Objective and Subjective Measurements for Development and Well-being: Some Perspectives from a Bottom-up Study in Indonesia

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Abstract

The concept of development or, ultimately, well-being or happiness is now under extensive discussion by many scholars and international organizations. After all, what are we trying to measure and understand, and why? Another important question is whether or not we have a sufficient framework, tools, data and information to measure the state of people's well-being and how it changes. The aim of this article is to conduct extensive reviews on the existing well-being concepts. The study discusses Indonesia's well-being measurement framework as a case study. Through the discussion, the gaps between the ideal and the reality are identified. Based on these findings, directions are proposed to stakeholders on how they can implement the desirable improvements identified. Indonesia has collected national statistical data to facilitate analysis of its population's well-being. This study provides suggestions for improving this collection system by proposing inclusive and participatory subjective measurement as an important supplemental approach to provide missing pieces of the puzzle in measuring changes in people's well-being. Civil society often finds subjective measurements easier to understand and relate to. They are, in fact, the biggest stakeholder in development. If an inclusive framework for subjective measurement can be established, many potential or appropriate development practices may be realized. Important possibilities include international benchmarking and acceleration of development resonance driven by common people.

Key words: development monitoring, happiness measurement, participatory, quality of life, subjective well-being

1. Introduction

It is recognized that the well-being of national society is valuable capital for development. Governments and key policy makers have tremendous opportunities to create environments in which well-being flourishes (Beddington *et al.*, 2008). In order to understand and capitalize on well-being and help it flourish, one must measure and monitor it so that diagnoses can be made and the processes of designing and redesigning robust policies and actions can be undertaken efficiently and effectively. In the recently published list of indicators reviewed at the second IAEG-SDG (Inter-Agency and Expert Group on Sustainable Development Goal Indicators) meeting, the topic of well-being was addressed in several goals' targets. For example, in Goal 3, Target 3.4.1, the promotion of mental health and well-being was emphasized as one of the keys to preventing premature mortality from non-communicable disease. In Goal 9, Target 9.1.1, it is mentioned that human well-being can be supported by the development of quality, reliable, sustainable and resilient infrastructure (UNSTATS, 2015). The list of targets published by the second IAEG-SDG meeting also addresses critical criteria or perspectives for policy design and actions such as equity, equality and/ or justice. This article focuses only on two aspects of well-being indicators, objectivity and subjectivity, and does not cover other critical aspects. Objective and subjective measurements in the field of monitoring development have their own advantages and disadvantages. The two approaches, when paired appropriately, could compensate for one another's weaknesses and provide a more holistic understanding of the state of development in a community

(Diener & Suh, 1997). Moreover, appropriate and consistent data collection would enable national, regional and global comparisons (Smith & Exton, 2013). The term 'development' in this study refers to the development of greater quality of human life. The term 'well-being' here refers to the condition of an individual or group of people in their social, economic, psychological, spiritual and medical state. It is argued that the ultimate goal of development is enhanced well-being, where the individual or group of people is in its best state. The state of development and well-being, for example in a community, can be explained objectively, such as by reporting the number of crimes that occur, the number of infant deaths and other readily quantifiable states. On the other hand, the state of development can also be measured subjectively, for example, by asking people how they feel about their state of well-being. There are two popular types of well-being, hedonic well-being and eudaimonic well-being. Hedonic well-being is the perspective which defines well-being in terms of attaining pleasure and avoiding pain (Ryan & Deci, 2001). The other type, eudaimonic well-being, is the concept that well-being actually consists of more than just happiness and that those people who report happiness are not necessarily psychologically well. Eudaimonia is more concerned with living well or actualizing human potentials (Deci & Ryan, 2006). Between these two types of well-being, subjective well-being (SWB), commonly used in development studies, has been associated with the former type, hedonic well-being (Kahneman *et al.*, 1999). Measuring well-being in terms of life satisfaction, can be used as a proxy for welfare. Cognitive well-being is usually interpreted by psychologists and sociologists cardinally. In other words, it is assumed to be comparable across respondents (for example, the difference in happiness between a 4 and a 5 for any individual is the same as between an 8 and a 9 for any other individual). On the other hand, economists usually assume only the ordinality of satisfaction well-being (individuals sharing a common opinion of what happiness is) (Ferrer-i-Carbonell & Frijters, 2004). Despite these two different assumptions in measuring satisfaction, Ferreri-i-Carbonell & Frijters (2004) found that the two assumptions (cardinal or ordinal) make little difference. What would make a substantial difference is a measurement that takes personality traits into account as a fixed effect.

Based on some constructed assumptions, Ferreri-i-Carbonell & Frijters (2004) illustrated three models.

The first is the case where general satisfaction (GS) is assumed to be interpersonally cardinally comparable in an ordinary least square (OLS) model:

$$GS_{it} = x_{it}\beta + \varepsilon_{it} \quad \textbf{(1)}$$

In the second case, GS is assumed to be interpersonally ordinally comparable in an ordered probit or ordered logit model:

$$\begin{aligned} GS^{*}_{it} &= x_{it}\beta + \varepsilon_{it}, \\ GS_{it} &= k \Leftrightarrow \lambda_k \le GS^{*}_{it} < \lambda_{k+1} \end{aligned} \quad \textbf{(2)}$$

They then proposed a third case, an improved model where fixed effects (personality traits) are incorporated in an ordered logit model:

$$\begin{aligned} GS^{*}_{it} &= x_{it}\beta + f_i + \varepsilon_{it}, \\ GS_{it} &= k \Leftrightarrow \lambda^{i}_{k} \le GS^{*}_{it} < \lambda^{i}_{k+1} \end{aligned} \quad \textbf{(3)}$$

where GS^{*}_{it} is the latent variable; GS_{it} is observed general satisfaction; X is observed characteristics (e.g., age, income, living in a partnership, children and health); β is the estimated parameter or slope; ε is unobserved characteristics or an error term; f is fixed individual effects; λ^{i}_{k} is individual specific thresholds; the suffix 'it' refers to individual i at time t; the suffix 't' = 1,…, T; the suffix 'k' = the alternatives sets of marginal effects 0,…, K; and the suffix '$k + 1$' indicates an assumption that the individual specific effect's intercepts are increasing.

An example of the first model where cardinality is assumed would be a comparison of aggregate satisfaction across countries, such as a national aggregate satisfaction of Indonesia compared with that of Japan or the Philippines. The second model does not lend itself that easily to individual heterogeneity. There may be proxies for unobservable conditions. Examples of these proxies could be age, marital status, work-related information or number of children. Comparisons must therefore be made with consideration of these proxies. In the third model, consideration is given to deeper aspects of individuals because personality traits are considered a fixed effect. Consideration of fixed effects like this is gaining popularity due to its robustness. Ideally, designing this measurement approach in satisfaction studies would require the cooperation of psychologists, sociologists and economists. Although due to their simplicity the first and second models are widely practiced, the third model could improve precision and accuracy. Longitudinal studies have been widely performed to determine these fixed effects (Watabe & Kouno, 2014; Richard, 2007; Joachim, 1993). When fixed effects are incorporated, the aggregated data also present a truer value. This study proposes equation (4) as the ideal representation of the aggregated general satisfaction in time t for n number of individuals using the third model before any cardinal or ordinal comparison is performed. When this is put into practice, it will lead to more valid discussions on gaps in aggregated well-being, minimums, maximums, averages, and other values of interest if equation (3) is applied appropriately to gain data on individuals.

$$\begin{aligned} GS_{t} &= \sum_{i}^{n} GS^{*}_{it}, \\ GS^{*}_{it} &= X_{it}\beta + f_i + \varepsilon_{it}, \\ GS_{it} &= k \Leftrightarrow \lambda^{i}_{k} \le GS^{*}_{it} < \lambda^{i}_{k+1} \end{aligned} \quad \textbf{(4)}$$

Inclusive of hedonic well-being (as cited in Diener & Suh, 1997), three major philosophical approaches to determining the quality of life are highlighted. These are

1) a good life is dictated by normative ideals based on religious, philosophical or other systems, 2) a good life is based on satisfaction of preferences, and 3) a good life is based on individual experiences. An example of the first approach is an act of giving, helping others or generosity that is dictated by religious systems as something good. An example of the second approach would be whether or not one has been able to obtain things he desires. An example of the third approach would involve the feelings of joy, pleasure and contentment based on experiences. The conventional SWB criterion is closely related to the third philosophical approach. Development organizations, academic research and government institutions use one or several of these approaches in combination as a means of measurement supplemental to objective measurement. There are many challenges in SWB data collection. A few examples are 1) determining what, when, where and whom to ask, selecting the appropriate words and frequency, 2) deciding how to minimize biases, and finally 3) considering how to pair it with objective measurement data.

Although the importance of SWB is well acknowledged, having been proven by many studies to provide meaningful and reliable data (Diener & Suh, 1997; Clark & Watson, 1988; The WHOQOL Group, 1998; Smith & Exton, 2013), it is still quite rare to see practical use of SWB at the national and regional scales or use of a 'pairing' approach with objective measurements for guidance. This study aims to describe the current practice of development and well-being measurement in Indonesia, propose some improvement strategies for the future development of Indonesian methods of well-being measurement, and summarize the advantages and disadvantages of the subjective and objective approaches based on literature. Indonesia released its first well-being report in September 2014 based on survey data collected in 2013 from 9,720 households randomly selected from all of its provinces. The present study discusses the survey methodology used for that particular report and then proposes improvement strategies based on findings from a bottom-up participatory workshop conducted in 2013 and 2014 in a middle-low income community in Surabaya, Indonesia. (Pandyaswargo *et al.*, 2013, 2014). The proposed improvement strategies cover both technical aspects such as appropriate wording and design, and basic principles such as policy integration and added value for the community involved.

2. Indonesia's First Subjective Well-Being Report: What was Missing?

Efforts to link subjective and objective measurements often reach an advanced stage of realization only after the investigator analyses the results from a subjective measuring activity intended to supplement objective measurements. Some developed countries have realized the importance of measuring well-being subjectively. EU countries have focused on the collection of subjective measurement data, while the UK, Japan (The Commission on Measuring Well-being, Japan, 2011), Bhutan and the OECD have started development of subjective well-being indicators (SWI). Bhutan's previous King Jigme Singye Wangchuk coined the term 'Gross National Happiness' (GNH) in 1972. GNH claims to be multidimensional because it focuses not only on the SWB of the individual but internalizes other people and considers nine domains: 1) psychological well-being, 2) health, 3) time use, 4) education, 5) cultural diversity and resilience, 6) good governance, 7) community vitality, 8) ecological diversity and resilience and 9) living standards. Indonesia, which is categorized as a lower middle income country (World Bank, 2015), published its first national well-being report in 2014 based on 2013 data. Along with China, India and South Africa, Indonesia was mentioned as an OECD key partner country when application of the OECD's Better Life Index was expanded (OECD, 2014b). The content of the Indonesian well-being report, however, only presents domain satisfaction and provides no happiness and life satisfaction indicators.

Badan Pusat Statistik (BPS) and the Central Statistics Bureau prepared and published the first Indonesian "National Well-being Report." BPS is a non-departmental government agency directly reponsible to the President. Its main function is to provide data to the government and the public. It is also mandated to establish cooperation with international institutions and other countries for the benefit of Indonesia's statistical development (BPS, 2012). The published report states that Indonesia scored 65.11 on a scale of 0 to 100 in national well-being. This result was based on the satisfaction level of 10 essential life domains: 1) employment, 2) household income, 3) housing and assets, 4) education, 5) health, 6) domestic relationships, 7) social relationships, 8) availability of leisure time, 9) environmental conditions and 10) safety. The sampling size was 9,720 against a population of nearly 250 million (BPS, 2014). Sampling was done by the probability sampling method and the references to formulating the survey included the guidelines from the New Economics Foundation (NEF, 2011; OECD's Better Life Index OECD, 2014a), and Eurostat's Feasibility Study for Well-Being Indicators (Eurostat, 2008; National Statistics Bureau, 2015a, b). The members of households to be interviewed were selected based on a Kish selection table prepared in advance by Indonesia's national statistics office (BAPPENAS, 2014). The survey consisted of direct interviews of selected respondents in a semi-private location with a sufficient amount of time available to create a conducive environment for honest answers and avoidance of rushed answers (BPS, 2014). The publication of this report became a topic of discussion among Indonesian scholars and was highlighted in the media (Beritasatu, 2014) (Metro TV, 2014) (National Geographic Indonesia, 2014). The results and coverage of the index attracted criticism, especially from university professors and scholars in development-related studies. Some recorded critiques and suggestions

from national experts included:

1. The final published results did not provide enough details. For example, urban communities were mentioned as happier than rural communities, but it is unclear whether the scores on income, domestic relationships, and environmental conditions cancelled each other out or not.
2. The sampling size and diversity of respondents need improvement (BAPPENAS, 2014).
3. The coverage should be expanded, i.e., not just measuring cognitive or satisfaction aspects, but also the spiritual/emotional or affective aspects of well-being (CPPS, 2014).

The first argument identifies a problem common to many statistical analyses where averages are measured. Detailed information is lost, resulting in the elimination of meaningful information in the final index score. The second argument is of dubious concern because the report stated that random sampling had been practiced and the statistics office is known for the credibility of its random sampling (CPPS, 2014). The third criticism relates to the problem of only collecting materialistic information and is actually in the same tone as an argument in the Well-being Commission report, namely "there is a weak connection between resources and human well-being: it says something about the direction of change but it does not inform about its magnitude or about the level of well-being of individuals with different preferences" (Stiglitz *et al.*, 2009). How significant this argument is may vary regionally. To take an example, in the time-use diary collected at the Surabaya workshop, it was revealed that participants allocated a good fifteen minutes several times a day for their spiritual needs by praying. When asked about which activities among the day they would like to reduce, none of the participants had any problem with the time spent praying each day because those are the times they enjoy taking a break from hectic daily activities and they feel it helps rejuvenate their contentment. One may argue that their preferences and emotional/spritual well-being may give insight into the reported high degree of well-being despite the objective data of scarce resources. This, however, is just one result among other possible products of involuntary interaction among people. The people one interacts with may affect his or her norms, aspirations and judgment of what is important, friendly or threatening (Layard, 2006) and this could vary considerably across cultures and regions.

To add to the list of improvement opportunities addressed by the Indonesian experts through formal institional meetings and discussions, this study offers insights from bottom-up practices of development studies. There were two workshop sessions held in a rusunawa, or government-funded affordable housing complex for people relocated from riverbanks and city centers, in Surabaya, Indonesia (Pandyaswargo *et al.*, 2013, 2014). The first one, in 2013, was aimed at capturing the aspirations and challenges of the community. The second one, in 2014, was aimed at developing an indicator of sustainable development. In the process, certain things became clear that could be relevant to any sustainability monitoring practice:

1. A participatory workshop style encourages a sense of belonging in a community; leading to a potential increase in level of well-being.
2. A participatory survey helps engage a community in reflecting on their lifestyle and behavior, leading to capacity building and empowerment.
3. A detailed time-use study combined with a subjective analysis of each activity has the potential to bridge the missing link between objective and subjective measurement of well-being.

2.1 Participatory Workshops as a Promising Value-adding Platform that Encourages a Sense of Belonging in a Community

Our first proposal based on the Surabaya workshop experience is in the same tone as (Helliwell, 2011), who argued that there should be new models for local governments where face-to-face interaction and other trust-building contacts can be made. Furthermore, he argued that reformation of conventional public service design and delivery was required. When the monitoring process can be conducted in a setting where social cohesiveness is exploited and strengthened, the activity of gathering data itself can be a fertile ground for the development and application of policies aimed at improving subjective well-being. A participatory workshop is one example of a bottom-up platform where such aims could be achieved.

At the Surabaya workshop, people were asked to rate their priority challenges in terms of basic needs. The researchers who conducted the workshop provided several options such as water, food, energy, jobs and waste management to provide a starting point for the discussions, but also explicitly indicated that the participants could add further topics of concern. A group of male participants added "harmony in the community" as their priority challenge. This triggered an interesting discussion especially about how other challenges, for example, in waste management, were the result of lack of coordination, harmony and chances to gather together to discuss activities for the betterment of their community. After several participatory workshop sessions in this community (in 2013, 2014 and 2015) physical voluntary improvements were made to the community hall where the workshops and other meetings were taking place and better relationships between the residents of the community were established.

2.2 Participatory Surveys Help Engage Communities to Reflect on their Lifestyle and Behavior

Our second proposal, is to let people have physical access to the materials of analysis. There are many benefits to this strategy, including self realisation of how and where their life might be lacking. When performed in groups, it could also promote the benefits mentioned

in the above proposal. The challenge to this approach is uniformity of competencies among the respondents, for example, in filling out questionnaires and surveys on their own. This is where the role of officials or experts as facilitators comes into play for quality control and also for face-to-face interaction.

At the Surabaya workshop, the participants were able to see the voting results and hear the discussion outputs instantly, in their own style and language. This advantage of participatory surveys lets individuals at the workshop immediately compare their answers to those of other people in the community, including what the majority responses were, whether others shared the same concerns and desires, and whether common challenges could be worked on together. There was one case where a group of participants who lived in one building felt their tap water was dirty and smelly while another group living in the next building felt there was nothing wrong with the quality of their water supply. It was found that the second building's inhabitants had agreed to take turns cleaning the water filter on the rooftop every month. Transfer of this knowledge during the workshop has helped the first building's residents to identify the source of their water supply problem.

2.3 A Detailed Time-use Study Combined with Subjective Analysis of Each Activity Has the Potential to Bridge the Missing Link between Objective and Subjective Measurement of Well-being

Our third proposal is to recommend using combined objective and subjective measurements with rich detailed information on how people use their time and to select major things to involve, such as other persons present, means of transportation, for whom the activities are done, emotional states, utilities involved, etc. Some of the established methods include the Day Reconstruction Method (DRM) (Kahneman *et al.*, 2004), and time-use studies, also known as time- budget studies or allocation of time (United Nations, 2014). By extending the measurements into the detailed activities of individuals, one may see potential biases, hidden values and the existence or absence of similarities in patterns, occurrences of events, and lifestyles among the communities. This benefit could also help investigators identify potential resources. Since there are international guidelines provided by the United Nations, comparability and benchmarking would be possible. On the other hand, the flexibility of combining this approach with other methods may also help local governments address specific questions of their communities.

A time-use study with satisfaction questionnaires was conducted at the second Surabaya workshop. This time-use diary has revealed how much time in a day each person was using for particular activities, how often the activities were performed during weekdays and on weekends, and which kinds of basic needs (water, food, energy, jobs, community environment) were involved in each activity. The satisfaction questionnaire, on the other hand, revealed how satisfied the individuals were regarding each basic need in terms of cleanliness, availability, affordability, reliability, safety and convenience. An analysis that combines the output of these two data sets may help policy makers determine which basic needs in the particular community have to be prioritized for an improvement that would efficiently affect their well-being, considering both the objective intensiveness of time and subjective satisfaction of that particular sector in their daily life. The objective information on time spent on each activity involving each basic need dimension may explain the intensity of subjective responses regarding their satisfaction. On the other hand, subjective satisfaction with regard to the qualities of a particular basic needs dimension may explain how bad or satisfactory the living condition is depending on the duration for which each dimension is used.

The questions asked regarding subjective satisfaction that are paired with the time use survey can vary depending on the purpose of the survey. For example, in this Indonesian case, the interests were in the basic needs dimensions. In the French time use survey, on the other hand, questions on satisfaction were asked about the respondents' residence, job, leisure and relationships with their family (INSEE, 2010).

2.4 Recommendations for the Indonesian National SWB Questionnaire

In addition to the four critiques made by the Indonesian scholars reported in the media and at meetings and the proposals made based on the Surabaya bottom-up practices mentioned above, direct observation of the questionnaire used for collecting data for Indonesia's first national SWB report (National Statistics Bureau, 2013) and available metadata on the survey (National Statistic Bureau, 2015a, b) generated the following points of discussion:

1. The final question on emotional well-being ("How happy do you feel?") is asked after inquiring about satisfaction with material aspects. The order of asking this question should be reconsidered, otherwise it is difficult to distinguish how much of that happiness is coming from material satisfaction that has been reviewed in the interview, and how much of it is actually the general feeling of the person.
2. There was no time-frame or factors to be considered when the respondents were asked to rate their state of happiness in the final question. This could lead to highly divergent perceptions of the question by respondents, and perhaps different intrepretations by the interviewers when they are asked by the respondents.
3. Using a bipolar question on happiness rather than unipolar to solve bias due to genetic personality should be considered.
4. Technology should be used to improve interpretability.

The first point of discussion is a problem that is also acknowledged by Kahneman & Krueger (2006). They found that reported satisfaction or happiness was often

strongly affected by earlier questions in a survey. Therefore it is important to ask non-leading questions, or to arrange the order in a way that questions that are prone to bias come earlier in the questionnaire. The second point is self explanatory. Regarding the third point, for psychologically focused well-being studies it is recommended that when the investigator would like to reveal an accurate emotional evaluation, both positive feelings (e.g., energized, happy, competent, enjoying) and negative feelings (e.g., frustrated, hassled, angry, criticized, tired) must be measured on scales to provide a cancelling effect when someone tends to respond in moderation or in extremes as an effect of their personality, some of which is embedded in their genetics (Tellegen *et al.*, 1988; Diener, 2000). This approach is called the U-index, coined by Kahneman & Krueger (2006). The last point refers to the use of visual aids such as touch-screen panels and instant visualization right after answering the questionnaire to engage the respondent more in the process. It might require a large financial investment though, so despite its various benefits, it is perhaps something that nations with more funding would be able to adopt at the present.

3. International Framework and Challenges in Objective and Subjective Measurements

Measuring well-being objectively implies that the data to be measured are scientifically reproducible, quantitative statistics rather than individual subjective perceptions. Because well-established measuring procedures exist, enabling straightforward international comparisons, the list of indicators reviewed at the second IAEG-SDG meeting (UNSTATS, 2015) mainly falls into this category. The benefit of objective measurement is that it can provide a solid foundation for many stakeholders to form a consensus. The downside of this approach is that any single data result might not necessarily represent the well-being status of an individual or a community among many other individuals or communities, as there is always considerable variation among scientific statistics in any objective well-being measurement. One may try to obtain a collection of these data as an index and claim that it should represent 'well-being,' but it would lead to arguments and controversies such as "why not use a different set or combination of data?"

Measuring well-being subjectively means that the analyzed data are based on individual cognitive or emotional evaluation. The cognitive component of well-being measurement refers to a global evaluation of one's life, often assessed as life satisfaction. The emotional component of well-being is reflected in experiences of pleasant and unpleasant emotions (Diener, 2009). These two are correlational, though, because often people with high life satisfaction tend to report more frequent pleasant emotions (Diener & Fujita, 1995).

The global perspective and acceptance of objective measurements in development have a longer history compared to subjective measurements, which were recognized only recently. Large-scale surveys of happiness only started in the 1960s (Diener, 2009), but the speed took off exponentially through the 1980s and 90s. In 2008, at the urging of President Nicholas Sarkozy of the French Republic, official demand arose for an international-scale, better social progress indicator. Sarkozy asked three prominent economists, Joseph Stiglitz, Amartya Sen and Jean Paul Fittoussi, among whom two were Nobel Prize winners, to create a commission to address the limits of GDP and provide suggestions for more relevant social progress indicators (Stiglitz, *et al.*, 2009). One of the outcome reports prepared by this commission suggested that there should be an internationally standardized well-being measurement method. Answering this call, the Organization for Economic Development and Cooperation (OECD) developed tools that allow worldwide Internet users to build their own measure of average well-being, called "Your Better Life Index." Incorporating the results from user participation in applying this tool, the OECD also published a guideline on measuring subjective well-being in 2013 (Smith & Exton, 2013). The guideline is thorough, although it left out one of the most important types of well-being, eudaimonia (a perspective in well-being which focuses on meaning and self-realization). Along with the well-being measurement, this guideline suggests collecting objective information such as demographics, material conditions, employment status and psychological measurements for a co-variation analysis. In the past, there have been more straightforward methods of measuring subjective well-being, taking into account only the subjective side of the measurement. In the early development of subjective well-being measurements between the 1960s and 1980s, there were 'The D-T Scale' (D for 'delighted,' and T for 'terrible'); the 'self-anchoring ladder,' asking, "In general how happy or unhappy do you usually feel?" and inquiring about the proportions of feeling happy, unhappy or neutral; 'PANAS' (positive and negative affect); and 'SWLS' (Satisfaction With Life Scale) (Larsen *et al.*, 1985). The presently available guidelines tend to attach, combine or supplement subjective well-being with something objectively measured.

Providing a framework for the relationship between objective and subjective measurements could be the first step toward understanding where subjective measurements fit in and what kind of role both approaches should play in helping investigators understand society. Figure 1 elaborates the relationships between subjective and objective measurements of well-being and how the disadvantages of each approach could actually be compensated for by the advantages of the other approach. For example, objective measurements could capture information in standardized units, such as age expectancies in years, air pollution in parts per million, level of flooding in meters or cubic meters, etc. On the other hand, units to express well-being have yet to be standardized. In the subjective approach, the investigator can ask, for example, "Taking all things into account,

how do you rate your happiness from 1 to 10?" and the result will be a single, holistic, easy-to-understand comparable unit. Although according to cognitive response theory of subjective well-being, the individual is in the best position to evaluate his or her life (Schimmack, *et al*., 2008), subjective measurement may be prone to bias. Objective measurements could help provide documentation and tracking of these possible biases. For example, social status, lifestyle or time spent with family could give direction in explaining why someone might feel constrained or, on the other hand, contented despite an unstable low income. At the same time, objective measurements cannot explain the whole story of social progress. For instance, information solely on income is

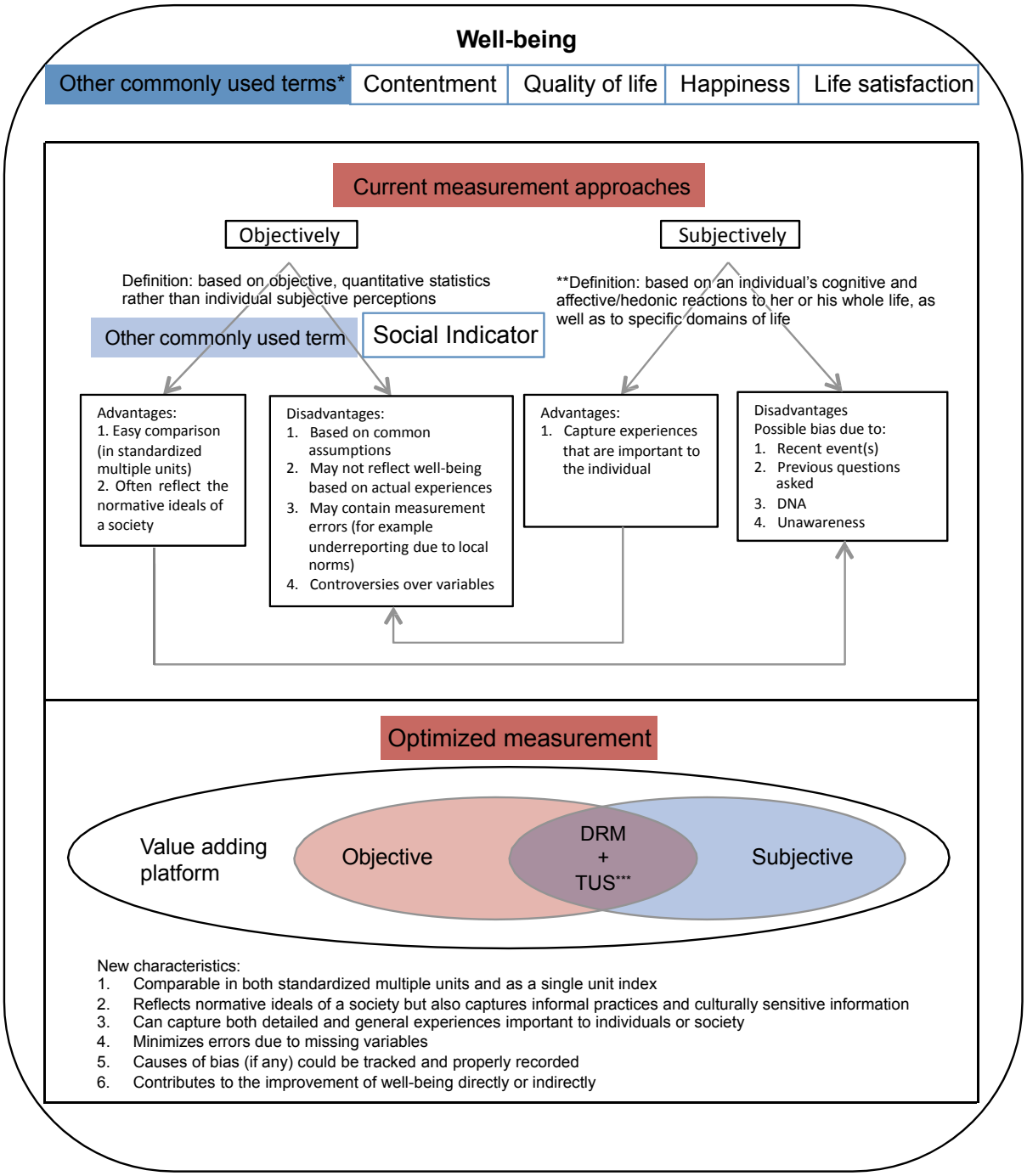

Fig. 1 Measuring well-being: current and proposed approaches.

* Often commonly used although they may mean different things, causing comparability problems

** Affective Well-being: the balance of pleasure and displeasure in people's lives. Cognitive Well-being: individual evaluation of their actual life on the basis of a comparison with their own subjectively constructed ideal

*** DRM : Day Reconstruction Method, TUS: Time-use Study

Source: Constructed by author by compiling data from Diener (1998, 2000), Helliwell (2011), Diener & Suh (1997), Sumner (1996), and Schimmack *et al*. (2008).

linked only very weakly to well-being (Ahuvia A. C., 2008a, b). These examples are just a few of the plenty of opportunities to design a way for the two approaches to compensate for each other's weaknesses and provide a holistic picture of development and social progress.

4. Conclusions

It has been recognized that the betterment of well-being is not just a development goal but also a goal for social capital itself to accommodate efficient and effective sustainable development. To help nations design an environment where people can make better decisions contributing to development, though, an appropriate, accurate means of measurement is required. Subjective measurements have been considered supplemental to objective monitoring. In practice, objective measurements alone do not tell the complete story. On the other hand, ways are still being found to pair subjective measurements properly with objective measurements. This study mentions several pairing methods and under which circumstances they can be performed. The example of Indonesia's first SWB report was brought up to demonstrate some concrete recommendations. Suggestions for effective Indonesian SWB monitoring, sourcing from national scholars and evidence from previous studies and literature have been presented in this study.

The following is a summary of recommendations that might also have larger implications in well-being monitoring in general. 1) Avoid bias by careful ordering of questions and incorporating bipolar questions, 2) Avoid errors by using time frames and mentioning what to consider in giving answers, 3) Cover both the cognitive and emotional states of the respondents 4) Deliver and present the interview in an added-value setting, and 5) Establish a national-scale official procedure on how to collect data using a holistic (objectively and subjectively measured) well-being indicator that is reproducible and ultimately allows international comparisons. Further studies may cover how incorporating technologies could make the process of data collection even more interactive so that identification of missing links and quick reviewing to spot errors can be done together with respondents. Pilot projects on applying hybrid tools such as the DRM and optimized time-use studies in developing countries may be the first step toward designing appropriate strategies for a larger scale implementation.

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