Global Happiness Council

Thematic group: Well-being Measurement for Public Policy

Policy Brief 1

Measuring Happiness during the Pandemic

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The COVID-19 pandemic has caused more than three million deaths worldwide as of late April 2021,[1] and casted phenomenal impacts on all aspects of life. As part of the national and international responses to COVID-19, governments, private organizations and institutions across the globe have made various efforts to measure and track the well-being of people as the pandemic evolved. Although the objective indicators of well-being (such as income, wealth, employment and health status) have been closely monitored during the pandemic, it is less clear how global capacity to measure subjective well-being ("happiness") has changed. In this policy brief, we aim to summarize systematically the current measures of happiness, initiated by public and private sectors across the globe and the innovation in the data collection during the COVID-19 pandemic.

We start with an overview of the national statistics of well-being during the COVID-19 pandemic in major economies, most of which followed or were consistent with the *OECD Guidelines on Measuring Subjective Well-being* published by the Organisation for Economic Co-operation and Development (OECD).[2] As countries under investigation were affected differently by COVID-19 and the mitigating measures, they also made efforts of various degrees in tracing well-being of residents. We then present other sources of happiness measures, including international and national surveys conducted by private companies and academic institutions, as well as information extracted from social media and big data. We show that surveys on happiness from governments are mostly from developed nations. Surveys on happiness from non-governmental sectors or online platforms are also mostly in developed nations. Our study calls for more measuring efforts in developing nations, and more collaboration between universities, research institutions, governments and private sectors to tracking people's happiness during the pandemic and in the normal time.

Happiness Measures from Official National Statistics

Before the COVID-19 struck, many countries, especially the OECD member states, have developed frameworks to measure human well-being.[3] In particular, the OECD introduced a national and multidimensional framework for measuring well-being, which includes indicators in quality of life and material conditions.[4] Among the national well-being indicators within these frameworks, special attention was paid to the collection of comparable happiness indicators by national statistical offices, which was supported by the *OECD Guidelines on measuring subjective well-being.*[5] Three dimensions of happiness metrics and related question modules designed for routine surveys of national statistical offices were included in the *Guidelines*: life evaluation, affect and eudaimonia, which capture the assessment of life, feelings or emotional state, and the meaning and purpose of life of people respectively. Most national statistical offices of OECD countries (34 out of 35) were collecting data on life evaluation, and some were also collecting data on affect and eudaimonia.[6]

Continuing Measurements

The collection and publishing of happiness data in many countries were made difficult by the pandemic and lockdowns across the globe. The less frequent happiness surveys in some countries also hampered the timely

measurements necessary for tracing well-being changes due to the COVID-19 pandemic. However, we still observe great and on-going efforts from governments in continuing the measurements of happiness during the pandemic. National statistical offices in many of the OECD countries continued to routinely collect and publish national statistics on happiness at various frequencies. The *Annual Population Surveys* carried out by the Office of National Statistics (ONS) in the UK provided annual and quarterly estimates for well-being evaluated on a scale of 0 to 10 by overall life satisfaction, happiness, anxiety and meaningfulness and purpose of life of adults aged 16 years and over since 2011. To further assess the impact of the pandemic on life in the UK, ONS also adapted a monthly omnibus survey, *Opinions and Lifestyle Survey*, to become a weekly survey and has been reporting well-being estimates based on these weekly data since May 2020.[7] Similarly, France reported quarterly estimates of well-being in dimensions of life evaluation, emotional well-being and eudaimonia since 2016, using data from a module on "Well-being of households" in the consumer confidence survey carried out by Institut national de la statistique et des études économiques (INSEE) every March, June, September and December, and this was continued throughout the pandemic.[8] Some other national statistical offices also collected and published annual measurements of happiness. For example, Statistics Netherlands (CBS) managed to carry out its annual survey on social cohesion and well-being in 2020 by conducting interviews via the internet and telephone and publish their personal well-being indicators in various dimensions and domains.[9] The statistical offices of Mexico and Hungary recently published their estimates on happiness measured by overall life satisfaction, domain satisfactions, affect and eudaimonia from 2020 and/or 2021.[10] At the European Union (EU) level, although the *EU Statistics on Income and Living Conditions* (EU SILC) had only published data on life satisfaction from an ad-hoc module which are available for 30 countries in 2013 and 2018, with the amendment of the EU Regulation for EU SILC, from 2021, the question of the overall life satisfaction will be asked annually for all countries that participated in EU SILC.[11]

New Initiatives during the Pandemic

A few national statistical offices and international organizations also started to carry out new surveys, in particular online surveys, to evaluate timelier the impact of COVID-19 pandemic on people's well-being. The Central Statistics Office of Ireland (CSO), for example, conducted in April/August/November 2020 and February 2021 the *Social Impact of COVID-19 Survey*, which includes topics in personal well-being over a sample of individuals aged 18 years and over living in private households selected from the original *Labour Force Survey* sample.[12] Questions on the overall life satisfaction with responses on a scale from 0 to 10 were asked in the surveys, following the *OECD Guidelines*. Statistics Austria conducted the *COVID-19 Prevalence Studies* in April and May, 2020 which examined two questions from the WHO-5 mental well-being index as well.[13] In March 2020, Statistics Norway (SSB) also conducted a national survey on *Quality of Life* for the first time, asking life evaluation, affect and eudaimonia questions.[14] New Zealand's national statistics office (Stats NZ) included a set of well-being questions as part of a supplement to the quarterly *Household Labour Force Survey* (HLFS) from the June 2020 to the March 2021, allowing for non-face-to-face interviews.[15] Overall life satisfaction (scale 0-10), happiness yesterday (scale 0-10), loneliness in the past four weeks, how worthwhile life was (scale 0-10) and mental well-being were asked to HLFS respondents aged 18 or over. These new well-being measurements helped tracing the changes in well-being due to the pandemic and can be compared to the *General Social Survey* (NZGSS) in previous years. Statistics Canada carried out the *Canadian Perspectives*

Survey Series (CPSS) survey, which is an experimental project aiming to collect data on important social issues rapidly and effectively.[16]   The surveys were fielded online over a period of one year, starting from January 15, 2020 until March 15, 2021, with different topics of focus. In particular, the June CPSS survey provided information on people's happiness during the pandemic, measured by overall life satisfaction (scale: 0-10). On the EU level, three rounds of the *Living, Working and COVID-19 Survey* were carried out online in the member states to track people's quality of life between the first lockdowns (April 2020), the re-opening of economies (July 2020) and the vaccination programs were rolled out (February 2021). The surveys included questions on life satisfaction (scale: 1-10) and happiness (scale: 1-10) as well as WHO-5 mental well-being index, based on the Eurofound's *European Quality of Life Survey* (EQLS) and *European Working Conditions Survey* (EWCS) and other sources, such as the EU SILC.[17]

The efforts of public sectors in measuring well-being are growing as COVID-19 continues to spread, therefore our summary is at best a subset of the ongoing measurements of happiness by governments across the globe. In addition, the initiatives from public health institutions were largely neglected in this brief. For example, national health surveys conducted by Centers for Disease Control in many countries (e.g., United States) include variants of well-being measures, such as depression and anxiety.[18]   However, our brief still provides an overview of the continuous and new efforts in measuring happiness by national statistics office during the COVID-19 pandemic, most of which are available in OECD and developed countries, yet largely missing in governments of developing countries.

Happiness Measures from Non-government Sectors

Many non-government organizations, such as universities, research institutes, and survey companies, have been measuring and tracking happiness both before and during the COVID-19 pandemic.

Surveys by Research Organizations

Labor panels in a few developed countries always contain survey questions on life satisfaction. They are the *German Socio-Economic Panel* (GSEOP)[19], the *Korean Labor & Income Panel Study* (KLIPS)[20], the *Korea Welfare Panel Study* (KoWePS)[21], the *Swiss Household Panel* (SHP)[22], the *British Household Panel Survey* (BHPS)[23], and the *National Longitudinal Survey* (NLS)[24] and the *Health and Retirement Study* (HRS)[25] from the United States. Their surveys conducted in 2020 are good sources for studying happiness during the pandemic. Happiness has also been measured periodically by international surveys covering many countries. For example, the *World Values Survey* has been conducted between 1981 and 2020 with five-year intervals, measuring affective happiness and life satisfaction of about 1,000 individuals over 100 countries.[26] In the most recent wave, twelve countries were surveyed in 2020.

The Human Flourishing Program of the Harvard University introduces the 12 flourishing questions, consisting of five domains: happiness and life satisfaction, mental and physical health, meaning and purpose, character and virtue, and close social relationships[27]. The survey was conducted both before the pandemic (January 2-13, 2020) and during the pandemic (May 28-June 10, 2020) in the US when participants were recruited and surveyed via the *Qualtrics Online Panels*.[28]   Besides, there are many other surveys conducted by researchers

aiming to examine the impact of COVID-19 on happiness, in Germany[29], in Sweden[30], and in Switzerland[31].

Surveys by Polling Companies

There are some surveys covering happiness before and during the pandemic, conducted by polling companies, such as The *Gallup World Poll* (GWP) and *IPSOS's Global Happiness Study*[32]. GWP is an annual global survey conducted by the Gallup Inc. covering over 150 countries/regions in the world starting from 2005[33]. The study surveys approximately 1,000 nationally representative residents aged 15 or over per country. The main happiness survey measure is the Cantril ladder, to evaluate the quality of their lives on an 11-point ladder scale running from 0 to 10, with 0 being the worst possible life for them and 10 being the best possible. In addition, GWP covers a large set of questions of both positive (enjoyment, laughter) and negative affect (anger, sadness, worry). The responses to these affective measures are binary, indicating whether each emotion is felt a lot by the respondent on the previous day.

There has been a mode change in some countries, from personal to telephone interviews due to surveying difficulties caused by the pandemic. Research shows that the answers to well-being questions are subject to very small mode effects. For example, recent UK national survey shows that life satisfaction is only 0.04 points lower with in-person than telephone interviewing.[34] However, the shift from personal to phone interviews may change the pool of respondents in some countries, which might pose challenges in comparing happiness in 2020 with in previous years. Note that the mode change does not affect the developed countries since most of them have already been surveyed by telephone in previous waves.

IPSOS's Global Happiness Study has accumulated annual happiness data in over 20 countries since 2011. Its happiness measure is given by the question: "Taking all things together, would you say you are: very happy, rather happy, not very happy, or not happy at all?" The 2020 survey sample consists of 19,516 adults aged 18-74, via Ipsos' Global Advisor online survey platform during July 24 – August 7.

Joint Efforts

Research organizations and private polling companies have made joint efforts in tracking happiness. For example, the Department of Politics and International Studies of Cambridge University launched a joint research center, the YouGov-Cambridge Centre for Public Opinion Research, in collaboration with a polling company, YouGov. They report on weekly basis the past week's mood of about 2,000 residents in England, Scotland, and Wales since June 2019.[35] YouGov- Imperial College London's *Covid-19 Behaviour Tracker* surveyed the Cantril ladder question in 39 countries from late April 2020, in collaboration with the World Happiness Report team.

Happiness Measures from Social Media

Furthermore, researchers have extracted data from social media platforms or search engines to assess real-time happiness of people without replying survey questionnaires. *Twitter* and *Facebook* are two representative international platforms which have been used by many researchers. *Google Trends* and its

local equivalents are also valuable data sources for happiness.

Twitter, Facebook and Their Equivalents

Twitter and *Facebook* have been widely used by international researchers to extract sentiment, or overall scores of positive and negative emotion.[36] Two types of methods have been applied to extract sentiment: word-level methods and data-driven methods.[37] Word-level methods (e.g., Linguistic Inquiry and Word Count and Language Assessment by Mechanical Turk) involve the use of predetermined or annotated dictionaries that are expected to represent positive and negative emotion and count the frequency of words appearing in the dictionary. On the other hand, data-driven methods involve the use of machine learning to identify the association between the linguistic information contained in the text and its emotional content. The prediction of emotional content in the data-driven methods is based on sentences/documents rather than words in isolation. Comparing Twitter-based happiness measures with those from public-opinion surveys, researchers generally found data-driven methods offer performance improvements over word-based methods for predictive problems.[38] One recent study on COVID-19 derives the Gross National Happiness Index from *Twitter* through a data-driven method (Natural Language Processing) and investigates the relationship between lockdown and expressed happiness in South Africa, New Zealand, and Australia.[39] Since *Twitter* is generally not accessible in mainland China, similar research on mainland China uses data from *Sina Weibo*, the largest social media platform in mainland China and known as the Chinese equivalent of *Twitter* (Wang et al., 2020).

Nevertheless, *Twitter*-type data have a few limitations: First, although the messages are geo-tagged, there are some possibilities of "migration bias": a statement from the message about a specific location could be sent from a completely different location and different time; Second, there can be a problem of representability since *Twitter* users may be significantly different from general populations in terms of some demographic and socioeconomic characteristics, such as age, income, gender, and access to mobile phones.

Google Trends and Its Equivalents

A number of recent studies on the changes in happiness during the COVID-19 pandemic have used data from *Google Trends*.[40] *Google Trends* provides an unfiltered sample of search requests made to *Google* and an index for search intensity (or relative popularity) by topic or term over the time period requested in a geographical area. The index of relative popularity of each topic/term ranges from 0 to 100, where 100 indicates the peak popularity for that topic/term over the time period, and 0 means there was not enough search volume for the topic/term in a given date. A search term query on *Google Trends* provides searches for an exact search term, while a topic query includes related search terms in any language. Data for topics were more widely used than those for terms because they not only provide more comprehensive information on search interests but also take into account language differences across countries/regions.

The relative popularity of several topics of negative affect, such as apathy, boredom, frustration, fear, irritability, sadness, has been found to be a good proxy for the corresponding negative mood state. A "negative affect search index" can be derived by taking the simple average of the relative popularity of topics

of negative affect. On the other hand, the data on topics related to positive mood states, such as happiness, well-being, optimism, and contentment, have been found to be poor proxies for positive emotional states based on both qualitative and quantitative investigations into the related queries of each search topic query.[41]

Even though *Google* has maintained around 90 percent share of the global search engine market from 2010 onward, *Google* is not the dominant search engine due to political or linguistic issues in some countries such as China, South Korea, and Russia.[42] Therefore, there are also equivalents of *Google Trends* in those countries, including *Baidu Index* from China, *Yandex*'s Keyword Statistics from Russia, and *Naver Trends* from South Korea.

Conclusion and Discussion

Despite the unprecedented challenges to track timely the well-being changes during the COVID-19 pandemic, we still observe great and ongoing efforts from both government and non-government sectors in continuing measuring happiness during the pandemic. Except that national statistics offices in most of the OECD countries still routinely collected and publish national statistics on happiness, a few national statistic offices and international organizations started to carry out new surveys to promptly evaluate the impact of the pandemic on people's well-being. Besides, non-government sectors, including universities, research institutes, non-profit international research programs, and survey companies, also maintained their efforts in collecting happiness data during the pandemic. However, most of the existing happiness surveys collected during the pandemic from both government and non-government sectors are from developed countries.

Compared to the traditional survey instruments for measuring happiness, social media data and the innovation in using the big data analytics not only offer a broader international coverage but also enable researchers and policy makers to assess real-time happiness of people. That said, social media data also have a few limitations. First, happiness measures obtained or constructed from social media data can only provide information on affect or emotional states rather than overall life evaluation or eudaimonia. Second, the sample of social media data can hardly be nationally representative because social media users can be significantly different from general populations in terms of demographic and socioeconomic characteristics. Despite some limitations of social media data, they can be valuable in policymaking during the pandemic when timely measures of well-being are not available through other channels.

This brief suggests that more efforts are needed from developing countries to measure and track happiness during the pandemic and in the normal time. This may involve the collaboration between government and non-government sectors and guidance from developed countries or international organizations.

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[25] http://www.umich.edu/~hrswww/

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[28] See VanderWeele et al. (2021).

[29] See Zacher and Rudolph (2020).

[30] See Kivi, Hansson, and Bjälkebring (2021).

[31] See Macdonald and Hülür (2021).

[32] https://www.ipsos.com/en/global-happiness-study-2020

[33] The World Happiness Report always use the survey the making the global ranking of happiness (e.g. see Helliwell, Layard, & Sachs, 2012; Helliwell et al., 2021).

[34] See Coates and Aston (2021).

[35] See Foa, Gilbert, and Fabian (2020).

[36] See Curini et al. (2015), Kramer (2010), Luhmann (2017), Mitchell et al. (2013), Miura et al. (2015), Nguyen et al. (2016), and Settanni and Marengo (2015).

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[38] See Devlin et al. (2018) and Schwartz et al. (2013)

[39] See Greyling et al. (2021)

[40] See Brodeur et al. (2021), Foa et al. (2020), and Ma et al. (2021)

[41] See Foa et al. (2020) and Ma et al. (2021)

[42] See Jun et al. (2018)