Effects of Response Scales on the Measurement of Happiness: Evidence from 34 Chinese national representative surveys from 2002 to 2021

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Background

· Happiness is an important measure of subjective well-being.

· The single-item question on happiness (e.g., "How happy are you these days?") has been widely used in social surveys worldwide.

· However, the designs of the response options for the happiness question tend to vary.
  · Order of response scales (ascending vs. descending)
  · Number of scale points (e.g., 4 points, 5 points, 6 points, 7 points)
  · Whether or not to offer the middle option
  · Whether or not to include "Don't Know" (DK)

· Previous survey research has suggested that these design features could affect the answers to a question.

· So far, few studies have systematically examined the effects of these design features on the happiness question, especially in large nationally representative samples.

This Study

· We examine data from the large nationally representative surveys in China that contained the single-item happiness question.

· Despite the question wording being essentially the same, the response options for the happiness question varied across the surveys in several aspects.

Research Question

Did the differences in the designs of the response options affect the answers to the happiness question? If so, how?

Data

· 34 surveys (n=554,574) from six survey programs
  · China Family Panel Studies (CFPS)
  · Chinese General Social Survey (CGSS)
  · China Household Finance Survey (CHFS)
  · Chinese Household Income Project (CHIP)
  · China Labor-force Dynamic Survey (CLDS)
  · Chinese Social Survey (CSS)

· Sample: All used national probability-based samples

· Mode: All used face-to-face interviews

· Data collection period: 2002 to 2021

Table 1. Features of Response Scales of Each Survey

Survey	Year	n	Desc. order	# of points	Middle point	Don't know
CFPS	2010	31,550	0	5	1	0
	2014	28,990	0	11	1	0
	2018	29,610	0	11	1	0
	2020	22,099	0	11	1	0
CGSS	2003	5,843	0	5	1	0
	2005	10,360	0	5	1	0
	2006	10,143	0	5	1	0
	2010	11,739	0	5	1	0
	2011	5,607	0	5	1	0
	2012	11,716	0	5	1	0
	2013	11,349	0	5	1	0
	2015	10,926	0	5	1	0
	2017	12,540	0	5	1	1
	2018	12,743	0	5	1	1
	2021a	5,435	0	5	1	1
	2021b	2,675	1	7	1	1
CHFS	2011	8,262	1	5	1	0
	2013	28,083	1	5	1	0
	2015	36,034	1	5	1	0
	2017	39,729	1	5	1	0
	2019	34,454	1	5	1	0
CHIP	2002	15,764	1	5	1	1
	2007	20,239	1	4	0	0
	2008	8,226	1	4	0	0
	2013	16,437	1	5	1	1
	2018	20,541	1	5	1	1
CLDS	2012	15,204	0	6	0	0
	2014	22,328	0	5	1	0
	2016	19,976	0	5	1	0
	2018	15,597	0	5	1	0
CSS	2013	10,043	0	6	0	1
	2015	10,195	0	5	1	0
	2019	5,054	1	4	0	1
	2021	5,083	0	4	0	1

Analysis Methods

· Multilevel regression models with random intercepts

· Level 1 (respondents):

$$y_{ij} = \beta_{0j} + \beta_1 X_{ij} + e_{ij}$$

· Level 2 (surveys):

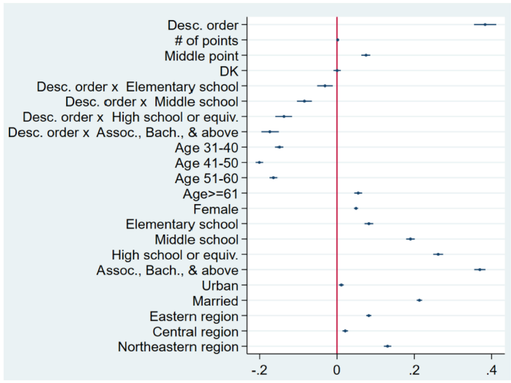
$$\beta_{0j} = \gamma_0 + \gamma_1 W_j + u_j$$

y_{ij} , answer to the happiness question, standardized within each survey

X_{ij} , respondent-level characteristics, including
· age, gender, education, marriage status, HH registration (urban vs. rural), geographic location

W_j , survey-level characteristics, including
· scale order, # of scale points, including the middle point or not, including DK or not

Figure 1. Coefficients from the multi-level model of happiness.



Note. Reference categories: Ascending ordered scale, not offering the middle point, not offering DK, age 18-30, male, no formal education, rural, not married, western region

Scale order effect

· Scales of descending order (i.e., the most positive option presented first) yielded significantly higher happiness ratings compared to the scales of ascending order.

· In addition, the interaction terms show that the order effects reduced among Rs with higher education levels. (See Figure 2.)

Effects of the other scale features

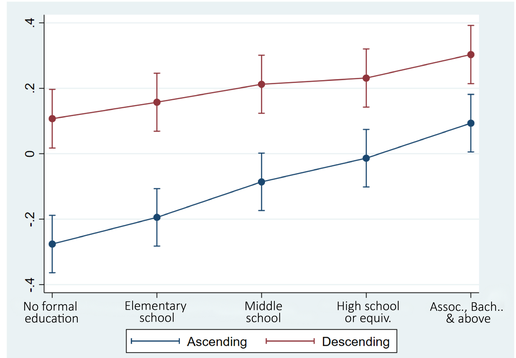
· Including the middle point was significantly associated with higher happiness ratings.

· More scale points were also associated with higher ratings, but the effect size was small despite being significant.

· The effect of DK was not significant.

Effects of the demographic characteristics are generally consistent with the happiness literature.

Figure 2. Predicted happiness by education levels and by the order of response scales with 95% CIs



Discussion

· This study examines the effects of response scale designs on the measurement of the happiness question using data from 34 nationally representative surveys in China.

· Specifically, we find that (1) scales in descending order (from "a lot of happiness" to "a lot of unhappiness") tend to increase happiness ratings, (2) offering a middle option raises the overall rating, and (3) adding more scale points slightly increases the standardized rating.

· Finding (1) is consistent with the previous studies that have shown that descending-ordered response scales generate more positive responses from respondents than ascending-ordered scales.

· Finding (2) suggests that at least in the Chinese context, the middle option in the happiness question does not represent true neutrality but instead reflects a subtle sense of unhappiness.

Limitations

· The current analyses account for the random effects of different surveys. We did not estimate the "house effects" of the six survey programs, as doing so would introduce collinearity issues.

· Some surveys have a longitudinal design, with the same respondents tracked over time. However, in the current analyses, we treat the samples of these surveys as if they were independent.

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