142***	0.00	0.152**	0.116**	0.05	0.005	0.003	0.95	-0.077	-0.042	0.48
Lives with extended family	-0.090	-0.047	0.28	-0.090	-0.059	0.22	-0.100	-0.048	0.29	-0.097	-0.046	0.36
Age	-0.033**	-0.622**	0.03	-0.009	-0.175	0.61	-0.056***	-0.935***	0.00	0.017	0.244	0.49
Age^2	0.000**	0.597**	0.04	0.000	0.172	0.60	0.001***	0.859***	0.00	-0.000	-0.252	0.46
Health	0.147***	0.146***	0.00	0.172***	0.188***	0.00	0.117**	0.104**	0.03	0.133**	0.104**	0.04
Exercise	0.069**	0.094**	0.04	0.023	0.042	0.39	-0.003	-0.004	0.93	-0.034	-0.044	0.38
Alcohol use	-0.116	-0.068	0.13	-0.150**	- 0.109**	0.03	0.021	0.011	0.81	-0.133	-0.070	0.17
Female	-0.038	-0.026	0.58	-0.042	-0.035	0.48	-0.032	-0.019	0.69	0.010	0.006	0.91
Education	-0.019	-0.028	0.54	0.016	0.030	0.57	0.037	0.047	0.32	0.006	0.008	0.89
Lives in *ger* dwelling	-0.071	-0.044	0.33	-0.041	-0.034	0.50	-0.031	-0.017	0.71	0.143	0.083	0.11
Home ownership	0.147*	0.073*	0.10	0.211*	0.090*	0.06	-0.045	-0.020	0.65	0.365**	0.108**	0.03
Religion	0.046	0.029	0.50	0.080	0.058	0.23	-0.001	-0.001	0.99	-0.005	-0.003	0.96
Constant	3.556***		0.00	3.024***		0.00	3.919***		0.00	2.522***		0.00
Observations		511			430			490			415	
R-squared		0.091			0.094			0.075			0.054	

* p<0.10, ** p < 0.05, *** p<0.01

4. Results

4.1 Baseline regression with standard determinants of wellbeing in Mongolia

Our results from the baseline regression in Table 4 above with the standard determinants demonstrate that the basic determinants of wellbeing are no different in Mongolia than they are anywhere else, despite the unique context and the dramatic economic and political transition the country has experienced. We used both ordered logistic and linear regressions and obtained identical results. With evaluative wellbeing as the dependent variable (which is the most common specification), income, employment, health (self-reported), and marriage are all important to wellbeing there, as in other places (Table 4 above). When we look across wellbeing dimensions, we found, not surprisingly, that the income variable was more significant for evaluative wellbeing than for hedonic wellbeing. As is noted above, hedonic wellbeing typically correlates less closely with income (and other agency related variables), as it is more closely related to day-to-day experience and to innate affect levels than is evaluative wellbeing. Along these same lines, the coefficient on marriage is positive, and is significant on life satisfaction, but not significant on "happy last week." Living with an extended family is not an uncommon arrangement, and 19% of respondents did indicate that they live in such families. Those living with an extended family reported lower evaluative wellbeing, but not hedonic wellbeing, in the baseline regression.

The classic U-shaped age curve, meanwhile, also holds for Mongolia, with the lowest point in happiness being at 41 years of age. This is on the young end of the curve for most countries (it is 50 in Russia, for example, 48 years on average for Latin America, and approximately 44 years of age in the UK and the US), but may in part be explained by fairly low levels of life expectancy in Mongolia. Life expectancy was 67.34 years in 2012, compared to 69 years in Russia, 73 in China, and 82 in Japan.[7] In addition, given the rapid pace of economic and social changes in recent decades, strong generational differences exist in personal outlook and values. Indeed, the standardized coefficients on age are the largest among all the estimated coefficients for both wellbeing dimensions.

Furthermore, the coefficient on health is positive for both wellbeing dimensions but smaller in size on "happy last week." The standardized coefficients show that health is the second most important determinant of both evaluative and hedonic wellbeing after age. Exercise is positively correlated with life satisfaction but not with "happy last week," while alcohol use is negatively correlated with life satisfaction, but not with "happy last week."

We also included other variables in the baseline regressions, such as gender, education, home ownership, dwelling type, and religion. As Table 4 above shows, there was no significant gender difference in wellbeing. This is a departure from the average for the world as a whole, where women typically have higher wellbeing levels than men, except in contexts where gender rights are compromised (Graham & Chattopadhyay, 2013). Mongolia stands out due to its relatively low degree of gender inequality in certain areas on the one hand, and lack of differences in wellbeing levels across genders on the other. Due to the nomadic heritage and communist legacy, Mongolian women actively participate in all arenas of business and society, with the number of female college graduates, as well as the number of doctors and lawyers exceeding that of men, as reported by the National Statistical Office of Mongolia.

We also looked at whether living in a *ger*: the round, portable, felt-covered traditional dwelling structure (also called a "yurt") was correlated with wellbeing measures. Most people

[7] For the age curve around the world, see Graham (2009). Detailed results on how the age curve was calculated are available from the authors.

living in rural areas still reside in this traditional dwelling with little infrastructure, and many families that have migrated to urban areas have also settled into *ger* districts on the outskirts of urban areas. In the baseline regression, there was no significant difference based on living in *gers*. In line with evaluative (hedonic) wellbeing typically correlating more (less) closely with agency related variables, owning one's home, regardless of whether it is an apartment or a *ger* is associated with higher evaluative wellbeing.

Whether an individual reported being associated with a certain religion was not significant, which is also a departure from the average for the world, in which individuals who associate with a religion are typically happier than those who do not (except in the context of extreme religions) (Graham & Crown, 2013). Despite Buddhism being one of the most important influences on Mongolian culture, with approximately half of the population following Tibetan Buddhism, and Shamanism/Tengrism experiencing a revival, the ban that was placed on religious practice under the communist government significantly weakened the role of religion, and about 40% of the people do not practice any religion, according to various national statistics. As such, not associating with a religion is as much a norm in Mongolia as associating with one.

Level of education was also not significant (Table 4 above). Despite Mongolia boasting one of the highest literacy rates in the world at 98%, the education system is still mismatched to the needs of the economy, as highlighted by both a low-quality and outdated curriculum. This is common in transition economy contexts, where educational choices made prior to the transition may not translate into the expected job opportunities post-transition, and hence, education plays a smaller role in wellbeing than in developed economies. The finding is also in keeping with the comparative findings across regions, with the coefficient on education displaying less relative importance in its correlation with wellbeing than in either the EU countries or Latin America (Graham & Nikolova, 2015).

4.2 Additional determinants of wellbeing in Mongolia

In order to gain more insight into these subjective wellbeing measures, we split our sample into those respondents above and below median income, since the transition economy context is clearly different and comparisons can have positive signaling effects, at least for some cohorts, as Senik (2009) found in Russia (Table 5 above).[8] Communist regimes strived to achieve income equality, and such equality was much emphasized. It may also be that nowadays those above median income see higher levels of average income as a sign of progress and gains made in the transition, while poorer respondents may both perceive to be and/or actually be left behind in the transition process.

There were some notable findings and differences with our split sample specification. We found that once the sample was split, individual income was mostly not significant, except for the hedonic wellbeing of those *below* median income (Table 5 above). It is important to note that there is little variability in income in the subsamples once we split the sample into above and below median level of income and exclude the respondents at the median income. Not being gainfully employed, in contrast, lowered both dimensions of wellbeing only for those *above* median income. Marriage remained positive for the life satisfaction of respondents above and below median income. This contrasts with earlier work we have done on marriage and wellbeing based on worldwide data, in which we find that the positive coefficient on marriage only holds

[8] Since we split the sample into above and below median level of income and exclude the respondents at the median income, the number of observation varies slightly across subsamples.

for respondents in wealthier countries and regions and not in poorer ones (Graham & Chattopadhyay, 2013).

Age (and its square), the variable that explained the most variability in our baseline regression, was significant for both evaluative and hedonic wellbeing, but only for those *below* median income, a finding that is of interest. Health, on the other hand, was significant and positive for both dimensions of wellbeing for those *above* and *below* median income. This is in keeping with the relative importance of health to wellbeing in virtually all contexts and across wellbeing dimensions. Exercise was only significant and positive for the life satisfaction of those *below* median income, whereas alcohol use was significant and negative for the life satisfaction of those *above* median income. While we cannot fully explain these findings, they are suggestive of different lifestyles, depending on the means that respondents have.

Some recent studies have emphasized the importance of relative income, and utilized the income rank of a person within his or her community when studying the effect of income on subjective wellbeing. Given the emphasis on income equality under the communist regime and the extant wide literature and extensive debate on the relationship between relative income and wellbeing, we estimate the baseline regression with relative income in Table 6 below as a robustness test.

Table 6: Determinants of wellbeing with relative income, linear regression

	(1) Life satisfaction			(2) Happy last week		
	Raw coeff.	**Std. coeff.**	**p-value**	**Raw coeff.**	**Std. coeff.**	**p-value**
Relative income	0.056***	0.116***	0.00	0.035*	0.062*	0.05
Unemployed	-0.213***	-0.101***	0.00	-0.240***	-0.095***	0.00
Married	0.187***	0.131***	0.00	0.010	0.006	0.85
Lives with extended family	-0.092*	-0.053*	0.05	-0.089	-0.043	0.14
Age	-0.019***	-0.356***	0.05	-0.031***	-0.490***	0.01
Age^2	0.000***	0.334***	0.07	0.000**	0.425**	0.03
Health	0.171***	0.176***	0.00	0.120***	0.104***	0.00
Exercise	0.051**	0.079**	0.00	0.011	0.015	0.62
Alcohol use	-0.089**	-0.058**	0.04	-0.042	-0.023	0.44
Female	-0.044	-0.032	0.27	-0.021	-0.013	0.67
Education	0.017	0.029	0.33	0.032	0.045	0.16
Lives in *ger* dwelling	-0.106	-0.076	0.01	0.022	0.013	0.66
Home ownership	0.144**	0.067**	0.01	0.077	0.030	0.30
Religion	0.069	0.046	0.09	-0.014	-0.008	0.79
Constant	3.354***		0.00	3.632***		0.00
Clustered standard errors by *bag*		Yes			Yes	
Observations		1,222			1,174	
R-squared		0.130			0.055	

* p<0.10, ** p < 0.05, *** p<0.01

The effects of inequality on individual welfare – which seem to partially hinge on comparisons with peers, neighbors, or other relevant cohorts – are rarely captured by large-scale aggregate measures. In part, this is because inequality signals different things to different people, depending on the context. There are conflicting results at the country level, with some studies finding a negative correlation between inequality and life satisfaction, others finding weak results, and some even finding a positive correlation.[9] At more disaggregated regional levels, income inequality seems to be negatively correlated with life satisfaction in the US, the EU, and Latin America.[10] In contrast, Senik (2004) finds a positive effect of average regional level incomes in Russia, highlighting the potential role of positive signaling effects in contexts of uncertainty and transition (which could apply to Mongolia). In another exploration in the transition economy context, Cojocaru (2012) finds that the wellbeing effects of respondents' relative rank within neighborhoods are mediated by their beliefs about whether hard work or connections get one ahead in life. Those who have faith that hard work leads to upward mobility are not negatively affected by relative income differences, again likely because of positive signaling effects. More surprisingly, Clark (2003) also finds a positive correlation between region-level inequality and life satisfaction in the UK.

Finally, at the neighborhood level, which is what we examine in this paper, there are, again, different results. Luttmer (2005) finds a negative correlation between average neighborhood level incomes and life satisfaction in the United States, highlighting the role of negative comparison effects. Graham and Felton (2006) find that inequality is negatively correlated with life satisfaction in medium and large cities in Latin America, also suggesting comparison effects, but positively correlated in the smallest cities, where signaling effects seem to dominate. The work of Arrow (2009), meanwhile, suggests a related status-seeking channel, whereby people are willing to forego leisure to "pay" to be above median levels of income.

We compute relative income by subtracting the median community income from a respondent's income. Thus the higher the value, the greater the relative difference between the respondent's income and the average, and those respondents below median income will have negative scores. Community here refers to the *bag* the household belongs to. *Bag* is the smallest administrative unit outside of the capital city, and typically there are, at most, a few thousand individuals in a *bag*. In our sample, 1,225 respondents come from 20 *bags*. We replace respondents' income with relative income in our baseline model and estimate the regression with standard errors clustered by *bag*. It should be noted that income is an ordinal variable on the scale of 0-5, and thus, there is a limited variability in the relative income variable, with many respondents' income being no different from the community median.

The results in Table 6 above display a positive and significant coefficient on relative income for both dimensions of wellbeing. In other words, having higher levels of income compared to one's peers is positively associated with wellbeing, and having incomes below the median is negatively associated. These findings echo our split sample results and suggest that both signaling and comparison may be at play, depending on whether respondents are above or below median levels of income. Not surprisingly, the coefficient was weaker for hedonic wellbeing, which is typically influenced less by income (and income differentials) than evaluative wellbeing (Kahneman & Deaton, 2010).

[9] See, among others, Alesina et al. (2004); Graham and Felton (2006); Oishi et al. (2011); Schwarze and Harpfer (2007); and Van Praag and Ferrer-i-Carbonell (2009).
[10] See Blanchflower and Oswald (2003); and Graham and Felton (2006), among others.

Next, we focus on the reported sources of stress in Mongolia. Stress in general is strongly and negatively correlated with wellbeing, with stress related to circumstances beyond individuals' control having the worst effects (Haushofer & Fehr, 2014; Stone & Mackie, 2013). Respondents in our survey were asked whether they had income, health, living environment, family and job-related stress, and we further collapsed these variables into a reported total number of stress triggers variable, which we included in our equations. We find, not surprisingly, that the number of stress triggers or reported stress sources was negatively correlated with both life satisfaction and "happy last week" in Models 1 and 3 (Table 7 below).

When we look at the specific stress triggers in Models 2 and 4, we find that income, living environment, and family-related stresses were significant and negative for life satisfaction. Living environment related stresses include stresses due to the conditions of living environment and infrastructure, such as inadequate or unsatisfactory electricity and public transportation, which is common in many developing nations. Especially, in the case of transition countries, infrastructure was maintained and owned by the state and largely remains so today; quality may have suffered or failed to improve as part and parcel of the transition.

For hedonic wellbeing (happy last week), only income-related stress was significant and negative. The direction of causality on the latter is not clear, as some recent work finds that income matters more to the wellbeing of respondents who are lower on the wellbeing distribution (Binder & Coad, 2011; Graham & Nikolova, 2015).

Finally, in addition to the usual socio-economic and demographic controls, we also included a number of variables in our regressions which were intended to capture innate personality traits, such as optimism and cheerfulness (Table 8 below). These variables were "enjoys life," "freedom satisfaction," and "dream fulfillment." In the absence of panel data and the ability to include individual-fixed effects, including an additional question gauged to measure optimism or pessimism in cross-section data can help control for individual character traits, albeit far from perfectly. While this is increasingly common in the literature, there is still disagreement among scholars about whether or not it is appropriate to include perceptions variables in regressions where the dependent variable is also a subjective variable. We believe that the benefits of controlling (to the extent we can) for these unobservable traits outweigh the potential risks, and thus did so in an alternative specification from our baseline regressions.

"Enjoys life" is not a perfect proxy for more commonly used positive affect questions, such as "smiling or happy yesterday," but it at least approximates it and is the best fit question available in the survey.[11] "Dream fulfillment" asked whether respondents were able to achieve their dreams, while "freedom satisfaction" asked whether they were satisfied with their freedom of expression. These latter two variables capture dimensions of wellbeing – including optimism and perceptions of agency – which are close to but distinct from life satisfaction.

Not surprisingly, those who enjoy life had higher levels of both evaluative and hedonic wellbeing, as this variable likely reflects innate personality traits (Table 8 below). Dream achievement was also positively correlated with both evaluative and hedonic wellbeing. Positive perceptions tend to correlate together, and dream achievement is a very subjective variable, reflecting optimism, among other things; causality likely runs in both directions. Freedom of expression was positively correlated with life satisfaction, but not with "happy last week." Freedom of expression captures individuals' ability to achieve what they want to achieve more than the quality of their daily lives and/or enjoyment on a day-to-day basis.

[11] For a discussion of different interpretations of "enjoys life", for example, see Steptoe et al. (2012).

Table 7: Determinants of wellbeing with reported stress triggers, linear regression

	Life satisfaction						Happy last week					
	(1) w/ Number of stress-causing areas			(2) w/ Specific causes of stress			(3) w/ Number of stress-causing areas			(4) w/ Specific causes of stress		
	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value	Raw coeff.	Std. coeff.	p-value
Income	0.066***	0.138***	0.00	0.065***	0.137***	0.00	0.040**	0.071**	0.03	0.035*	0.062*	0.07
Unemployed	-0.182***	-0.086***	0.00	-0.214***	-0.101***	0.00	-0.222***	-0.087***	0.00	-0.233***	-0.092***	0.00
Married	0.191***	0.133***	0.00	0.199***	0.138***	0.00	0.013	0.007	0.82	0.030	0.018	0.59
Lives with extended family	-0.076	-0.044	0.10	-0.077	-0.044	0.10	-0.076	-0.037	0.20	-0.064	-0.031	0.29
Age	-0.013	-0.253	0.17	-0.014	-0.263	0.15	-0.027**	-0.431**	0.03	-0.026**	-0.414**	0.04
Age^2	0.000	0.225	0.21	0.000	0.237	0.19	0.000*	0.362*	0.06	0.000*	0.355*	0.07
Health	0.140***	0.144***	0.00	0.145***	0.149***	0.00	0.098***	0.085***	0.01	0.096***	0.083***	0.01
Exercise	0.048***	0.074***	0.01	0.049***	0.075***	0.01	0.010	0.012	0.67	0.006	0.008	0.79
Alcohol use	-0.077*	-0.050*	0.07	-0.078*	-0.051*	0.07	-0.032	-0.018	0.55	-0.045	-0.025	0.41
Female	-0.034	-0.025	0.38	-0.033	-0.024	0.40	-0.012	-0.008	0.80	-0.021	-0.013	0.68
Education	0.014	0.024	0.42	0.014	0.023	0.44	0.031	0.044	0.17	0.029	0.042	0.20
Lives in *ger* dwelling	-0.051	-0.037	0.20	-0.054	-0.039	0.18	0.057	0.035	0.26	0.062	0.037	0.22
Home ownership	0.117**	0.055**	0.04	0.118**	0.055**	0.04	0.061	0.024	0.41	0.062	0.024	0.40
Religion	0.075*	0.050*	0.06	0.081**	0.054**	0.05	-0.008	-0.005	0.87	-0.010	-0.006	0.84
No. of stress triggers	-0.099***	-0.152***	0.00				-0.070***	-0.090***	0.00			
Income-related stress				-0.140***	-0.102***	0.00				-0.197***	-0.120***	0.00
Health-related stress				-0.066	-0.035	0.21				-0.085	-0.037	0.21
Living env.-rel. stress				-0.114**	-0.066**	0.02				0.072	0.035	0.24
Family-related stress				-0.139**	-0.054**	0.05				-0.034	-0.011	0.70
Job-related stress				-0.055	-0.027	0.33				-0.040	-0.016	0.58
Constant	3.289***		0.00	3.279***		0.00	3.597***		0.00	3.618***		0.00
Observations		1,222			1,222			1,174			1,174	
R-squared		0.155			0.158			0.063			0.070	

* p<0.10, ** p < 0.05, *** p<0.01

Table 8: Additional determinants of wellbeing in Mongolia, linear regression

	(1) Life satisfaction			(2) Happy last week		
	Raw coeff.	**Std. coeff.**	**p-value**	**Raw coeff.**	**Std. coeff.**	**p-value**
Income	0.036**	0.076**	0.01	0.017	0.031	0.35
Unemployed	-0.140**	-0.066**	0.01	-0.207***	-0.081***	0.01
Married	0.172***	0.121***	0.00	-0.006	-0.003	0.92
Lives with extended family	-0.073	-0.042	0.11	-0.057	-0.028	0.34
Age	-0.012	-0.227	0.20	-0.026**	-0.409**	0.04
Age^2	0.000	0.180	0.30	0.000	0.316	0.10
Health	0.112***	0.116***	0.00	0.079**	0.069**	0.03
Exercise	0.039**	0.060**	0.02	0.002	0.002	0.94
Alcohol use	-0.067	-0.045	0.10	-0.046	-0.026	0.40
Female	-0.048	-0.036	0.19	-0.028	-0.017	0.57
Education	0.001	0.001	0.97	0.020	0.029	0.37
Lives in *ger* dwelling	-0.061	-0.045	0.11	0.051	0.031	0.31
Home ownership	0.059	0.028	0.29	0.023	0.009	0.76
Religion	0.026	0.017	0.51	-0.044	-0.025	0.39
Enjoys life	0.225***	0.173***	0.00	0.163***	0.106***	0.00
Freedom satisfaction	0.163***	0.207***	0.00	0.035	0.037	0.21
Dream fulfillment	0.094***	0.130***	0.00	0.112***	0.130***	0.00
Constant	1.963***		0.00	2.823***		0.00
Observations		1,203			1,157	
R-squared		0.224			0.080	

* p<0.10, ** p < 0.05, *** p<0.01

It should be noted that democratic government quickly emerged in Mongolia following the fall of communism, and, as discussed above, Mongolia stands out amongst its neighbors for its high levels of freedom. Currently, the country is governed by a mixed presidential-parliamentary system, and despite political crises from time to time, Mongolia is considered free and relatively stable with little violence.

The standardized coefficients of these additional variables are relatively large, as shown in Table 8 above, and fit in with the findings discussed above on the relative importance of freedom in the transition context in general. Our results are essentially unchanged when we re-ran the regressions without "dream fulfillment" and "freedom satisfaction," but with "enjoys life" included in an unreported regression.

5. Conclusions

We built from the burgeoning literature on wellbeing around the world and conducted the first extensive study of wellbeing in Mongolia, a remote and sparsely populated country that has experienced an unusually dramatic transition in both its economy and polity in recent decades. Despite the unique context, we found that the standard determinants of wellbeing were no different in Mongolia than they are for most countries in the world, with individual income, health, marital status, and exercise all positively associated with life satisfaction. The same variables had weaker correlations with "happy last week," our measure of hedonic wellbeing. This also accords with previous findings in the literature. The classic U-shaped relationship between age and happiness also held, with the low point in Mongolia being 41 years, which is slightly younger than usual, but makes sense, given the lower average level of life expectancy in Mongolia, and also very significant generational differences due to the rapid economic and social change in recent decades. Finally, since women typically have higher levels of wellbeing than men on average (around the world), our finding that they do not have higher levels than men in Mongolia seems a paradox, given the country's relatively high levels of gender parity.

We also tested additional contextual variables. When we split our sample into respondents above and below median levels of incomes, we found some notable differences in our results from those in other places. We found that relative income differences (each respondent's difference from the community median) were positive for those above median income and negative for those below. The standard interpretation of comparison effects is that they matter more after people have sufficient income and the "luxury" of worrying about the incomes of others. Yet the transition economy context is different and comparisons may have positive signaling effects, at least for those who are doing better than the average, and negative ones for those who are left behind.

Stress is negative for wellbeing in most contexts, and Mongolia is no exception. Concerns about income and family stood out as particular triggers of stress, as did concerns about the living environment. Satisfaction with freedom of expression also surfaced as an important and positive component of evaluative wellbeing, and may reflect the extent to which Mongolia stands out for having established democratic governance from the inception of its transition.

In sum, while there are no major surprises in our study, the consistencies that we find in wellbeing determinants in such a remote and unique setting – which has undergone dramatic economic and political changes – provide yet another example of how remarkably similar the correlates of subjective wellbeing are across peoples, cultures, and contexts around the world.

Acknowledgments

We thank Andrew Clark, Soumya Chattopadhyay, and Milena Nikolova for helpful comments on different sections of the work.

Authors

Tuugi Chuluun
Loyola University Maryland

Carol Graham
The Brookings Institution
cgraham@brookings.edu

Sarandavaa Myanganbuu
Mongolian National Chamber of Commerce and Industry

Publishing Timeline

Received 22 January 2016
Accepted 22 June 2016
Published 14 October 2016

References

Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and happiness: Are Europeans and Americans different? *Journal of Public Economics, 88,* 2009-2042. http://dx.doi.org/10.1016/j.jpubeco.2003.07.006

Arrow, K. (2009). Conspicuous consumption, inconspicuous leisure. *The Economic Journal, 119* (November), F497-F516. http://dx.doi.org/10.1111/j.1468-0297.2009.02318.x

Binder, M., & Coad, A. (2011). From Average Joe's happiness to Miserable Jane and Cheerful John: Using quantile regressions to analyze the full subjective well-being distribution. *Journal of Economic Behavior & Organization, 79*(3), 275-290. http://dx.doi.org/10.1016/j.jebo.2011.02.005

Blanchflower, D., & Oswald, A. (2004). Well-being over time in the USA and Britain. *Journal of Public Economics, 88,* 1359-1387. http://dx.doi.org/10.1016/S0047-2727(02)00168-8

Clark, A. (2003). *Inequality aversion and income mobility: A direct test.* Paris, France: DELTA.

Cojocaru, A. (2012). *Essays on inequality, social mobility, and redistributive preferences in a transition economy context* (Doctoral dissertation, School of Public Policy, University of Maryland).

De Neve, J. E., & Oswald, A. J. (2012). Estimating the influence of life satisfaction and positive affect on later income using sibling fixed effects. *Proceedings of the National Academy of Sciences, 109*(49), 19953-19958. http://dx.doi.org/10.1073/pnas.1211437109

Fields, G. S. (2004). *Regression-based decompositions: A new tool for managerial decision-making*. Ithaca, NY: Department of Economics, Cornell University.

Frey, B., & Stutzer, S. (2002). *Happiness and economics*. Princeton, NJ: Princeton University Press.

Easterlin, E. (2009). Lost in transition: Life satisfaction on the road to capitalism. *Journal of Economic Behavior and Organization, 71,* 130-145. http://dx.doi.org/10.1016/j.jebo.2009.04.003

Graham, C. (2008). The economics of happiness. In S. Durlauf & D. Blume (Eds.), *The new Palgrave dictionary of economics* (2nd ed.). London, England: Palgrave-MacMillan. http://dx.doi.org/10.1057/9780230226203.0702

Graham, C. (2009). *Happiness around the world: The paradox of happy peasants and miserable millionaires*. Oxford, England: Oxford University Press. http://dx.doi.org/10.1093/acprof:osobl/9780199549054.001.0001

Graham, C., & Chattopadhyay, S. (2013). Gender and well-being around the world. *International Journal of Happiness and Development, 1*(2), 212. http://dx.doi.org/10.1504/IJHD.2013.055648

Graham, C. & Crown, S. (2014). Religion and wellbeing around the world: Social purpose, social time, or social insurance? *International Journal of Wellbeing, 4*(1), 83-99. http://dx.doi.org/10.5502/ijw.v4i1.1

Graham, C., Eggers, A., & Sukhtankar, S. (2004). Does happiness pay? An initial exploration based on panel data from Russia. *Journal of Economic Behavior and Organization*, *55,* 319-42.

Graham, C., & Felton A. (2006). Inequality and happiness: Insights from Latin America. *Journal of Economic Inequality, 4,* 1007-1122. http://dx.doi.org/10.1007/s10888-005-9009-1

Graham, C., & Lora, E. (Eds.). (2009). *Paradox and perception: Measuring quality of life in Latin America*. Washington, D.C: The Brookings Institution Press.

Graham, C., & Nikolova, M. (2015). Bentham or Aristotle in the development process? An empirical investigation of capabilities and subjective well-being. *World Development, 68,* 163-179. http://dx.doi.org/10.1016/j.worlddev.2014.11.018

Haushofer, J., & Fehr, E. (2014). On the psychology of poverty. *Science, 344*(6186), 862-867. http://dx.doi.org/10.1126/science.1232491

Helliwell, J., Layard, R., & Sachs, J. (2013). *World happiness report, 2013*. Columbia: Earth Institute.

Helliwell, J., Layard, R., & Sachs, J. (2015). *World happiness report, 2015*. Columbia: Earth Institute.

Kahneman, D., & Deaton, A. (2010, August). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences*, *107*(38), 16489-16493. http://dx.doi.org/10.1073/pnas.1011492107

Luttmer, E. F. P. (2005). Neighbors as negatives: Relative earnings and well-being, *Quarterly Journal of Economics, 120*(3), 963-1002.

Oishi, S., Kesebir, S, & Diener, E. (2011). Income inequality and happiness. *Psychological Science, 22(*9), 1095-1100. http://dx.doi.org/10.1177/0956797611417262

Schwarze, J., & Harpfer, M. (2007). Are people inequality averse? Evidence from German longitudinal data on life satisfaction. *Journal of Socio-Economics, 36*(2), 233-249. http://dx.doi.org/10.1016/j.socec.2005.11.047

Senik, C. (2004). When information dominates comparison: Learning from Russian subjective panel data. *Journal of Public Economics, 88,* 2009-2133. http://dx.doi.org/10.1016/S0047-2727(03)00066-5

Senik, C. (2009). Direct evidence on income comparisons and their welfare effects. *Journal of Economic Behavior & Organization, 72*(1), 408-424. http://dx.doi.org/10.1016/j.jebo.2009.04.019

Steptoe, A., Demakakos, P., & de Oliveira, C. (2012). The psychological well-being and functioning of older people in England. In J. Banks, J. Nazroo, & A. Steptoe (Eds.), *The dynamics of aging: Evidence from the English longitudinal study of aging 2002-10*. London, England: IFS.

Stone, A., & Mackie, C. (2013). *Subjective well-being: Measuring happiness, suffering, and other dimensions of experience.* Washington, D.C: National Academy of Sciences.

Van Praag, B., Ferrer-i-Carbonell, A. (2008). *Happiness quantified: A satisfaction calculus approach.* Oxford, England: Oxford University Press.

Van Praag, B., Ferrer-i-Carbonell, A. (2009). Inequality and happiness. In W. Salverda, B. Nolan, & T. Smeeding (Eds.), *The Oxford handbook of income inequality*. Oxford, England: Oxford University Press.

World Economic Forum, (2012). *The global gender gap report 2012.* Geneva, Switzerland: World Economic Forum.

Appendix
Variable Definitions

Variable	Definition
Life satisfaction	How satisfied are you with your life? (Very disappointed = 1; Disappointed = 2; Neither disappointed nor satisfied = 3; Satisfied = 4; Very Satisfied = 5; Can't say = Missing)
Happy last week	Did you feel happy last week? (Never = 1; Maybe once =2; Occasionally = 3; Most days = 4; Every day = 5; Can't say = Missing)
Income	Monthly household income (No income = 0 < 200,000 MNT (≈ < $150) = 1 200,000 – 400,000 MNT (≈ $150-$300) = 2 400,000 – 600,000 MNT (≈ $300-$450) = 3 600,000 – 800,000 MNT (≈ $450-$600) = 4 >800,000 MNT (> $600) = 5) Average exchange rate of 1,330MNT = 1 USD from 2012 was used to convert MNT amounts to USD.
Relative income	Respondent's income minus the median income of the *bag* the respondent belongs to. *Bag* is the smallest administrative unit in Mongolian provinces.
Unemployed	Are you unemployed? (No = 0; Yes = 1)
Married	This includes common-law marriages and those living with partners. (No = 0; Yes = 1)
Lives with extended family	Whether the respondent lives in an extended family. This includes three generations living together or living with one's relatives or in-laws. (No = 0; Yes = 1)
Age	Respondent's age, which ranges between 15 and 65.
Enjoys life	How much do you enjoy life? (Not at all = 1; A little bit = 2; Adequate = 3; To the fullest = 4)
Freedom satisfaction	How satisfied are you with your ability for free expression? (Very disappointed = 1; Disappointed = 2; Neither disappointed nor satisfied = 3; Satisfied = 4; Very Satisfied = 5; Can't say = Missing)
Dream fulfillment	Have you achieved your dreams? (Haven't achieved anything = 1; Achieved 25% = 2; Achieved 50% = 3; Achieved 75% = 4; Achieved 100% = 5)
Health	How is your health compared to others? (Very poor = 1; Poor = 2; Okay = 3; Good = 4; Very good = 5)
Exercise	On average, how many times do you exercise for more than 30 minutes per week? (None =1; 1-2 times = 2; 3-4 times = 3; 5-6 times = 4; 7+ times = 5)
Alcohol use	Did you use alcohol last month? (No = 0; Yes = 1)

Variable	Definition
Female	Respondent's gender (No = 0; Yes = 1)
Education	Respondent's educational level (No education = 1; Primary (1-5 grade) = 2; Middle (5-9 grade) = 3; Secondary (10-11 grade) = 4; Technical and vocational = 5; Higher education = 6)
Home ownership	Do you own your home? (No = 0; Yes = 1)
Lives in *ger* dwelling	Does your family live in *ger*? *Ger* (or "yurt") is a traditional round, portable, felt-covered dwelling. (No = 0; Yes = 1)
Religion	Do you practice a religion? (No = 0; Yes = 1)
Income-related stress	Does not enough income or price increase or cost of children's kindergarten and school cause stress in your life? (No = 0; Yes = 1)
Health-related stress	Does family members getting sick and ill or your own poor health cause stress in your life? (No = 0; Yes = 1)
Living environment-related stress	Does home/residence, water, electricity, public transportation, land, and living environment issues cause stress in your life? (No = 0; Yes = 1)
Family-related stress	Do family arguments and conflicts cause stress in your life? (No = 0; Yes = 1)
Job-related stress	Does too much work or conflict and unpleasant relationships at work cause stress in your life? (No = 0; Yes = 1)
Number of stress triggering areas	The number of areas that caused stress in the respondent's life, ranging between 0 and 6. These refer to income, unemployment, job, health, living environment (e.g., public transportation, electricity) and family-related stress.