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How happy are you? It depends on when asked ...

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ABSTRACT

Subjective well-being measures are increasingly applied in quantitative economic analyses intended to elicit non-monetary wellbeing of individuals. However, the subjective nature of this evaluation means that measurement and comparison may be confounded by differences in context or may be sensitive to the implementation modality. We use two rounds of a large-scale panel phone survey data from Myanmar to explore whether the randomized placement of a happiness module – either at the beginning or at the end of the survey – affects respondents' answers. Respondents who were asked the happiness module at the end are more likely to be happy – an increase of 7 percentage points – compared to those who are asked at the beginning of the survey. This result is consistent using different models and robust to inclusion of enumerator fixed effects and other enumerator and survey characteristics. A related question on worry in the same module yields similar findings. Results also sustain over the two rounds of survey in which we conducted the experiment.

Keywords: Subjective wellbeing, happiness, phone survey, methods, Myanmar

1. INTRODUCTION

Subjective wellbeing (henceforth SWB) measures are commonly used in psychological and social sciences (e.g. Diener et al. 2018, Rajkumar 2023), but are also increasingly mainstreamed in economics (e.g. Deaton 2008, Clark 2018). This is commensurate to the recent shift in interest in the policy debate from monetary measures of wellbeing (for e.g. income, wealth) to broader concepts of welfare using non-monetary measures such as education, access to basic infrastructure services, living standards, or life satisfaction/happiness (e.g., Alkire and Santos 2014). A large part of this literature looks at individual and household characteristics such as age, gender, income, education, employment status and household demographics to explain SWB. SWB or happiness has typically been shown to be strongly linked to income (see reviews by Weiman et al. (2015) or Diener et al. (2018)), but evidence exists of a declining marginal utility of income where people become satiated with material wealth once they reach a certain level of income (Clark et al. 2008; Jebb et al. 2017), and to the relative income ranking of the respondent in the community that they live in (Ferreri-i-Carbonell 2005, Tauseef 2022).

SWB, by definition, is a construct that relies on people's subjective evaluation of their lives as a whole. The subjective nature of the construct makes self-reporting a natural method for assessing SWB (Lucas 2018). Data collection on SWB in social science research is usually through large scale surveys, with questionnaires containing direct questions on SWB or life satisfaction with various aspects of life, and work. Survey participants are then asked to locate their degree of satisfaction on an ordinal scale which also varies from survey to survey (for e.g. from 1 to 5, 1 to 7 or from 0 to 10) (Conti and Pudney 2008). However, debate exists on the various approaches to measuring SWB, focusing on measurement problems which may confound comparison across individuals, over time or between different surveys. At the same time, many associations with SWB depend on people's culture and values and the context in which they live (Kahneman and Krueger 2006; Beegle et al 2012).¹ Reported satisfaction or happiness is also often strongly affected by earlier questions in a survey (Deaton and Stone, 2016).

In this paper, we contribute to the methodological literature on SWB or happiness by conducting an experiment where we randomize the placement of the happiness question in the survey instrument either in the beginning of the survey or at the end of the survey after the respondent has been treated to the entire questionnaire. We embed this implementation modality experiment in two rounds of a nationally representative household panel survey being conducted in Myanmar in 2022, administered via telephone to over 12,000 respondents. Myanmar is currently facing a multitude of crises in the aftermath of the COVID-19 pandemic and military coup which has led to widespread conflict in almost all regions of the country, disrupting production and supply chain (MAPSA 2022). These events resulted in high levels of domestic inflation which was further aggravated by the depreciation of the Myanmar Kyat against the US dollar as well as high levels of global inflation following the pandemic and the war in Ukraine.

Our study contributes surprising insights regarding survey design and implementation in two ways: our study provides evidence that the order of survey modules matters, and it provides evidence on the impact of answering a questionnaire on the respondents' subjective welfare. In designing the experiment, we hypothesized that respondents would feel less happy after responding to our questionnaire due to at least two effects. Firstly, we expected respondent fatigue related to responding to the survey, therefore potentially lowering the respondents' feeling of happiness

¹ For example, in a lab experiment by Schwarz (1987), respondents were asked to photocopy a sheet of paper before they answered the questionnaire. A dime was placed on the copy machine randomly for half of the sample. Reported satisfaction with life was raised substantially by the discovery of the coin on the copy machine—clearly not an income effect. Other research indicates that reported life satisfaction is influenced by the current weather (higher on nicer days); although if individuals are first asked explicitly about the weather, the weather does not influence their reported life satisfaction (Schwarz and Clore, 1983).

towards the end of the survey. Computer assisted telephone interviews (CATI) have been adopted widely due to the outbreak of the COVID-19 pandemic in recent times, and are useful to interview households in hard to reach locations, for example in areas facing high levels of insecurity. With a rise in the number of shocks around the world as well as the lower cost of phone surveys compared to in-person surveys, the use of CATI is likely to continue to grow. However, there has been little discussion about the effect of interview length and the response fatigue associated with these remote methods, beyond noting concerns that long surveys might generate higher rates of nonresponse (Abay et al 2022). During in-person surveys, the enumerator can use visual cues to judge whether a respondent is beginning to tire at which point they can suggest a small break or a drink of water to allow respondent and enumerator to refresh. Such understanding and flexible adaptation is not possible for remote surveys. Therefore, we hypothesize that the respondents may be more likely to report to be unhappy for remote and lengthy interviews. Secondly, given the tedious political and security situation that respondents were recently confronted with, we expected that the respondent, reflecting on his or her current situation while responding to the different issues brought up in the questionnaire, would feel less happy towards the end of the questionnaire.

Contrary to our above-mentioned hypotheses, respondents reported to be happier after responding to the questionnaire. We find that respondents who were treated, i.e. were asked the happiness module after being administered to the full questionnaire, were 7 percentage points more likely to be happy as compared to those who are asked the happiness module at the beginning of the survey. This result is consistent for different models and robust to inclusion of enumerator fixed effects and other enumerator and survey characteristics like interview duration. Results also sustain over the two rounds of survey in which we conducted the experiment.

Our finding adds to the emerging literature on the importance of placement of questions in survey instruments (see for e.g. Abay et al. 2022; Ambler et al. 2021; Deaton and Stone 2016) and the need for further experiments on these issues. Considerations of the effects of context, mood and duration neglect indicate certain limits on the reliability of the standard life satisfaction and happiness questions, but they are not necessarily grounds for dismissing the method altogether (Kahneman and Krueger 2006). Nevertheless, care is needed in the use of the results of such questions and puts doubts on the comparability of the results of such a question over survey instruments, countries, and contexts, which is typically done when comparing results at a global scale. Moreover, our findings suggest that lending an ear to those stranded in difficult circumstances, even when done through a structured questionnaire and over the phone, may also offer some relief to respondents.

The rest of the paper is structured in the following manner: in Section 2, we explain the data we used and our empirical strategies providing more details on the experiment and data through summary statistics and balance in household and individual characteristics between the respondents who answered the happiness module early and late in the interview. In Section 3, we present the results of the experiment as well as a battery of robustness tests. In Section 4, we look at factors that are associated with individuals' happiness and worry. We conclude with a discussion in Section 5.

2. DATA AND EMPIRICAL STRATEGY

2.1 Set-up experiment

The data used in this paper comes from the second and third rounds of the Myanmar Household Welfare Survey (MHWS) which is a nationally representative household panel survey conducted in Myanmar in 2022. The MHWS is a representative survey at the national, state/region, and rural/urban level of the Myanmar population (MAPS 2022). The number of households targeted in each state/region was proportional to its population size, with an oversampling in the two smallest

states. The survey was conducted via computer assisted telephone interviews (CATI) with over 12,000 households. While phone surveys have been noted to have several shortcomings, such surveys have advantages especially in the context of Myanmar since we are able to reach many conflict-affected and remote townships across the country which would not have been possible with a face-to face survey. As a result, Round 2 and Round 3 of the MHWS includes 310 out of 330 townships in Myanmar which is more geographical coverage than the 2017 Myanmar Living Conditions Survey (MLCS) and the 2015-2016 Demographic and Health Survey (DHS), the two most recent socioeconomic national surveys.

The MHWS was carried out in collaboration with Myanmar Survey Research (MSR), a private survey research company based in Myanmar with a database of 280,274 phone numbers of adults who consented to be contacted in phone surveys. To obtain a randomized nationally representative sample, a master database was constructed in which all phone numbers were stratified at the township level, so that the number of phone numbers in each township was proportional to the population size of each township (from the 2014 Census) (DoP, 2015). Households were selected randomly in each township. We chose to randomly sample at the township level to minimize oversampling of well-connected and/or wealthier townships. Finally, to ensure that women, famers, less educated, and more remote individuals were not under-sampled, minimum targets by state/region were set for women (half of all respondents), rural location, farming livelihood, and education level. More details on the sampling design can be found in MAPSA (2022).

The second round of MHWS data was collected between April 7th, 2022 and June 24th, 2022, with a sample size of 12,142 households while the third round of MHWS data was collected between July 8, 2022, and August 10, 2022 and contains a sample size of 12,128 households. 3,088 households dropped out of the sample after the second round and were replaced by new households selected randomly from the phone database in the same townships as the attrition households, and retained if they had similar characteristics to the attrition households in terms of urban/rural, gender, farm, and low education. Various modules were administered in the survey obtaining information on household composition, migration, assets, livelihoods and income, livelihood disruptions and shocks, coping strategies, food security and diets.

We embedded the implementation modality survey experiment in the second and third rounds of the MHWS. We use a self-reported measure of subjective wellbeing derived from an individual's answers to a question on happiness, similar to questions typically asked in other surveys (Kalmijn et al. 2011). The question was asked to the respondent from each household in the following manner: "In the last month, most of the time how happy did you feel?". Response to this question takes discrete values of 1 to 4 with answers labelled in the questionnaire as 1 = Mostly unhappy, 2 = somewhat unhappy, 3 = somewhat happy, 4 = mostly happy. The answers to these questions can be referred to as subjective wellbeing or self-reported life happiness. We randomly divided our sample so that half of our respondents receive the question at the start of the interview, coming just after introduction, consent, and respondent information has been collected, while the other half receive the question after all other information are collected and just before the closing module. The median completion time for a questionnaire in Round 2 was 33 minutes with minimum interview length of 6 minutes and maximum of 120 minutes, while in Round 3 the median interview length was 34 minutes with a minimum of 25 minutes and a maximum of 89 minutes.

2.2 Summary statistics and "balance"

Table 1 presents the characteristics of the households and individuals included in the analysis sample and the balance test between the treatment and control groups for these indicators. We find that on average, the respondent's age was about 38 years and the majority of respondents, about 60 percent, had an education level of only primary or less. About 40 percent of the sample

households were farm households and 72 percent resided in rural areas. More than half the households were income poor while a third of all households had very low levels of assets (3 or less out of 10 assets considered). Five percent of respondents felt high levels of insecurity while 8 percent reported some form of violence in their community. Sixteen percent said they did not have any employment in the prior 30 days of the survey with more than 50 percent noting that their income has decreased by more than 20 percent in the previous 3 months from the survey date. About 13 percent reported to be affected by some form of natural shocks and more than a quarter reported experiencing a health shock (sickness or death in the family) before R2, which increased to about 33 percent in R3. Since the treatment assignment was random, we should ideally not have any statistically significant difference in the mean of household and respondent characteristics across treatment and control which would allow us to attribute any difference in our outcome variable, i.e. happiness, to treatment assignment rather than other plausible characteristics that can affect happiness. It seems randomization worked well since we do not find any differences in means of variables between treatment and control.

Table 1: Mean and balance of variables by intervention arm

		Round 2 Means P-values				P-values		
	No. of obs.	Treatment	Control	Treatment - Control	No. of obs.	Treatment	Control	Treatment - Control
Respondent age	12,142	38.02	38.52	0.06	12,128	37.98	38.10	0.64
Respondent has primary/no education	12,141	0.59	0.60	0.54	12,128	0.58	0.59	0.33
Respondent is female	12,142	0.55	0.56	0.54	12,128	0.54	0.54	0.53
Dependency ratio	12,142	0.26	0.26	0.40	12,128	0.26	0.26	0.52
Farm household	12,142	0.39	0.40	0.27	12,128	0.40	0.39	0.83
Household is poor	11,740	0.53	0.52	0.50	11,894	0.58	0.57	0.38
Number of assets own (0-10)	12,142	4.64	4.67	0.60	12,128	4.58	4.61	0.51
Asset poor (0-3 assets)	12,142	0.34	0.33	0.58	12,128	0.35	0.34	0.24
Asset low (4-6 assets)	12,142	0.41	0.41	0.83	12,128	0.40	0.41	0.43
Asset rich (7-10 assets)	12,142	0.25	0.26	0.37	12,128	0.25	0.25	0.65
Remittances receiving household	12,142	0.17	0.17	0.99	12,128	0.15	0.15	0.27
Rural residence	12,142	0.72	0.72	0.92	12,128	0.72	0.72	0.85
No employment in last 30 days	12,142	0.17	0.16	0.63	12,128	0.16	0.16	0.77
High level of insecurity	12,057	0.04	0.05	0.29	12,093	0.05	0.05	0.96
Community violence in past 3 months	12,142	0.07	0.07	0.37	12,128	0.08	0.07	0.39
Affected by income shocks	12,048	0.50	0.52	0.24	12,046	0.47	0.48	0.36
Affected by health shocks	12,142	0.25	0.24	0.54	12,128	0.33	0.32	0.27
Affected by natural shocks	12,142	0.12	0.12	0.80	12,128	0.13	0.13	0.86

Note: P-values are reported from Wald tests on the equality of means of control and each treatment for each variable.

2.3 Empirical approach

In this section, we present the empirical strategy to explore the effect of randomized placement of the survey module on reported happiness. Response to the happiness question has four possible responses - Mostly unhappy; somewhat unhappy; somewhat happy; mostly happy. We transform the response into a binary variable with happy equaling 1 if the response is somewhat happy or mostly happy for ease of interpretation and use the categorical variable later as robustness test of our estimates. Since the experiment was run separately for R2 and R3 of the survey, we first explore the effect of treatment separately for each round. We estimate the following equation:

$$y_i = \alpha + \beta_1 Treatment_i + \gamma X_i + \varepsilon \tag{1}$$

where y_i refers to the outcome indicator of happiness for each respondent *i*, $Treatment_i$ is a dummy variable equal to 1 if respondents were treated to the entire questionnaire before being asked the question on happiness (or in other words where asked the question late in the questionnaire) and 0 for control respondents who were asked at the beginning of the interview. X_i is a vector of controls such as interview characteristics (time-of-day interview was conducted, interview length in minutes), indicator for whether yesterday was a special day as well as enumerator fixed effects (to control for time invariant enumerator characteristics), survey month fixed effects and state/region fixed effects. Standard errors are clustered at the respondent level.

Next, we pool data from both rounds of the survey and estimate a panel (individual) fixed effects regression. Two rounds of data and an individual fixed effects are similar to estimating a differencein-difference (DiD) model of the treatment status. We later present the DiD estimates as a robustness test of our model. We estimate the panel fixed effect as below:

$$y_{it} = \alpha_i + \beta_1 Treatment_{it} + \gamma X_{it} + \varepsilon_{it}$$
⁽²⁾

where y_{it} refers to the outcome indicator of happiness for each respondent *i* at time *t*, $Treatment_{it}$ is treatment assignment of each individual *i* at time *t*, and X_{it} is the set of controls as before. This model also enables us to account for unobservable personal traits, such as optimism and ability, which are constant over time but different for each individual. This is important given that for a fixed socioeconomic level, a more optimistic individual may be expected to report a higher SWB than a more pessimistic individual.

We are also interested to know the factors associated with SWB or happiness in Myanmar in a time marred by persistent conflict and instability along with rising inflation and poverty. We estimate a panel random-effects model to take into account personal traits, like optimism and ability, which are individual-specific and constant over time, using the following equation:

$$y_{it} = \alpha + \gamma X_{it} + \varepsilon_{it} \tag{3}$$

where y_{it} refers to the outcome indicator of happiness for each respondent *i* at time *t*, and X_{it} is the set of variables for which we want to check associations with SWB. We also include time fixed effects using survey months and individual random effects to capture the panel structure of the data set. The individual random effects capture unobservable personal traits, such as optimism and ability, which are constant over time but different for each individual.

3. RESULTS OF THE EXPERIMENT

3.1 Main results

Table 2 presents the regression results where we examine the effect of treatment, i.e. administering the happiness module at the end of the survey, on reported SWB or happiness for each round of the data separately. From columns (1) to (4), we progressively include additional controls and fixed effects relevant to identifying the relationship between our treatment variable and happiness. We focus our discussion on results obtained from regressions with the full set of controls, noting that there are no important differences between the results in columns (1) to (4). We find that, in Round 2, treated individuals (who received the happiness module at the end of the survey) were 7.4 percentage points more likely to report being happy compared to the control group (who received the happiness module at the start of the survey) (specification 4). The effect size remained pretty constant irrespective of controls added. This finding is consistent across the two rounds as well – in Round 3, we find treated individuals were 7 percentage points more likely to report being happy than the control group.

	Happiness (=1)							
	(1)	(2)	(3)	(4)				
PANEL A : ROUND 2								
Treatment: module at end	0.073***	0.075***	0.074***	0.074***				
	(0.011)	(0.011)	(0.011)	(0.011)				
Enumerator FE	No	Yes	Yes	Yes				
Interview characteristics	No	No	Yes	Yes				
Survey month FE	No	No	No	Yes				
State FE	No	No	No	Yes				
Other controls	No	No	No	Yes				
Observations	11,765	11,765	11,765	11,765				
	(1)	(2)	(3)	(4)				
PANEL B : ROUND 3								
Treatment: module at end	0.074***	0.071***	0.069***	0.070***				
	(0.011)	(0.010)	(0.010)	(0.010)				
Enumerator FE	No	Yes	Yes	Yes				
Interview characteristics	No	No	Yes	Yes				
Survey month FE	No	No	No	Yes				
State FE	No	No	No	Yes				
Other controls	No	No	No	Yes				
Observations	11,939	11,939	11,939	11,939				

Table 2: Effect of treatment on happiness by round

Note: Standard errors clustered at the individual level. Outcome variable is an indicator for happiness (=1 if reported to be happy or very happy). Interview characteristics include dummies for time-of-day interview was conducted, interview length in minutes, additional controls include indicator for whether yesterday was a special day, and survey month dummy.

Next, we explore a panel (individual) fixed effects model using the two rounds of panel data which is akin to examining a DiD estimation for two rounds of data. This allows us to account for time-invariant individual characteristics that may affect the response to our primary variables of interest. Results from the fixed effect model are consistent with results from individual rounds (see Table 3) – we find that treated individuals were 6.9 percentage points more likely to report being happy than the control group, which is also robust to incorporating additional controls and enumerator and survey month fixed effects².

² In the survey, from the selected household, the same member can respond in both rounds but there may also be a case where different members answered the survey in different rounds from the same household. We check how our results change if the same member responds in both rounds. We find results to be consistent i.e. treated individuals are more likely to report to be happy, although the effect size is smaller (5.7 percentage points for the full specification).

Table 3: Panel (individual) fixed effects (R2+R3)

	Happiness (=1)							
	(1)	(2)	(3)	(4)				
Treatment: module at end	0.070***	0.070***	0.069***	0.069***				
	(0.009)	(0.008)	(0.008)	(800.0)				
Enumerator FE	No	Yes	Yes	Yes				
Interview characteristics	No	No	Yes	Yes				
Survey month FE	No	No	No	Yes				
State FE	No	No	No	Yes				
Other controls	No	No	No	Yes				
Observations	23,802	23,802	23,802	23,802				

Note: Standard errors clustered at the individual level. Outcome variable is an indicator for happiness (=1 if reported to be happy or very happy). Interview characteristics include dummies for time-of-day interview was conducted, interview length in minutes, additional controls include indicator for whether yesterday was a special day and survey month dummy.

3.2 Robustness of results

(a) Alternative definition of dependent variable

In this section, we explore the robustness of our main findings from Section 3.1. For ease of interpretation, in our main regression estimations, we transformed the 4 possible responses to the happiness question into a binary variable, with being happy equaling 1 if the response is somewhat happy or mostly happy and 0 otherwise. In Table 4, we explore whether our results are consistent using the categorical variable and different models of estimation. In columns (1), (3) and (5), we explore using an OLS model while in columns (2), (4) and (6), we use an ordered probit model to reflect the ordinal nature of the responses. We find our results to be consistent irrespective of round or estimation model.

	OLS	Ordered Probit	OLS	Ordered Probit	Panel OLS FE	Panel ordered probit
	R2	R2	R3	R3	R2+R3	R2+R3
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment: module at end	0.145***	0.160***	0.134***	0.164***	0.147***	0.237***
	(0.022)	(0.025)	(0.020)	(0.024)	(0.015)	(0.018)
Enumerator FE	Yes	Yes	Yes	Yes	Yes	Yes
Interview characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Survey month FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,765	11,765	11,939	11,939	23,802	23,802

Table 4: Exploring the effect of treatment with categorical outcome variable of happiness

Note: Outcome variable is the original happiness variable with full categories of responses i.e. 1 = Very unhappy, 2 = unhappy, 3 = happy, 4 = very happy.

(b) ANCOVA specification

Since the randomized treatment assignment was done separately for the two rounds, we have some individuals who were asked the question early in both rounds and some individuals who were asked early in the first round but were asked late in the second round, i.e. after being "treated" to the full questionnaire. We, thus, use the first round as a baseline and the second round as a follow-up and estimate the effect of treatment using an Analysis of Covariance or ANCOVA model where we also control for the baseline outcome variable in the specification. Here, we have a smaller sample size since we are dropping all individuals who do not fall in the aforementioned two groups. For example, we drop those who received the question late in both rounds or those who received late in the first

and early in the second round. Table 5 presents the result of this experiment, and we find our main findings to be robust to this specification as well.

	(1)	(2)	(3)	(4)
Treatment: module at end	0.050***	0.046***	0.046***	0.047***
	(0.018)	(0.017)	(0.017)	(0.017)
Enumerator FE	No	Yes	Yes	Yes
Interview characteristics	No	No	Yes	Yes
Survey month FE	No	No	No	Yes
State FE	No	No	No	Yes
Other controls	No	No	No	Yes
Observations	4,386	4,386	4,386	4,386

Table 5: Exploring the effect of treatment over two rounds using ANCOVA

(c) Dichotomous-around-the-median (DAM) test

A question raised in empirical SWB literature is the issue of using ordinal measures of SWB and converted into objective cardinal units without presenting any information about the interval between response categories. Therefore, standard empirical methods—such as comparisons of means or linear regression analysis may be problematic. We follow a robustness test proposed by Bloem and Oswald (2021) to test the validity and robustness of our findings. In the test, termed as dichotomous-around-the-median (DAM) test by the authors, the ordinal dependent variable is redefined as a dichotomous variable for threshold points around the median value of the ordinal scale. Table 6 presents the results of this test, where a dichotomous upper is constructed as a dichotomous dependent variable that equals one for all values greater than or equal to the median while dichotomous lower is constructed as a dichotomous dependent variable is standardized to have a mean of zero and standard deviation of one. We find our results to be consistent and robust to this test.

			Dichotom	ous upper					Dichotom	ous lower		
	OLS R2	OLS R2	OLS R3	OLS R3	Panel FE	Panel FE	OLS R2	OLS R2	OLS R3	OLS R3	Panel FE	Panel FE
Treatment: module at end	0.149***	0.151***	0.155***	0.147***	0.145***	0.144***	0.074***	0.079***	0.108***	0.108***	0.117***	0.119***
	(0.023)	(0.022)	(0.022)	(0.021)	(0.017)	(0.017)	(0.023)	(0.022)	(0.021)	(0.021)	(0.018)	(0.017)
Enumerator FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Interview characteristics	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Survey month FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
State FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Other controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	12,089	12,089	12,078	12,078	24,270	24,270	12,089	12,089	12,078	12,078	24,270	24,270

Table 6: Robustness test of results using a dichotomous-around-the-median (DAM) test following Bloem and Oswald (2021)

Notes: Dichotomous upper is constructed as a dichotomous dependent variable that equals one for all values greater than or equal to the median. Dichotomous lower is constructed as a dichotomous dependent variable that equals zero for all values less than or equal to the median. In each column the dependent variable is standardized to have a mean of zero and standard deviation of one. Standard errors clustered at the individual level are shown in parenthesis. *** p<0.01, ** p<0.1.

(d) Heterogeneity of treatment effect

To explore whether there are any differences in treatment effects due to differences in experience of conflict and insecurity and exposure to different shocks such as income, natural and health, as well as gender, income and asset poverty, place of residence and livelihood, we estimate a panel fixed effects specification with the two rounds of data which includes an interaction term of treatment and the different insecurity and shock variables, along with all other controls, and enumerator, state and survey month fixed effects. We do not find any heterogeneous treatment effects based on shock experiences. However, those who reported experiencing high levels of physical insecurity and female respondents were less likely to report being happy if they were treated i.e. module were asked at the end of the questionnaire.

(e) Exploring enumerator characteristics

Since the two rounds of this panel survey were conducted by the same survey firm, we were able to match enumerators across rounds and generate a dataset of enumerator characteristics against a list of unique enumerator IDs. This also enabled us to explore how enumerator characteristics affect the individual's reported happiness and if there is any interaction effect of enumerator characteristics and the treatment.

Table 7 presents the results from this analysis. Although the different enumerator characteristics considered here do not affect the impact of our treatment on happiness, there are some associations found between enumerator characteristics and reported happiness that warrant some attention. For example, we find that if the enumerator is female, respondents are less likely to report being happy which is about 4 percentage points lower in the second round and about 3.3 percentage points lower in the panel fixed effect model. We also find enumerator's years of education to be negatively associated with reported SWB although the effect size is small. Additionally, prior survey experience dampens reported SWB by about 2.6 to 3.4 percentage points across specifications. Thus, our findings highlight the need to take into account such factors when analyzing self-reported measures such as SWB or happiness.

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS R2 full spec	OLS R3 full spec	OLS R2 interaction full spec	OLS R3 interaction full spec	panel FE full spec	panel FE interaction full spec
Treatment: module at end	0.074***	0.075***	0.086	0.127*	0.069***	0.023
	(0.011)	(0.010)	(0.077)	(0.074)	(0.008)	(0.058)
interview time of day before 12 noon	0.002	0.009	0.002	0.009	-0.023	-0.021
	(0.032)	(0.026)	(0.032)	(0.026)	(0.023)	(0.023)
interview time of day from 12 noon till 4pm	0.008	0.025	0.008	0.025	-0.021	-0.019
	(0.031)	(0.025)	(0.031)	(0.025)	(0.023)	(0.023)
interview time of day from 4pm till 8pm	0.019	0.011	0.019	0.012	-0.020	-0.019
	(0.031)	(0.025)	(0.031)	(0.025)	(0.023)	(0.023)
Interview Length	-0.001**	-0.003***	-0.001**	-0.003***	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Enumerator is female =1	-0.028	-0.040***	-0.007	-0.055***	-0.033***	-0.034**
	(0.018)	(0.014)	(0.025)	(0.021)	(0.012)	(0.017)
=1 if respondent and enumerator gender is different	0.016	-0.017			-0.031***	
	(0.011)	(0.010)			(0.011)	
enumerator's years of education	-0.007**	0.003	-0.008*	0.005	-0.005**	-0.008***

Table 7: Exploring the effect of enumerator characteristics and interaction with treatment

	(0.003)	(0.003)	(0.004)	(0.004)	(0.002)	(0.003)
enumerator work experience in years	-0.004	0.001	-0.003	-0.001	0.002	0.005*
	(0.003)	(0.002)	(0.004)	(0.003)	(0.002)	(0.003)
Enumerator participated in MHWS R1 data collection	-0.009	-0.030**	-0.008	-0.029**	-0.002	-0.001
	(0.013)	(0.012)	(0.013)	(0.012)	(0.010)	(0.010)
Enumerator participated in other MSR surveys	-0.033*	-0.032*	-0.034*	-0.032*	-0.026**	-0.026**
	(0.018)	(0.017)	(0.018)	(0.017)	(0.013)	(0.013)
Treat*enumerator is female			-0.045	0.034		0.003
			(0.032)	(0.028)		(0.023)
Treat*enumerator education			0.002	-0.004		0.005
			(0.006)	(0.005)		(0.004)
Treat*enumerator's work experience			-0.002	0.002		-0.006*
			(0.005)	(0.004)		(0.004)
Treat*interview length			0.000	-0.001		-0.000
			(0.001)	(0.001)		(0.001)
Survey month FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,765	11,939	11,765	11,939	23,802	23,802

Note: Standard errors clustered at the individual level. Outcome variable is indicator for happy (=1 if reported to be happy or very happy)

(f) Attrition

We also assess if there is any correlation between happiness and attrition or, in other words, we examine whether happiness determines continuation in the panel survey or not. We check that using an identifier for attrited households as the outcome variable and include indicators of happiness and treatment along with other controls such as age, education, gender of respondents, income, assets, livelihood categories, conflict, and shock variables as well as state and survey month fixed effects. We do not find any associations between happiness and attrition in the survey when all controls and fixed effects are added (Table 8).

Table 8: Association of attrition and happiness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			At	trition (yes:	=1)		
Happiness indicator (=1 if happy)	0.018**	0.020	-0.007				-0.007
	(0.008)	(0.008)	(0.008)				(0.008)
Treatment: module at end				0.006	0.007	0.001	0.001
				(0.008)	(0.008)	(0.008)	(0.008)
All controls	No	No	Yes	No	No	Yes	Yes
Enumerator FE	No	No	Yes	No	No	Yes	Yes
Survey month FE	No	Yes	Yes	No	Yes	Yes	Yes
State FE	No	Yes	Yes	No	Yes	Yes	Yes
Observations	11,815	11,815	11,815	12,142	12,142	12,142	11,815

Note: Standard errors clustered at the individual level.

(g) Worry

Diener (1984) states that subjective wellbeing is often conceived of not just life satisfaction or positive affect but also a related concept of negative affect which explains worry, sadness, or stress. Therefore, in line with this holistic conceptualization of SWB, we include an additional question in the survey asking in the last month, how often did the respondent feel worried, with possible responses being never; a few times only; most of the time; and all the time. This question was placed

in the module together with the question on happiness and therefore serves as a robustness test for our randomized experiment. Similar to happiness, we hypothesized that a treated individual receiving the question at the end of the survey would likely report to be more worried having gone through details of many aspects of life such as shocks, coping strategies, income, etc. We convert the categorical variable into a binary variable where worried is equal to 1 if respondent reports being worried most or all the time.

Similar to the findings on happiness, we find that treated individuals are more likely to report being less worried at the end of the interview (see Table 9). However, the effect does taper off over the two rounds with a higher effect size of 6.4 percentage points reduction in likelihood of being worried in the first round compared to 3.1 percentage points in the second round, possibly because of rising conflict and uncertainty over this period of time (MAPSA 2022).

	Worried (=1)						
	R1	R2	R1+R2				
	(1)	(2)	(3)				
Treatment: module at end	-0.064***	-0.031***	-0.046***				
	(0.010)	(0.009)	(0.007)				
Enumerator FE	Yes	Yes	Yes				
Interview characteristics	Yes	Yes	Yes				
Survey month FE	Yes	Yes	Yes				
State FE	Yes	Yes	Yes				
Other controls	Yes	Yes	Yes				
Observations	12,010	12,062	24,173				

Table 9: Impact of treatment on being worried

Note: Standard errors clustered at the individual level.

4. ASSOCIATES OF HAPPINESS AND WORRY

In this last section, we present results from a panel random-effects regression exploring the factors associated with individuals' happiness in Myanmar in a time marred by persistent conflict and instability along with rising inflation and poverty. As factors affecting stress and worry of individuals may very well be different than those that affect happiness, we also explore the determinants of worry in addition to happiness. All results are presented in Table 10. We use both the binary and categorical happiness and worry variables for robustness where the estimates can be interpreted as a linear probability model for the binary outcome and a linear panel model for categorial outcome variable. In all models, standard errors are clustered at the individual level.

We find that income and assets are major drivers of happiness in Myanmar, which is consistent with findings around the world (see for e.g. Clark et al. 2016; Tauseef 2022). Being income poor reduces the likelihood of reporting being happy by 6.8 percentage points while being asset-poor (owns 1-3 assets out of 10 assets considered) reduces happiness by 5.2 percentage points. We also find a similar effect for asset-low (owns 4-6 assets) albeit with a smaller effect size of 2.2 percentage points. Other sources of income effect, for example receiving remittance or having a relatively stable source of income in times of uncertainty, like farm income and farm/non-farm salaried income, have positive effect on happiness.

At the same time, we also find conflict and insecurity to have detrimental effect on an individual's SWB. We find that being in a locality with high levels of physical insecurity lowers happiness by nearly 24 percentage points. On the other hand, different shocks also affect happiness negatively with health shocks having a larger effect size (reduction of 6.8 percentage points) compared to

income (5.8 percentage points) or natural (5.3 percentage points) shocks. Low levels of education reduce happiness possibly due to poor income prospects. Rural residence improves happiness.

Similar to happiness, being income and asset poor are major drivers of worry in Myanmar. Those relying on farm income and non-farm salary income as well as remittance recipients are less likely to report being worried. Conflict and shocks increase worry with the effect size on worry larger than that on happiness. Increasing age, larger household size, low education are also sources of worry. Females are found to be more likely to report worry.

	Happiness	Happiness	Worry	Worry
	(1)	categories	indicator (3)	
Age	-0.00/***	-0.008***	0.002***	0.002***
Age	-0.004	-0.000	(0.002	(0.002
Household size	(0.000)	(0.001)	0.005***	0.012***
Tiousenoid size	-0.002	(0.002	(0.003)	(0.004)
Primany or no adjugation only	(0.002)	(0.004)	(0.002)	(0.004)
Finally of no education only	-0.020	-0.034	(0.023	(0.014)
Famala (-1)	(0.007)	(0.015)	(0.007)	(0.014)
	-0.008	-0.001	(0.006)	(0.012)
Accest poor ve coost rish	(0.007)	(0.013)	(0.000)	(0.012)
Asset poor vs asset fich	-0.052	-0.120	(0.000)	(0.010)
Asset low vs sesset rish		(0.021)	(0.009)	(0.019)
Asset low vs asset lich	-0.022	-0.051	(0.007)	(0.015)
Income peer ve net peer	(0.008)	(0.017)	(0.007)	(0.015)
income-poor vs not-poor	-0.068	-0.107	(0.006)	0.112
Drimony in a course last theory Ours forms in course	(0.007)	(0.013)	(0.006)	(0.012)
Primary Inc source last 3mon: Own farm income	0.051	0.115****	-0.033***	-0.075***
	(0.008)	(0.016)	(0.007)	(0.014)
Primary Inc source last 3mon: Farm wage	-0.007	-0.019	0.028***	0.076***
	(0.009)	(0.017)	(0.008)	(0.016)
Primary inc source last 3mon: Non-farm wage	-0.010	-0.027*	0.005	0.034**
	(0.008)	(0.015)	(0.007)	(0.014)
Primary inc source last 3mon: Farm/Non-farm salary	0.034***	0.059***	-0.025***	-0.024*
	(0.008)	(0.016)	(0.007)	(0.014)
Primary inc source last 3mon: Own non-farm income	-0.002	0.010	0.002***	0.002***
	(0.007)	(0.014)	(0.000)	(0.001)
Household received remittance (=1)	0.022***	0.050***	-0.000	0.006
	(0.009)	(0.017)	(0.008)	(0.016)
Rural residence (=1)	0.049***	0.130***	-0.025***	-0.045***
	(0.009)	(0.018)	(0.008)	(0.017)
High level of physical insecurity (=1)	-0.237***	-0.535***	0.262***	0.538***
	(0.016)	(0.032)	(0.016)	(0.032)
Large migration into community (=1)	0.017	0.026	-0.003	0.003
	(0.011)	(0.020)	(0.010)	(0.018)
Community violence (=1)	-0.001	0.008	0.188***	0.380***
	(0.011)	(0.022)	(0.012)	(0.022)
Income shock (=1)	-0.058***	-0.117***	0.082***	0.167***
	(0.006)	(0.012)	(0.005)	(0.011)
Natural shocks (=1)	-0.053***	-0.106***	0.095***	0.214***
	(0.010)	(0.018)	(0.009)	(0.018)
Health shock (=1)	-0.068***	-0.133***	0.051***	0.133***
	(0.007)	(0.013)	(0.006)	(0.013)
Survey month FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Observations	22,960	22,960	23,299	23,299

Table 10: Determinants of happiness and worry

Note: Standard errors clustered at the individual level. Specifications also control for yesterday a special day.

5. DISCUSSION AND CONCLUSION

We designed and implemented an experiment that randomized the placement of a survey module on happiness in a phone survey, where half of the respondents were randomly administered the module in the beginning of the interview while the other half received the module at the end of the interview after being treated to the full questionnaire. We find that the respondents who were asked the happiness module at the end are more likely to be happy – an increase of 7 percentage points compared to those who were asked at the beginning of the survey. This result is consistent for different models and types of outcome variables as well as consistent across a number of robustness tests. A related question on worry in the same module also yields similar findings, with respondents less likely to report being worried if treated to the questionnaire. Results also sustain over the two rounds of survey in which we conducted the experiment.

Our study has several strengths. We used a randomized design to assess whether the placement of questions on happiness within the phone survey affected responses, giving us confidence that we were identifying the effect of this placement and not other confounding factors. Our use of multiple survey rounds also allowed us to show that the results are robust over time. These temporal features also allowed us to capture additional contexts of the interview that might have affected our results, for example, the use of enumerator fixed effects as a control allowed us to address time-invariant enumerator fatigue, which could have affected the estimates on our outcome of interest. Although we did not directly measure respondent fatigue which may be a limitation of our survey, some of that would be reflected through the inclusion of enumerator fixed effects and interview duration measure.

Myanmar is passing through a period of economic and political turmoil in the aftermath of a dual crisis of the COVID-19 pandemic and the military coup in February 2021. The combined predicament, by destabilizing the markets, decreasing the availability of and access to food in areas at risk as well as prompting the use of negative coping strategies, vastly aggravated the pre-existing poverty and food insecurity in the country. The ensuing economic shock led to a fall in income while costs of living increased due to rising domestic prices, which was further fueled by international inflationary pressures in the aftermath of the Ukraine war and depreciation of the Myanmar Kyat against the US Dollar. In times like these, we initially hypothesized that the respondent, reflecting on his or her current situation while responding to the different issues brought up in the questionnaire, is likely to report being less happy when asked at the end of the questionnaire. However, our results, which are robust to a battery of robustness tests, suggest otherwise. Our results are contrary to findings from similar experiments, for e.g., Deaton and Stone (2016) in the United States, who found that asking a series of political questions as well as a question on evaluation of the US led to a fall in reported life satisfaction. However, although the experiments are similar in setup, the impact of political questions and a holistic question on a country's standing on individual happiness is very different than an individual reflecting on his own personal situation and then reflecting on his happiness.

We present some conjectures that may help explain our finding, albeit without any empirical basis from our survey. One major reason behind this may be the "puzzle of adaptation", which is described by Kahneman and Krueger (2006) as the relatively small and short-lived effect of changes in most life circumstances on reported life satisfaction or happiness. For example, Oswald and Powdthavee (2008) find that average life satisfaction drops after the onset of a moderate disability, but fully recovers to the pre-disability level after two years. On the other hand, life events like marriage and bereavement have substantial short-run effects on happiness but these are mainly temporary (Clark et al. 2008), an effect termed as the "hedonic treadmill". The economic counterpart of the hedonic treadmill is that changes in the standard of living or income have almost no detectable effects on life satisfaction or happiness (Easterlin 1995, 2003). Indeed, with changing income people adapt their aspirations or expectations based on reflections of what is "sufficient", which depends much on his

or her current income (van Praag and Ferrer-i-Carbonell 2004). Myanmar has a long history of political and ethnic unrest with fear, mistrust, and insecurity remaining pervasive throughout the country. The deepening of this crisis over the last few years is nothing new to the people who may have positively adapted to the changing circumstances.

Coupled with adaptation, respondents may also feel some social pressure to respond to enumerators that their domains of life are enjoyable. After interviewing with the enumerator for more than 30 minutes, respondents may want to present themselves in a positive light in a need for social approval and self-presentation concerns and thus answer questions in a socially desirable manner. Social contact during such times may also be therapeutic to the respondent and maybe associated with high positive emotions (Helliwell and Putnam 2005). Therefore, reflecting on one's specific circumstances may grant the individual more perspective and, as a result of positive adaptation, give a more positive answer than responding more impulsively when asked in the beginning of the survey.

Nevertheless, the findings of our study have some important implications for inference and survey design, highlighting the need to be cautious and take into account the context in which the questions on subjective evaluations are posited. Comparisons of statistics across studies and countries on issues of subjective wellbeing should be made with caution since the statistics may well be confounded by differences in context and the placement of these modules in the survey instruments.

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