



Solving the income-happiness paradox

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Abstract

Easterlin notes a contradiction in the data. While the cross-sectional data set shows that happiness is a positive monotonic function of income, the time-series data set of high income countries demonstrates that happiness does not rise with the rise of income. To solve the paradox, this paper proposes that each data set reveals a different facet of happiness. The cross-sectional data set asks people how they assess their current well-being in general. This question prompts people to contrast their current well-being with a well-being in the distant past. This explains why happiness tracks income. In comparison, the time-series data ask people how they feel at the moment. This question prompts people to contrast their current well-being with an aspired goal in the future. Their response is a function of the gap that exists between their current well-being and the aspired one. The gap is usually steady for high income countries and, hence, happiness is likewise steady, i.e., insensitive to the rise of income. The proposed solution highlights the operation of contextual assessment: we have two facets of happiness following the two kinds of context in operation.

Keywords Relative income hypothesis · Set point theory · Easterlin paradox · Daniel Kahneman · Happiness-as-aspiration · Happiness-as-tranquility · Substantive goods · Substantive utility · Transcendental utility · Counterfactual well-being · Desired well-being

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1 Introduction

This paper proposes a solution of the Easterlin paradox, what this paper prefers to call the “income-happiness paradox.” Easterlin (1974, 1995, 2010, 2017) uncovered a contradiction in two sets of data regarding whether happiness tracks income. The correlation between income and happiness is positive in point-of-time data (i.e., cross-sectional data set within a country) as well as data across countries irrespective of level of prosperity. However, happiness does not rise with income in life-cycle data (i.e., time-series data spanning more than a decade) for countries where the average income surpasses about \$75,000 threshold using 2010 price level (see also Kahneman and Deaton 2010). As “Appendix 1” details, there has been a wide-ranging debate about the Easterlin paradox and the two sets of data. This paper accepts the reality of the Easterlin paradox, in step of the assessment of most scholars (e.g., Kahneman and Deaton 2010; Deaton and Stone 2013).

The cross-sectional data set is grit for the mill of the stylized economist—but it is anomalous for the stylized psychologist as best expressed by set point theory. In its textbook formulation, set point theory registers that whatever happens to substantive goods that the economist studies, and whatever happens to the consequent substantive utility that the economist studies, the person’s happiness returns to a pre-fixed set point (Brickman and Campbell 1971; Brickman et al. 1978).

Conversely, the time-series data set is grit for the mill of the stylized psychologist—but it is anomalous to the stylized economist who espouses the eminence of income. In its textbook formulation, economic theory registers that whatever happens to substantive goods consumed, the outcome must reflect such change. That is, the person’s level of happiness must positively track substantive goods consumption.¹

This paper questions whether the inconsistency of the cross-sectional and the time-series data sets amounts to a paradox. If each set gauges a different kind of satisfaction, there would be no paradox.

Some practitioners have reached the conclusion that we have two different kinds of satisfaction (e.g., Kahneman and Deaton 2010; Deaton and Stone 2013). Indeed, Deaton and Stone distinguish between “evaluative” and “hedonic” measures. Kahneman (2011, Chs. 37–38) calls them, respectively, “life satisfaction” or “life evaluation,” on the one hand, and “experienced well-being,” on the other.

The distinction between the two kinds of satisfaction led Deaton and Stone to explicitly warn against the naïve use of “the term “happiness” or, indeed, subjective well-being”. They state that the term is unhelpful, as it is a catch-all term given the difference between the evaluative and hedonic measures:

The important distinction between evaluative and hedonic well-being renders unhelpful the portmanteau uses of the term “happiness,” or, indeed, subjective well-being (Deaton and Stone 2013, 592).

¹ To note, many psychologists dispute set point theory (e.g., Headey 2014; Sheldon et al. 2014; see Khalil 2019), while a few economists support it (see Mishra et al. 2016).

Kahneman also warns against the portmanteau use of the term “happiness”, as it is not indicative of a simple meaning:

[W]e learned that the word *happiness* does not have a simple meaning and should not be used as if it does. Sometimes scientific progress leaves us more puzzled than we were before (Kahneman 2011, p. 407).

This paper adds its voice against the portmanteau use of the term “happiness.” It also adds its voice against the use of the term “subjective well-being”—but for unrelated reason. As for the term “happiness,” we must tread carefully and specify the variety of happiness under focus. But for the term “subjective well-being,” *the term connotes a confusing abridgment of two kinds of satisfactions or utilities*. One is “well-being” à la economist’s concept “utility,” while the other is “happiness” à la alternative view of satisfaction that is supposed to escape the standard economist toolkit. Given that “well-being” is already subjective as far as the economist is concerned, the term “subjective well-being” is a pleonasm. If the term denotes something beyond the economist’s well-being, let us call it “happiness.” So, this paper uses the terms “well-being” and “happiness” as separate concepts—while avoiding the term “subjective well-being” as it amounts to conflating well-being and happiness.

Indeed, this paper argues that well-being is “substantive utility” in the standard economist sense. Well-being or substantive utility function is a function of what can be called “substantive goods”. This paper prefers to use the term “substantive goods” and “substantive utility”—rather than “material goods” and “material utility”—to stress that substantive goods that occasion well-being is not limited to narrow “material” goods purchased by income. The set of substantive goods includes leisure, physical health, neighborhood security, environmental quality, marital status, and so on (see David et al. 2014). In this regard, the term “well-being” covers the empirical studies of social indicators that include these substantive goods—and even include mental health (e.g., Huppert and So 2013; Niemiec and Ryan 2014).

However, the term “well-being” as used here does not cover empirical studies that include variables related to non-substantive satisfaction. Examples of non-substantive satisfaction, what is called here “transcendental utility,” includes: (1) reflection on current income while comparing it to an imagined past income; (2) imagining an aspired goal that lifts well-being above the normal, predicted path of the future; (3) familial/communal bonding (see Khalil 2021); and (4) hopeful disposition; (This paper ignores the latter two varieties of transcendental effects, as they are not pertinent to the solution of the income-happiness paradox).

It is often the case that many empirical studies measures satisfaction by lumping “well-being”, i.e., substantive satisfaction that includes health, environmental quality, and other variables just discussed, with “happiness”, i.e., non-substantive satisfaction just defined (see David et al. 2014). The lumping is assisted with the “subjective well-being” portmanteau term (e.g., Pavot and Diener 2014; Miao et al. 2014; Cummins 2014; Gelatt 2013).

Specifically, lumping takes place when well-being is not distinguished from religious engagement, which is better understood as non-substantive satisfaction (e.g.,

David 2014). Further, lumping takes place when aspired goal and comparison of income are combined to measure life satisfaction (e.g., Dumludag and Gokdemir 2022), when aspired goal, acceptance of current well-being, and social relations are combined (e.g., Vendrik 2013). In addition, many researchers suppose that if they take into consideration goods that cannot be purchased, such as social life and environment, they are discussing happiness, and not simply “economics” (e.g., Hendriks and Bartram 2016; Graham and Markowitz 2011). Such a supposition is based on defining economics à la Alfred Marshall’s sense, i.e., about material goods that are purchased, rather than about economizing the allocation of all arguments that make up the substantive goods function à la Lionel Robbins and Gary Becker (see Khalil 1996b).

The conceptual axis upon which the proposed solution of the income-happiness paradox stands is the non-lumping of well-being and happiness. While well-being is a function of substantive goods that are not limited to purchased goods, happiness is another genus, transcendental utility. This paper defines transcendental utility as qualitatively different from substantive utility (well-being). This paper focuses on two varieties of transcendental utility mentioned briefly above: (1) the satisfaction from contemplating/ruminating a given well-being in light of an imagined well-being in the past; and (2) the satisfaction from aspiring/desiring an imagined well-being that can be achieved in the future. As stated above, the difference between the two facets of transcendental utility hinges on whether the context employed is an imagined well-being in the past or an imagined well-being of the future.

The identified dual facet of happiness captures what Deaton, Stone, and Kahneman have identified as two different gauges of happiness. They have called them the “evaluative” and “hedonic” measures. This paper goes further and proposes a hypothesis of how these two measures or, what is the same thing, the dual facet of happiness, are linked. This paper argues that the link between the two measures is the key to solving the income-happiness paradox.

It is a challenge to solve the paradox, as other attempts suffer from shortcomings. “Appendix 2” details the shortcomings of three major attempts: Kahneman’s, relative income hypothesis, and Easterlin’s. The proposed solution promises to supersede such shortcomings. The proposed solution is based on a framework laid in Sect. 1. The framework, first, delineates “well-being” from “happiness,” and, second, delineates the dual facet of happiness. While Sect. 2 analyzes one facet (happiness-as-aspiration), Sect. 3 analyzes the other (happiness-as-tranquility). Sections 4 and 5 present the solution. Section 6 concludes.

2 Two sets of distinction

To elaborate on the two sets of distinction already mentioned:

1. *Two Genera of Utility* There is a difference between *two genera of utility*: “well-being” understood as substantive utility in the economist substantive sense as *contra* to “happiness” understood as transcendental utility that differs from well-

Table 1 The dual facet of happiness

| The context of well-being | The facet of happiness | data set | Does happiness track income? |
|--|------------------------|---|--|
| Kahneman's "life evaluation" ("evaluative" measure) | Tranquility | Point-of-time, cross-sectional data | <i>Yes</i> - Pleases the stylized economist, but irks the stylized psychologist |
| Kahneman's "experienced well-being" ("hedonic" measure) | Aspiration | Life-cycle, time-series data | <i>No after income reaches a threshold</i> - Pleases the stylized psychologist, but irks the stylized economist |

being. Well-being is function of (monetary) income, which allows the decision maker (DM) to purchase goods, and other substantive inputs such as leisure, work conditions, and amenities. Happiness is rather a function of well-being that is situated against a context. Such contextualized well-being allows the DM to ruminate and to ponder about the meaning and purpose of his or her life.

2. *Dual Facet of Happiness* There is a difference between two kinds of rumination or pondering about the meaning and purpose of one's life. These two kinds are at the origin of *two facets of happiness*: "happiness-as-tranquility" understood as transcendental utility arising from the rumination over past achievements as *contra* to "happiness-as-aspiration" understood as another facet of transcendental utility arising from the rumination over forward looking goals. The difference lies with the kind of context used in such rumination. If the context is the evaluation of one's life in general, the DM experiences happiness-as-tranquility or, if negative, the lack of such happiness. If the context is one's emotional going during the day, as one attempts to attain a goal, the DM experiences happiness-as-aspiration or, if negative, the lack of such happiness.

For the first distinction (see Khalil 2022a), utility is not a single genus, made up only of *well-being* defined as satisfaction that is a function of primitives such as income, leisure, health, work conditions, and amenities. Utility is also happiness, defined as the satisfaction that is a function of *contextualized well-being*.

For the second distinction (see Khalil 2022b), contextualized well-being is not a single kind. There are different kinds of context and, corollary, different kinds of happiness. This paper identifies and discusses only two kinds of context, giving rise to the dual facet of happiness.

Table 1 represents the two kinds of context/happiness. For the first row, the first kind is what Kahneman calls "life evaluation"—or the literature calls "evaluative" measure. The outcome is what the DM experiences as tranquility. This facet of happiness is captured by the point-of-time, cross-sectional data set (both within a country and across countries). For this measure, happiness tracks income. This measure pleases the stylized economist, but not the stylized psychologist.

According to the second row, the second kind of context is what Kahneman calls “experienced well-being”—or what the literature calls “hedonic” measure. The outcome is what the DM experiences as aspiration. This facet of happiness is captured by the life-cycle, time-series data set (spanning more than a decade). For this measure, happiness does not track income once a country becomes rich, surpassing an income threshold. This measure pleases the stylized psychologist, but not the stylized economist.

Still, what divides the two kinds of transcendental utility—i.e., happiness-as-tranquility and happiness-as-aspiration? What is the difference that makes the latter insensitive to income while the former sensitive? When the DM stands in the present and reflects on the future, the DM usually adopts an aspired goal. Such aspired goal must be steady. This explains why forward-looking happiness (aspiration) is insensitive to income. In contrast, when the DM stands in the present and reflects on the past, the DM assesses an accomplishment against a counterfactual. If the accomplishments, such as income, grows while the counterfactual is steady, it explains why backward-looking happiness (tranquility) is sensitive to income.

Table 1 should act as a guide for the rest of the paper, given that the paper shall go through contours discussing other solutions of the paradox, developing more terms to differentiate forward- as opposed to backward-looking assessment, and propose conceptual distinctions necessary for the defense of the proposed thesis. One of the challenges is to develop terms that allow for the modification of rational choice theory to incorporate the role of context—a role that psychologists have emphasized for a long time and only recently heeded by some (behavioral) economists.

3 Aspirational utility

Let us define exhilaration as the excitement or joy that arises from the pursuit of a goal in one’s career—or it can be as little as the pursuit of a goal in one’s day. Exhilaration is a positive function of the desired goal in comparison to the current well-being. When the DM aspires to achieve a goal during the day—which can be as simple as painting one’s kitchen—or to achieve a higher rank during a career, the DM experiences exhilaration. The mere act of aspiration affords meaning to one’s life.

The act of aspiration means that the desire, what can be called “aspired well-being,” aims to lift well-being beyond what can be dubbed “predicted/projected well-being.” The “predicted/projected well-being” concept denotes the stable flow of income and the flow of other variables such as health or neighborhood quality that the DM projects in the future. The projection is based on current capacity, where the DM does not undertake further human capital investment (other than the usual learning). It is also based on the current profession, where the DM does not venture into a different career that is more challenging. When the DM stands in the present and assesses the predicted/projected well-being, he or she is already discounting future streams of income and other variables according to an intertemporal discount rate. Further, he or she is already discounting future streams of income and other

variables according to macro shocks as well as industry-specific shocks according to a risk aversion discount rate.

In contrast, the “aspired well-being” concept is based on the DM’s desire to achieve a goal that is beyond what is predicted/projected. The DM standing in the present and imagines the aspired well-being, he or she also discounts the aspired-based returns according to an intertemporal discount rate and risk aversion discount rate. As long as such rates are the same as in “predicted/projected well-being”, we may ignore them in the model presented here. Introducing these discounts rates complicate the model without any additional analytical insight.

The act of aspiration amounts to creating a gap, as the aspired well-being is greater than the predicted/projected well-being. For example, the DM may earn a wage of \$50,000/year and it is projected to rise each year by 3% on average following a predicted path of learning-by-doing. If the DM aspires for the salary to rise by 7% each year, and takes steps to fulfill the desire, the DM creates a gap that is 4% in this example.

This paper proposes that the desired gap of 4% allows the DM to enjoy the feeling of exhilaration. This paper also proposes a contrary effect: the same desired gap also generates misery. That is, aspiration affords simultaneously exhilaration and misery.

While it is intuitive to understand the exhilaration effect, what is the source of the misery effect that inextricably accompanies the exhilaration? While raising a goal or posing a desire affords exhilaration, it makes the person feel that he is behind what is desired. This feeling is unpleasant and originates misery. If the goal is much higher than the predicted/projected well-being, the misery may develop into excessive misery.

Stated differently, the DM can reap a positive rush of excitement by dreaming big. But given that sheer dreaming does not change the projected well-being, dreaming big has a cost. It widens the gap between the big dream and the unchanged projected goal. Such an enlargement of the gap makes the DM aware of how far one’s aspired goal is from the projected well-being. While this awareness generates a (positive) aspirational effect in the form of exhilaration, it also exacts a (negative) relative effect in the form of misery. If there is no such cost, then it pays to aspire to infinite greatness, never to worry about the gnawing gap between the aspired goal and projected well-being.

Dreaming big differs from “daydreaming.” Dreaming big, say, to become a popstar, does not amount to daydreaming if the dreaming big is associated with a series of acts that increase the possibility of becoming the desired goal. But if the aspired goal to become a popstar is *not* associated with a series of acts that increase the possibility of attaining the goal, such a goal can be defined as daydreaming. This difference is important to note since daydreaming and aspired well-being share, by definition, the common feature of being “unrealistic.” Both involve imagining a station that transcends the projected well-being. But insofar as no series of acts follows the dream, the goal becomes mere daydreaming.

Daydreaming resembles consumerism. Consumerism can be defined as the obsessive activity focused on possessing objects (Schumacher 1973; Schwartz 2004; Scitovsky 1992; Frank 2004). Such obsession blocks the DM from engaging the self with everyday experiences. In consumerism, the obsession locks the DM

into “inactive entertainment” that basically keep the senses busy without engaging them. With consumerism, the DM is not engaged in undertaking any series of acts to improve the possibility of attaining a goal. In this regard, consumerism and daydreaming function like addiction to some consumption activity. Addictive consumption is inactive entertainment when it shuts down the senses, making it hard for the DM to take steps, such as investment in human capital and the coordination of resources to attain the desired goal. While daydreaming, consumerism and other addictive consumption give rise to pleasures, this paper does not model such pleasures as aspirational utility.

For a desire to function as an aspired well-being, the DM must undertake steps necessary to make the goal more possible. Given that the DM is not daydreaming, i.e., undertake the necessary steps entailed by the posed desired goal, the posing of an aspired goal involves a two-edged sword:

1. *The Positive Edge* The posing of a desired goal engenders exhilaration since it affords the person a satisfaction of seeing a goal ahead, i.e., a goal to attain. As part of posing a goal higher than one’s predicted/projected well-being, the DM undertakes a style of consumption that is not pursued for its substantive utility but pursued for what Khalil (2000) calls “symbolic” effect, and what Becchetti et al. (2008) designate as “relational goods.” Indeed, Becchetti et al. (2008) find that the consumption of relational goods contributes to the DM’s report of greater life satisfaction. However, Becchetti et al. (2011) finds a reverse effect of relational goods (see also, Becchetti et al. 2019, pp. 377–388): higher income leads to a lower demand of relational goods which undermines happiness. At a closer examination, though, they define relational goods differently, namely, as “local public goods” that typifies familial/communal bonding. With such alternative definition, higher income makes it more expensive for DMs, in terms of opportunity cost, to invest in familial/communal bonding. Hence, higher income may undermine happiness, as DMs invest less in local public goods that promote familial/communal bonding. (Anyhow, as indicated as the outset, this paper ignores familial/communal bonding, and other pillars of happiness such as hope.)²
2. *The Negative Edge* The posing of a desired goal engenders a cost as already mentioned. The literature identifies this cost as the “relative income effect” (Duesenberry 1949; Clark et al. 2008; Boyce et al. 2010). Namely, when the DM poses a goal that is higher than the predicted or projected well-being, the DM creates what can be called a “negative gap”. It is similar to the negative gap that the DM creates when he or she joins a club or a peer group whose average income is higher than

² Interestingly, Becchetti (2019, pp. 133–134) contrasts his notion of “relational goods” to two other categories, what he calls “stimulus goods” and “comfort goods”. These two categories correspond to what this paper calls “substantive goods.” For Becchetti, stimulus goods (which can be shared with others according to altruistic preferences) are simply goods consumed while maintaining “virtue.” Virtue can be broadly understood as the judgment that the goods under focus are conducive to well-being in the long term. In contrast, “comfort goods” are goods consumed with low virtue, as they may lead to addiction. It falls outside the scope of the question of the paper, i.e., the income-happiness paradox, to discuss the modeling of weakness of will, not to mention addiction (see Khalil 2015, 2017).

his or her predicted/projected well-being. The negative gap occasions the feeling of misery, as it amounts to a reminder that the DM's state of affairs is lower than the desired one.

If the DM poses a goal that is lower than the predicted/projected well-being, the DM creates what can be called a "positive gap". It is similar to the positive gap that the DM creates when he or she joins a club or a peer group whose average income is lower than his or her predicted/projected well-being. The positive gap occasions the feeling of cheerfulness, contrary to misery, as it amounts to a testimony that the DM's state of affairs is higher than the goal.

Actually, the "relative income effect" literature focuses exclusively on this positive gap, i.e., the tendency of DMs to join clubs of lower average income or status than their own. While this effect may push some people to join and identify with goals lower than their predicted/projected well-being, it might not be the dominant effect. As Khalil et al. (2021) show, the dominant effect is for people to aspire and identify with clubs of higher average income or status than their own. Although such membership or identification involves the pain or misery arising from the negative gap, this negative gap occasions the "aspiration income effect," i.e., exhilaration. For DMs to join clubs that express goals higher than their predicted/projected well-being, the exhilaration effect must be greater than the inescapable misery.

Throughout this paper, it is assumed that DMs seeks the negative gap, i.e., tolerate the inescapable misery associated with the pursuit of a desire. Hence, it refers to the negative gap as simply the "gap."

To recapitulate, the pursuit of the gap, i.e., desire, occasions two opposing simultaneous effects: exhilaration as well as misery. To manage these two edges of desire—viz., exhilaration and misery—the DM needs to balance the relative income effect of aspiring, which is negative, and the aspirational income effect of aspiring, which is positive. The two effects are dialectical aspects of aspirational utility, i.e., happiness-as-aspiration (H^a):

$$H^a = H^a(W^f|W^{Pr}) \quad (1)$$

where W^{Pr} is predicted/projected well-being, and W^f is the future (aspired) well-being that acts as the context or counterfactual. This paper assumes that $(W^f - W^{Pr}) > 0$, i.e., the pursuit of an aspired well-being that is higher than the predicted/projected well-being. This creates a gap between the predicted/projected well-being and the desired one. The decision maker tries to keep the gap at the optimal level—where the positive effect, i.e., the aspirational income effect, should never at the margin dip below the negative effect, what is known as the relative income effect.

As Fig. 1 shows, the optimal gap is the optimal level of desired well-being (W^{d*}) along the horizontal axis that measures the degree of aspiration, i.e., desired well-being (W^d). The vertical axis measures the transcendental utility identified as happiness-as-aspiration (H^a). The relative income effect curve measures the cost of W^d , while the aspirational income effect curve measures the benefit of the same degree of W^d . The DM attains the maximum H^a (H^{a*}) just when the marginal cost

H^a (happiness-as-aspiration utility)

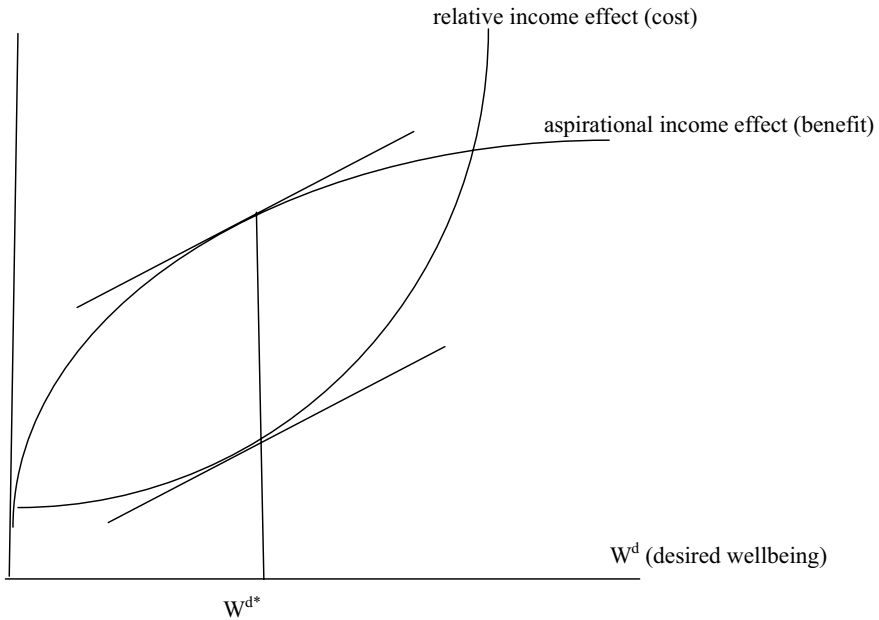


Fig. 1 The benefit and cost of aspiration

of aspiration equals the marginal benefit of aspiration, i.e., at W^{d*} . That is, the DM selects W^{d*} that maximizes the distance between the cost and benefit of aspiration.

The two effects captured in Fig. 1 are based on some technical assumptions. The most important are the ones that guarantee the usual first and second-order conditions. Aside from such assumptions, the basic idea is that people are rational in the manner they select the degree of desire. The selection of the optimal, i.e., proper, degree of desire is key to mental health.

The positive psychology literature—to recall, e.g., Ryff (1989), Deci and Flaste (1996), Ryan and Deci (2001), Csikszentmihalyi (1990), Seligman (2002, 2004, 2011), Seligman and Csikszentmihalyi (2000)—extensively discusses studies of how people maintain mental health. To wit, as Crum and Salovey (in David et al. 2014) argue, at least some of the emotions that the DM adopts are crucial in motivating the DM to undertake challenging and aspiring goals. The DM undertakes such goals by choosing an efficient degree of aspiration—although this literature does not employ the rational choice concept.³

³ As Pervin (1989) shows, the idea that the emotions are tools to pursue aspired goals infuses the theories of classical psychologists, e.g., Wundt and James.

While people are rational in choosing the degree of desire, this should not mean that people do not occasionally, and some cases pathologically, over-shoot and choose sub-optimal degrees of desire.⁴ Smith (1976, pp. 50–62) illustrates such over-shooting, and regards it as an illusion, in his famous parable of the poor man's son whom the heavens punished with ambition.⁵

Aside from anecdotal evidence, a closer look at the time-series data of highly prosperous countries, it is possible to witness the phenomenon of over-shooting, what Graham and Pettinato (2002) call “frustrated achievers”. As they demonstrate with regard to Peru and Russia (Graham and Pettinato 2002, pp. 101–136) and what Becchetti and Rossetti (2009) show with regard to the German socioeconomic panel data between 1992 and 2004, a portion of the people whose absolute income is rising declare lower life satisfaction. The sources vary from job insecurity, health deterioration, decline of relative income despite rise of absolute income, marital status shocks, and poorer social life. Hirschman and Rothschild (1973) have long noted the phenomenon of frustrated achievers in developed countries, characterizing it as a “tunnel effect,” Even if drivers in one lane in a tunnel are advancing, they would feel as frustrated achievers if the drivers in adjacent lanes in the tunnel are advancing faster than themselves. The tunnel effect is negative happiness-as-aspiration. It is the outcome of the adoption of non-optimal gap. That is, the setting of a goal that is excessively high, i.e., where the DM's achievement falls short, would generate a negative happiness-as-aspiration. As further confirmation, while absolute income decline plays a role, Becchetti and Conzo (2021) find that high-income expectations (i.e., excessive goals or desires) contribute to the rise of depression, as accounted by the despair death crisis, in the European Social Survey data.

Still, it is misguided to conclude that any aspired well-being, which may lead to over-shooting, as an “illusion” as the case of Kahneman and Thaler (2006) and Erez et al (1995).⁶ To wit, Loewenstein et al. (2003) regard aspired well-being per se as non-rational, expressing an innate expression of being human to commit “projection bias.” In the proposed model, aspired well-being can be rational, and only becomes non-rational when the degree of desire exceeds an optimal level.

DMs may act non-rationally, especially in countries undergoing unprecedented GDP per capita growth. These DMs adopt non-efficient degrees of desire—trying to become rich as fast as their neighbors. This situation usually leads to misery, undermining happiness-as-aspiration. This may explain the puzzling rise of suicide rates and mental illness in fast-growing countries (see Lyubomirsky et al. 2005; Marmot 2004; Ng 2002).

⁴ The theme of the seductive power of desire infuses much of world literature and films, e.g., Fitzgerald's (2018) *The Great Gatsby* and Hitchcock's “Vertigo” (see Berman 1997).

⁵ Influenced by stoicism, Smith is critical of ambition, as it undermines virtue (Smith 1976, pp. 50–62). In addition, it leads to a feeling of emptiness as the case of the poor man's son who was guided by the illusion that the aspired wealth can attain happiness (Smith 1976, pp. 181–183). However, Smith notes how aspired well-being is essential for economic growth (Smith 1976, p. 184; Hill 2017). More importantly, Smith (1976, pp. 50–62) did not view desired well-being an illusion per se. DMs prefer to being dead than robbed from desiring (Khalil 1996a, 2002, 2005).

⁶ Erez et al. (1995) regard desired well-being as delusional and, in turn, they equate “delusion” with “self-deception”.

The proposed model has two payoffs. First, it allows us to characterize the occasional cases when people cease to aspire, which would amount to daydreaming or indulgence in addictive consumption that can be called the “collapse of will.” Such a collapse should not be confused with succumbing to temptation, usually called the “weakness of willpower.” One way to distinguish the two phenomena is that the weakness of willpower is giving in to a suboptimal choice when the issue at hand is not aspiration, while the collapse of will is the giving up on choosing an aspired well-being when the issue at hand is aspirational (see Khalil 2015, 2017). In this context, we may reinterpret the thesis of Ray (2006), viz., that the collapse of aspiration is the root of the poverty trap, as being about the case when the DM finds it too hard to reach the aspired goal, and hence gives up altogether. Ray’s thesis, hence, resonates with Karelis’ (2009) thesis of how the poor are over-burdened with problems and, hence, become unmotivated, and Oxoby’s (2003) model of the emergence of the underclass as the outcome of the disappearance of aspiration (see also Senik 2008).

The second payoff is pertinent to the proposed solution of the income-happiness paradox. While the DM chooses the level of desired well-being, such a choice is a function of the DM’s projected well-being. Given that the DM is constrained by whatever is the level of projected well-being, the chosen desired well-being cannot deviate too far. This explains why the gap between the desired and the projected well-being, i.e., the origin of happiness-as-aspiration, is constant, i.e., it does not vary with the variation of the level of projected well-being.

The task of solving the income-happiness paradox is not yet complete. To tackle the paradox, we need to also study the other facet of transcendental utility, happiness-as-tranquility.

4 Tranquility utility

There is another facet of happiness that the DM experiences when he or she reflects on the level of their current well-being in general. This facet arises from assessing what the DM has attained or achieved, i.e., contrasting it to an imagined well-being in the past. This imagined well-being acts as a counterfactual well-being against which the DM evaluates realized (current) well-being. The counterfactual well-being acts as “context” or “frame” through which the DM makes sense of his or her current well-being. The concept of “context” or “frame” is similar to the one advanced by Tversky and Kahneman (1981). Namely, DMs do not only sense utility in the pure, naked sense. DMs also sense “framing effects,” outcomes once such utility is placed within diverse contexts.

For instance, a person might experience flooding and consequently loses all belonging, say, in the basement of his or her house. If the counterfactual is the loss of belonging in all floors of the house, a salient counterfactual if most neighbors lost everything, the DM would feel fortunate and, hence, experience positive happiness-as-tranquility (H^+). However, if the counterfactual is the loss of nothing, a salient

counterfactual if most neighbors lost nothing, the DM would feel unlucky and frustrated, i.e., negative H^t :

$$H^t = H^t(W^c | W^p) \quad (2)$$

where W^c is current well-being and W^p is the past well-being that acts as the context or counterfactual. If $W^c > W^p$, H^t would be positive. Otherwise, H^t would be negative.

The finding of Clark (2003) is pertinent. Clark examines the happiness level of full-time employees in eleven waves of British panel data, as measured by life satisfaction and other standard measures. He finds that life-satisfaction falls with the rise of average income of the reference group. The DMs seem to take the average income of the reference group as the counterfactual. Of more interest is that he also finds that life-satisfaction significantly rises with the rise of the variance in income, i.e., the rise of income inequality. Clark expresses surprise with this finding, which he calls “inequality loving.” It is surprising given the standard assumption in the economics literature that, all other things equal, inequality is a “bad” (e.g., Fehr and Schmidt 1999). But “inequality loving” should not be surprising in light of the proposed concept of “happiness-as-tranquility.” The greater the variance, the greater is the possibility for most people above the worst-off strata to compare their current income to the income of the worst-off strata. The income of the worst-off strata becomes, obviously, more salient the greater is the variance. That is, the greater is the gap between one’s current income and the income of the worst-off strata, the greater solace or happiness-as-tranquility.

This notion of happiness-as-tranquility can be traced to ancient Greek thought, starting with Zeno, leading to the mature Stoic Roman philosophy (see Annas 1995; Brennan 2005; Nussbaum 2009; Sellars 2006). The basic idea of stoicism is that whatever his or her current well-being, the DM must always evaluate it as a gift, i.e., choose the counterfactual of the past (W^p) as close to zero. Even when the DM experiences a negative shock, where current well-being is below the normal, the DM should place the shock in the context that the current well-being could be worse. Therefore, the DM can experience *contentment* even in the most calamitous state of nature. Whatever happens is part of the work of cosmic events that were, anyhow, never within the control of the DM in the past.

However, do people try, with seriousness and frequency, to select rationally a counterfactual well-being that is lower than the current one? Is it not too often the case that unfortunate events, whether unleashed by nature or fellow humans, send people into great frustration, if not bitterness. In The Book of Job (The Old Testament), Job’s wife tried to convince Job to recant God, to cease his trust, and to curse the day he was born. On the other hand, Job’s four friends convinced him not to choose bitterness, while only Elihu grounded such a recommendation on the choice of the proper counterfactual. Namely, Job must see life itself as a gift. And given that Job is still alive, he should experience tranquil utility over his (miserable) current well-being.

Many of the religious parables of suffering humanity—or their secular equivalents ranging from poems, songs, novels to feature films—provide people with

solace that eases the unhappiness arising from their misfortune state of nature. From casual empiricism, people seemingly derive relaxation upon learning about the calamities that strike others—and they do so not out of schadenfreude. The stories of calamities that strike others—even ones who lived long ago or in far-away land—act as counterfactual background that prompts people to count their blessings, if religious, or to express gratitude and kindness, if secular.

The DM should maintain equanimity in the face of misfortune, ever remembering that their luck could even be worse. What is less analyzed is that the DM should not, equally, express glee in the face of fortune. Indeed, according to the Stoics, the DM should remain calm, i.e., the DM should never give in to excitement and thrill upon the revelation of good luck. If the DM exhibits excitement with respect to good luck, he or she might slip and attribute the good luck to astute decisions taken in the past, i.e., slip into self-congratulation, if not conceit. The DM should be aware of the role of luck in both directions and, hence, express humility in the face of triumphs as much as he should appreciate the gifts of life in the face of disasters.

How to handle luck in both directions is expressed best in Rudyard Kipling's famous poem, "If":

If you can meet with Triumph and Disaster
and treat those two imposters just the same.

That is, if the DM wishes to sustain equanimity, they must realize that "Triumph" and "Disaster" are imposters. Hence, as much the DM should not surrender to despair in the case of "Disaster," the DM should not indulge in excitement over "Triumph." Both are pretenders in the sense that they are random shocks, i.e., they do not express the true underpinning movement of well-being.

This alerts us to the observation that the DM employs a similar counterfactual in both disasters and triumphs. In both states of nature, the DM employs a counterfactual well-being that is lower than the current well-being. In the case of triumph, the DM would experience calmness—like the case of disaster. The employment of the lower counterfactual in both cases allows for stability and steadiness of happiness, i.e., happiness-as-tranquility, where one's happiness is only a function of the true progress of well-being. The tranquility utility would not reflect the stochastic shock. This explains why the question about the evaluation of one's life in general, discussed below, allows happiness-as-tranquility to track well-being which, in turn, tracks income.

As already mentioned, for the DM keep positive happiness-as-tranquility—irrespective if the current well-being is triumph or disaster—the DM employs a counterfactual well-being of the past (W^p) that is always lower than current well-being (W^c). In the case of misfortune, where W^c is lower than normal well-being (W^n), happiness-as-tranquility (H^t) takes the form of "contentment" (H^{t-c}). To put it formally,

$$H^{t-c} = H^{t-c}(W^c | W^p) \quad (3)$$

where $W^c < W^n$

If $0 \leq W^p < W^c$, $H^{t-c} > 0$.

In the case of fortune, where W^c is higher than W^n , happiness-as-tranquility takes the form of “equanimity” (H^{t-c}),

$$H^{t-c} = H^{t-c}(W^c | W^p) \quad (4)$$

where $W^c > W^n$

$W^p < W^c$, $H^{t-c} > 0$, even if $W^p > W^n$.

According to functions (3) and (4), the DM’s happiness-as-tranquility are positive if the DM is rational. That is, irrespective of the shocks, the DM chooses $W^p < W^c$.

While functions (3) and (4) obey the condition ($W^p < W^c$), they differ with respect to the value of W^c in relation to the normal (W^n). The possibility in function (4) that $W^p > W^n$ in the case of triumph allows for the possibility that some improvement of well-being rather expresses steady progress. Of course, if there is no such steady progress, i.e., if all the improvement is momentary and the outcome of fortune, $W^p < W^n$.

In post-WWII, most countries have experienced steady progress of well-being. Therefore, most likely, even after editing out the shocks, happiness-as-tranquility has risen, which is indeed recorded by the “evaluative measure” noted by Deaton and Stone (2013). That is, given that the evaluation of life-satisfaction has been rising with the rise of well-being, the DMs must have been employing $W^p > W^n$ in the cases of triumphs. Such a scenario confirms the stylized economist regarding the time-series data uncovered by Easterlin (1974).⁷

It is still possible that the DM acts non-rationally, i.e., chooses the counterfactual that does not lead to the increase in happiness-as-tranquility. If the DM acts non-rationally in function (4), i.e., if the DM sets $W^p > W^c$, the DM would slide into bitterness and ingratitude that is far from contentment (see Tai et al. 2012). Such ingratitude is the emotion of the “frustrated achievers” discussed above (Graham and Pettinato 2002; Becchetti and Rossetti 2009).

Even if the DM may have experienced great prosperity, the DM may slide into ingratitude if the DM thinks he or she deserves more. In this case, despite $W^c > W^n$, the DM is setting the counterfactual of the past to be higher than current well-being, $W^p > W^c$.

Thus, achieving positive happiness-as-tranquility, whether contentment or equanimity, is not guaranteed even with rising prosperity. Happiness-as-tranquility is rather the product of choice, the selection of the context, whereas such choice can be non-rational. Therefore, it varies, contrary to Gilbert’s (2006) notion of “synthetic happiness.” It is not always the case that people are rational, i.e., accepting the current well-being as at least partially the outcome of stochastic shocks.

⁷ Given that happiness-as-tranquility, i.e., the “life evaluation” measure, depends on people recalling their well-being, psychologists are generally hesitant to rely on it given the problem of selective recall (Diener 2009; see Kahneman 2003, 2011; Kahneman et al. 1997). However, the “life evaluation” measure is not about recalling the experiences of an episode, but rather about life satisfaction in general.

5 What question? Which facet of happiness?

As Deaton and Stone (2013) have argued, the “hedonic measure” gauges happiness as shown in the time-series (life-cycle) data—where happiness does not track well-being, at least once a country becomes rich. In contrast, the “evaluative measure” gauges happiness as shown in the point-of-time (cross-section) data—i.e., happiness tracks well-being.

But is the happiness that the hedonic measure gauges happiness-as-aspiration, while the happiness that the evaluative measure gauges is happiness-as-tranquility? Does the survey question that prompts the hedonic measure indeed evoke happiness-as-aspiration, while the survey question that prompts the evaluative measure actually evokes happiness-as-tranquility? This an intricate question, as both facets of happiness are commensurable, as they both involve transcendental utility.

Deaton and Stone (2013) characterize clearly the evaluative measure, which Cantril (1965) uses, in contradistinction with the hedonic measure:

We look at two different ways of measuring well-being, an evaluative measure, the Cantril ladder, and a hedonic measure, daily happiness. The former invites respondents to rate their lives on a “ladder” with 11 steps, marked from 0, which represents the worst possible life for you, to 10, which represents the best possible life for you. Answering such a question requires the respondent to think about his life and interpret the question. We also look at a dichotomous measure in response to the question “Did you experience a lot of happiness yesterday?” This is one of several hedonic questions, which should be distinguished from the evaluative question in the ladder (Deaton and Stone 2013, 592).

That is, the evaluative measure prompts the respondent “to think about his life” and give a general assessment of how he or she interprets it. Thus, the evaluative measure identifies “happiness-as-tranquility.” Conversely, the hedonic measure prompts the respondent to think “about happiness today” or in other surveys, about happiness yesterday. Thus, the hedonic measure identifies “happiness-as-aspiration” insofar as it gauges the emotions of the DM during the day as the DM takes actions that are by definition forward-looking.

Deaton and Stone characterize evaluative measure as cognitive, while the hedonic measure as non-cognitive. Aside from this criterion, Deaton and Stone report that the evaluative measure, i.e., happiness-as-tranquility, correlates with income even at high levels, but the hedonic measure (similar to what Easterlin finds for the time-series in rich countries) does not correlate with income after a threshold:

Hedonic questions do not require the cognitive effort required to answer evaluative questions, they refer to different aspects of experience, and they often have different correlates. For example, hedonic measures are uncorrelated with education, vary over the days of the week, improve with age, and respond to income only up to a threshold. Evaluative measures remain correlated with income even at high levels of income, are strongly correlated

with education, are often U-shaped in age, and do not vary over the days of the week (Deaton and Stone 2013, 592).

Similarly, Kahneman and Deaton (2010) reach the same conclusion about the two questions and, correspondingly, the two measures when they analyze data from the Gallup-Healthways Well-Being Index (GHWBI) consisting of more than 450,000 responses of 1000 US residents surveyed in 2008 and 2009. Kahneman and Deaton find that once annual income exceeds \$75,000, income has no effect on happiness if happiness is gauged as the emotional responses of people to everyday experiences influenced by health, caregiving, loneliness, divorce, and smoking. These experiences and events are at the edge of everyday life as the DMs strive and feel the emotions of trying to reach an aspired goal. While they call this measure “emotional well-being,” it confirms what is argued here—viz., that happiness-as-aspiration is constant—with the qualification that this might not be the case for people with an income below a threshold. In contrast, in response to questions about life satisfaction, usually in terms of income that is a proxy of well-being, income is a strong predictor of happiness. While they call this measure “life evaluation” as discussed above, it confirms what is maintained here: that happiness-as-tranquility is sensitive to well-being.

Moreover, Cummins et al. (2008) use a set of questions that ask participants to monitor and report fluctuations in their well-being at different intervals during a short time span. During such short periods, individuals tend to state what is on their mind as they contemplate the next decision that is part of a forward-looking chain of actions for achieving a goal. Given the contemplation of the goal in their minds, not surprisingly, one’s happiness appears to be independent of current income.

Likewise, Easterlin notes the difference between the two survey questions. The hedonic question takes the form: “In general, how happy you say you are—very happy, pretty happy, or not so happy?” (Easterlin 2004, p. 26). This question measures happiness-as-aspiration since it asks people to state how they feel today. Therefore, over the life-cycle, say over a span of 50 years, the response should be the same if the person has chosen a level of aspiration that is rational. Such a response explains the time-series data. Even if the DM’s income has risen, the DM feels the same each day if asked to state what is the level of “happiness today.” People give the same answer, i.e., that they experience constant happiness irrespective of the fact that their current income has risen. This is expected because they are not reflecting on their current income. They are rather reflecting on their desired well-being and, hence, the series of acts needed to surpass the projected well-being.

In everyday life, DMs struggle and strive, while equipped with the same degree of desire and the entailed series of acts, if rational. If so, they would choose a degree of desire that is just adequate, given the variation of personality characteristics, ahead of their projected income. The DMs want the same desired well-being relative to projected income, focusing on the difference, not the absolute well-being. As part of everyday of life, DMs are desiring the same optimal degree of desire that keeps them aspiring and striving. And once reflected upon, the sheer aspiration and striving give rise to a more-or-less steady level of happiness, happiness-as-aspiration.

It is true that the amount of desire most likely changes over the course of the life-cycle of the DM. Nonetheless, the DM chooses the amount in such a way that he or she avoids the pain of excessive desire, on one hand, or the lethargy of recessive desire, on the other. It is the choice of optimal desire, rather than its absolute amount, which makes happiness-as-aspiration steady.

In contradistinction, the evaluative question takes the form: “How satisfied are you with your life as a whole—very, somewhat, so-so, not very, or not at all?” (Easterlin 2004, p. 26). This question measures happiness-as-tranquility since it asks people to state how they feel about their life-satisfaction in general. Therefore, at a point-of-time, the response depends on one’s substantive consumption afforded by their income. That is, the question engenders the cross-sectional data. The question prompts the DM to suspend his focus on desired well-being, i.e., the sense of the gap between what is desired and what is projected. This question prompts the DM to take stock of current absolute well-being, and hence abstract from occasional shocks of disasters and triumphs. Therefore, the DM would feel well-being as rising with income and, hence, happiness as rising, viz., happiness-as-tranquility.

Easterlin notes rather quickly that the two survey questions differ, but only slightly. Hence, Easterlin treats them interchangeably:

Although there are subtle differences between happiness [hedonic measure] and life satisfaction [evaluative measure], I will treat them for the present purpose as interchangeable measures of overall feelings of well-being, that is, of *subjective* well-being. My focus will be on what we are learning from the survey data on the causes of subjective well-being, and, based on this, what we might do as individuals to improve it (Easterlin 2004, 26).

But once Easterlin conflates the two measures, as if the subject of measurement, i.e., happiness, is a uniform metric, he stumbles onto the income-happiness paradox. This is expected since the two measures do not gauge the same subject. It is not surprising that Deaton and Stone do not find a puzzle: for them, each measure gauges a different entity, what this paper registers as the dual facet of happiness.

If we follow the Kahneman/Deaton and the Deaton/Stone route, i.e., if we avoid conflating the two survey questions à la Easterlin, we come to realize that the product of each question, happiness, differs from the other. There is no puzzle and, as Appendix 2 demonstrates, there is no need for the relative income hypothesis as well as for set point theory. Also, there is no need for Easterlin’s ad hoc theory about the out-of-control internal norm that negates any gains from the absolute-income component of happiness. Rather, as shown above, the steadiness of happiness-as-aspiration arises from the careful selection of the optimum degree of desire.

6 Linking the dual facet of happiness

We are now able to join the two kinds of transcendental utility, happiness-as-aspiration (H^a) and happiness-as-tranquility (H^t), into a single metric: happiness (H):

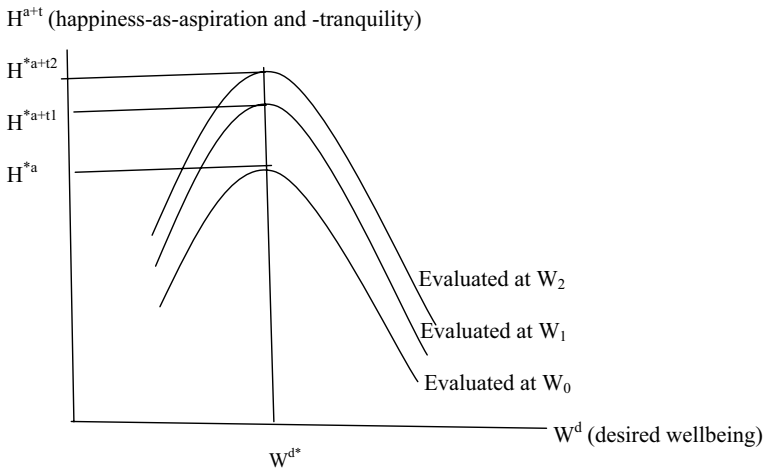


Fig. 2 The two functions of happiness

$$H = H(H^a, H^t) \tag{5}$$

where H denotes happiness *in toto*. Happiness *in toto* is a compound function. It is a positive function of its elements—viz., happiness-as-aspiration (H^a) and happiness-as-tranquility (H^t). Each element is a different facet of happiness, the product of well-being once placed against its corresponding context as shown above.

Figure 2 captures the dual facet of happiness. The x-axis measures the degree of desired well-being (aspiration) as in Fig. 1. The y-axis measures happiness *in toto*. Let us use the absolute well-being of the poor class (W_0) as the benchmark and, further, normalize it: $H^t = 0$. In this manner, the poor class chooses the optimal degree of desire, and the vertical distance at that point captures only H^a .

Such H^a remains constant even when we move to middle-class well-being, i.e., when we shift the curve from W_0 to W_1 . (We must shift the curve since Fig. 2 does not show absolute well-being along the axes.) The vertical distance between W_0 to W_1 —and further, between W_1 and the higher-class well-being at W_2 —expresses only the change of H^t —i.e., the response to the change of absolute well-being.

Figure 2, in short, illustrates the proposed framework for how to think of the link between well-being and happiness. Happiness is constant irrespective of the absolute level of well-being—but only so with respect to happiness-as-aspiration (H^a) indicated by the degree of desire. In contrast, happiness rises with the rise of absolute well-being—i.e., with respect to happiness-as-tranquility (H^t).

In this light, the difference between the cross-sectional and time-series data, need not be contradictory. Each is rather measuring a different facet of happiness. The cross-sectional data expresses the happiness-as-tranquility (H^t). This is the focus of the stylized economist. In contrast, the time-series data expresses the happiness-as-aspiration (H^a). This is the focus of the stylized psychologist.

7 Conclusion

This paper starts with the Easterlin paradox. The paradox, better called the “income-happiness paradox”, highlights a contradiction in the data that links happiness with income. While one set of data finds that happiness rises with the rise of income irrespective of how prosperous the country under focus is, the other set of data finds that happiness ceases to rise with the rise of income once a country reaches a threshold level of prosperity.

“Appendix 1” discusses the paradox in detail, while “Appendix 2” explains why the offered solutions of the paradox suffer from different shortcomings. This paper starts afresh and proposes a solution of the paradox that avoids such shortcomings. This paper shows that each data set uncovers a different facet of happiness as the data is based on a different question.

When the question is about the assessment of well-being in general, the respondents reflect on their current well-being vis-à-vis a well-being in the past that is better imagined to be worse than the current well-being. This imagined well-being of the past acts as the context, and if the decision maker manages to imagine it to be worse than the current one, the experienced happiness would be tranquility. The happiness-as-tranquility expresses the decision maker’s contentment with current well-being. Thus, happiness-as-tranquility rises with income as such income is compared to the distant income in the past.

In contrast, when the question is about the assessment of well-being at the moment, the respondents reflect on their current well-being vis-à-vis a well-being in the future. At each moment, the decision maker is making plans for the week or the month to achieve a goal. Naturally, there is a gap between the current state and the aspired goal. Given that people maintain an optimal gap, which they can do once a country is prosperous, the expressed happiness is steady. Such steady happiness, happiness-as-aspiration, does not tend to rise with the rise of income.

In short, the contradiction between the two data sets is no contradiction. Each data set reveals a different facet of happiness, depending on whether the question prompts the decision maker to reflect on well-being within the context of forward-looking as opposed to backward-looking well-being.

Further research is needed to investigate other facets of happiness that arise from other kinds of context. As this paper mentions, bonding that characterizes familial and friendship relations contributes to happiness—but is ignored in this paper. Hope also contributes to happiness—but is ignored in this paper. For solving the income-happiness paradox, it is sufficient to focus on the identified dual facet of happiness, i.e., happiness-as-aspiration and happiness-as-tranquility.

Appendix 1: The Easterlin paradox

The Easterlin paradox is about the contradictory empirical findings concerning the link between happiness and income. The findings show that higher income people are, on average, happier than poorer people in their respective countries at any

point-of-time, i.e., as shown in the cross-sectional data. Over time, though, in prosperous countries whose average income is above the \$75,000 threshold, using 2010 price level, people's happiness does not rise with the rise of their income over time.

Regarding the cross-sectional data, Easterlin (1974) observed the data from two separate sets of large-scale survey responses on happiness. The first set was Cantril's (1965), who surveyed people in 14 countries, from 1957 to 1963, asking them a simple question about their degree of happiness on a 10-point scale. The second was a Gallup-poll survey conducted between 1946 and 1970 (see Bruni and Porta 2007, pp. xv–xvi). Easterlin found that both data sets—viz., Cantril's and Gallup-polls—provided roughly the same answers. Cross-sectional data within a country indicated that richer people were happier than poorer people—confirming the prediction of the stylized economist that happiness tracks income. (However, cross-sectional data across countries were ambiguous. There was no robust indication that people in rich countries were happier than people in poor countries).

What was surprising, an analysis of the same country over-time revealed that happiness did not change with growing prosperity once prosperity has surpassed the threshold mentioned above. This analysis did not follow the same people over decades, which would be difficult. Rather, this analysis follows the technique used by demographers, viz., birth-cohort analysis that allows the analyst to cover a much longer segment of the life-cycle.

For such life-cycle data for the US, although income and consequent well-being increased by over 60% from 1946 to 1970, the level of happiness remained steady. The Easterlin paradox, insofar as it is based on the difference of the cross-sectional and time-series data, was basically confirmed, albeit with some qualifications, by many economists (e.g., Blanchflower and Oswald 2004; Di Tella et al. 2010), psychologists (e.g., Diener and Oishi 2000), and other social scientists (e.g., Inglehart and Klingemann 2000; Veenhoven 1993).

In particular, Becchetti et al. (2011) undertook the analysis of whether happiness tracks income for 100,000 people from 82 countries. Their analysis confirms the cross-sectional data set noted by Easterlin: happiness more-or-less tracks income and other characteristics (see also Becchetti and Pelloni 2013).

Further, following Alesina et al. (2004), the relative income hypothesis predicts greater unhappiness in countries with high inequality, such as the US, than in European countries with low inequality. Their finding basically confirms this prediction—i.e., after controlling for individual income, personal characteristics, and year and country or state. However, when Alesina et al. examine the level of happiness of the poor in the US, as opposed to the poor in Europe, the level of unhappiness of the poor in the US is unrelated to their relative income—unlike the poor in Europe. Alesina et al. explain what is at work. What matters is that the perception (while the reality is another matter) of class mobility is the US is much more optimistic than the perception of class mobility in Europe. If so, happiness is not so much a positive function of low inequality, but rather a positive function of aspiration insofar as the prospect of class mobility is a reasonable proxy of aspiration.

However, the Easterlin paradox has also been questioned. Oswald (1997) examined the Easterlin paradox with respect to four different surveys: the Eurobarometer Surveys of 1973 onwards; the British General Household Surveys of 1973 onwards;

the first 1991 sweep of the British Household Panel Study; and the US General Social Surveys of 1972 onwards. Through these newer surveys, Oswald concludes that in developed nations the rise of income per capita does buy increased happiness, albeit only a small amount. Other economists expanded Easterlin's findings to include more countries (Frey and Stutzer 2002a, b; Layard 2006). Layard examines more closely the ambiguous result of the cross-sectional country comparison. He shows that if we delete poor countries with a per capita income below \$15,000 from the data set, people in very rich countries are not happier than people in countries with middle range income. However, we can witness the prediction of the stylized economist if we compare very poor countries to countries with per capita incomes above \$15,000. Thus, the Easterlin paradox is relevant only once basic needs are being met.

More recently, economists such as Blanchflower and Oswald (2004), and Shields and Price (2005) found that, after all, absolute income matters significantly in Western countries. They admit that the significance is not as high as the case for developing countries, but claim that nevertheless, absolute income matters even for people in Western countries. Further, Stevenson and Wolfers (2008) question the conclusions Easterlin reached based on the time-series data for Western countries. They also find that happiness depends greatly on income (see also Deaton 2008; Tay and Diener 2001).

However, Layard et al. (2010) note that Stevenson and Wolfers' findings hold only in developing countries. In developed countries, the time-series data confirm the Easterlin paradox—there is no significant connection between absolute income and happiness. They ask two questions: do the incomes of other people reduce the happiness which a DM in an advanced country experiences for any level of income? And does this help to explain why in the U.S., Germany and some other advanced countries, happiness has been constant for many decades? Their answer to both questions is 'Yes'. They show that Stevenson and Wolfers, and Deaton reach their puzzle-undermining conclusion by, first, focusing on cross-sectional data and by, second, amalgamating the data from both developing and developed countries.

Easterlin (2010) also addresses Stevenson and Wolfers' analysis. He finds their analysis restricted to the short term. In the long-term, with the use of new data sets, Easterlin finds that happiness is independent of income in many sets of countries: developed, developing, and Eastern European countries transitioning from socialism to capitalism. While happiness tracks income if we undertake cross-sectional comparisons, happiness does not track income for a given country in the long term. Therefore, we are back to the Easterlin paradox.

Appendix 2: Other solutions of the Easterlin paradox

1. *Kahneman's "Setting Goals"*

The first and longest part of Kahneman's 2011 book is about habits-as-heuristics and how they arise out of the working of what he calls "mental economy" (Kahneman 2011, Chs. 1–24). He ventures in the last and shortest part on something

altogether different, on exposing his view of the relation between income and happiness (Kahneman 2011, Chs. 35–38).

Kahneman commences the discussion, in Chapter 35, with his well-known distinction between a “remembering self” and an “experiencing self.” The distinction is about different sensations of substantive utility. Namely, DMs usually have an account of a consumption, such as a holiday in a far-away city, depending mostly on the remembered last day of the holiday along with one peak sensation. This “remembered self” normally diverges from the account of the “experienced self”, i.e., what the self has actually experienced on the basis of minute-by-minute or hour-by-hour account.

As clarified elsewhere (Khalil 2022c; Khalil and Amin 2022), it is too costly to gauge an event, say, a vacation by the “experienced self.” The decision maker finds it effective to use the “remembered self” as a heuristic, i.e., as an efficient summary that is “good-enough” on average. That is, the assessment of the “remembered self” may be significantly lower or higher than the actual “experienced self.” Still, the decision maker might use the “remembered self” as guidance, as long as the difference is not great enough to justify the costly assessment of the “experienced self.”

This interpretation fits with the focus of the first part of Kahneman’s book, namely, on heuristics and generalizations that arise from the “mental economy” process. The heuristics and the underpinning process are about substantive utility. Hence, the “remembered self” heuristic cannot serve, as Kahneman conjectures, as entry to understand happiness and how it is related to substantive utility. That is, Kahneman’s distinction between the two selves is irrelevant to the income-happiness paradox—not to mention solving the paradox.

Kahneman probably sensed the irrelevance of the two selves’ distinction in the succeeding chapters (Kahneman 2011, Chs. 36–38). This explains why he adopts another entry-point to the study of the income-happiness nexus. Namely, he reinterprets the “life evaluation” measure in a way that redirects the wind from the sail of the stylized economist. Surely, Kahneman does not dispute the cross-sectional data, i.e., the “life evaluation” measure that pleases the stylized economist. In fact, he is a contributor to the literature uncovering this measure (Kahneman and Deaton 2010, p. 16492). Kahneman rather offers an interpretation of this measure that essentially gives credence to the opposite stand, the stylized psychologist.

Although the cross-sectional data reveals a correlation between income and happiness, Kahneman does not conclude that happiness is a function of income. For Kahneman, what matters for happiness is “setting goals”. Based on survey data (Kahneman 2011, pp. 401–402), if DMs designate at age 18 that they aspire to be actors in theatres and films, happiness would be more of a function of “becoming accomplished in a performing art” than other elements such as income. Income matters only if DMs designate, when they were teenagers, income as the setting goal. Thus, Kahneman concludes that happiness is a function of the setting goal, not its content such as income.

Let us accept the survey data concerning the relevance of “setting goals.” Let us also accept Kahneman’s contention that happiness is a function of the set goal—and happiness is a function of income when the designated goal is income. Corollary,

happiness is a function of being successful as a novelist when the set goal is being a novelist, and so on.

Ironically, Kahneman's contention confirms what he sets out to disconfirm, namely, it confirms the cross-sectional data set that vindicates the stylized economist. That is, happiness tracks income but now, more broadly, happiness tracks the set goal. As this paper interprets the cross-sectional data set, the designated goal is nothing but the counterfactual in the distant past, i.e., the context that generates happiness-as-tranquility. As the decision maker chooses the set goal, it acts as the context against which to assess the life achievement. As the life achievement (current well-being) increases, one's happiness-as-tranquility rises. But if the life achievement falters, one's happiness-as-tranquility declines.

In short, even when Kahneman tries to rule out the relevance of income, he is affirming the relevance of the stylized economist's view: happiness or more precisely happiness-as-tranquility tracks the argument that is constitutive of the happiness function. Hence, happiness tracks income insofar as income is an argument of the happiness function.

2. *The Relative Income Hypothesis: "Just-So Story"*

This paper defines the utilitarian approach as subscribing to the notion that all utilities are reducible to substantive utility. This explains why Easterlin and others treat "happiness" and "well-being" as equivalent—and even may call it "subjective well-being" to abridge the difference. However, they consequently face a puzzle. How does satisfaction positively track income in one set, i.e., the cross-sectional data, but not in another set, i.e., the time-series data?

The finding concerning the cross-sectional data is not a cause of celebration for the stylized economist. After all, he or she cannot explain the time-series data.

The finding concerning the time-series data is, also, not a cause of celebration for the stylized psychologist, i.e., the promoter of set point theory. Easterlin (2004) criticizes set point theory—namely, it ultimately cannot explain the cross-sectional data. Cross-sectional data show that happiness does rise with the rise of income—as well as the betterment of health and the improvement of family life. Therefore, one cannot just simply assert that a person, no matter the circumstances, enjoys the same level of happiness—a level that is more-or-less fixed as a set point. Happiness may not vary with income in the time-series data, but it is not a sufficient support for set point theory.

To solve the puzzle, similarly to Ng's (1987a, b) analysis of welfare, Easterlin (1995) proposes the relative income hypothesis. The economics literature generally considers Ng's relative income hypothesis as the path to solving the puzzle (e.g., Clark et al. 2008). The hypothesis generally states that while the DM derives utility from additional income, he or she would derive disutility if the average income of his peer or reference group has risen faster than his or her own income. Similarly, if the DM's income is the top income of the peer or reference group, he or she derives additional utility from knowing that his or her income is higher than the group's average.

While Clark et al., Ng, and the (early) Easterlin offer different models, all of the models share the same feature: they all treat *relative* income as an argument in the unidimensional, substantive utility function, sitting alongside other inputs summed up by (absolute) income. To see how such modeling might explain the time-series data, let us suppose for simplicity that the population is composed only of two groups of equal size, the poor and the rich. Let us suppose that, over time, the absolute income for both groups rises. According to economic theory, both should experience greater well-being and, hence, supposedly greater happiness, at a later date than an earlier one—if we only consider absolute income. But following the relative income hypothesis, we should also consider relative income, which could have only decreased, remained constant, or increased over time.

Let us define relative income as the ratio of the average income of the rich group over the average income of the poor group. If relative income decreased, the relative-income component of happiness would have risen for the poor group, while it would have fallen for the rich group. Given that both groups are of equal size, the effects would cancel each other. Therefore, in total, the total happiness of the population should have definitely risen, contrary to the time-series data that fuels the puzzle. If relative income remained constant, the relative-income component of happiness for either group would not have changed. Given the rise of the absolute-income component of happiness for both, the happiness at the population level would have definitely risen, contrary to the time-series data that fuels the puzzle. If relative income increased,⁸ the relative-income component of happiness would have fallen for the poor group, while it would have risen for the rich. Given that the two groups are of equal size, the two effects cancel each other. Given the rise of the absolute-income component of happiness for both groups, the total happiness at the population level would have definitely risen, contrary to the time-series data that fuels the puzzle.

One may try to save the relative income hypothesis under the reasonable supposition that the poor group is larger than the rich group. While the results are still disappointing in the scenarios of decreased and constant relative income, the result is unclear in the scenario of increased relative income. In the latter scenario, the sadness of the poor group is much greater than the increased happiness of the rich group—simply as a result of the difference of the sizes of the population, and as a result of increased relative income. But would such greater sadness resulting from the relative-income component offset the rise of happiness resulting from the absolute-income component? The outcome is unclear. The same unclarity remains if we suppose the opposite, namely, the unreasonable assumption that the rich group is larger than the poor group and reason along the pertinent scenario of decreased relative income. Again, it is unclear if the greater sadness from the relative-income

⁸ In fact, Western economies, starting in 1980, have experienced relentless increase of relative income, i.e., the increase of income inequality (e.g., Zucman and Saez 2019). For instance, the Gini coefficient that measures income inequality has risen dramatically in the United States, where it stood at 0.35 in 1980, rising to .41 in 2016 (World Bank 2020), to 0.49 in 2018 (Statistica 2020).

component can offset the rise of happiness resulting from the absolute-income component.

A theorist would have to provide a “just-so story” to assert why the fall of the relative-income component in the scenarios described above would fully offset the rise of the absolute-income component.

That is, why should the two effects be equal in the scenarios of unequal sizes of the groups? In the best case, a theorist who advances the relative income hypothesis cannot stand on a solid theoretical ground and explain the time-series data.

3. *Easterlin’s Ad Hoc Theory*

Facing such a dilemma, Easterlin moves away from his simplistic relative income hypothesis. Easterlin offers (2001, 2003, 2004) a more sophisticated theory with the employment of his notion “internal norm” that demands the DM to desire a higher income than what is projected. The “internal norm” notion is similar to the proposed “aspired well-being” notion. But unlike this paper, Easterlin supposes that such an internal norm is by-definition out-of-control, unrestrained. He supposes that the internal norm is a positive function of one’s own income. Therefore, as one’s (absolute) income rises, the internal norm rises even faster than the rise of income. The DM is forever condemned to a life of obsession, the price of rising income. Easterlin introduces the new definition of relative income, i.e., it being the supposed internal norm, to come up with a specific result: despite the rise of income, the internal-norm-income component plummets fast enough to offset the benefit of the rise of income. But still, how come does the internal norm not generate a strong negative happiness to more than offset the benefit of the rise of income? That is, how come is the internal norm of a specific value?

The supposition that the internal norm is of a specific value is simply ad hoc, created after the fact to explain the data. Also, why is the internal norm out-of-control? Why should the DM enslave him- or herself to an obsessive desire, to the point of canceling out the benefit of the rise of income? Obviously, there are cases of obsessive desires. But why should it be the normal case?

Easterlin answers the question by asserting that people must be non-rational. People are victims of what he calls “false expectations” (Easterlin 2001) or the “money illusion” (Easterlin 2004). But with such an answer, Easterlin commits his second ad hoc move. The answer is ad hoc since it is inconsistent with his other finding, viz., that people enjoy their income in the point-of-time, cross-sectional data. If people are non-rational, they should be so across the board in a model.

At best, even if we accept Easterlin’s notion of internal norm, it offers a solution of the time-series data. It cannot explain the cross-sectional data. Insofar the two are inconsistent, and the task is to explain it, Easterlin does not solve the income-happiness paradox.

In any case, Easterlin proceeds to advise people to free themselves from the internal norm, to be rational:

Could we make our lives happier? The tentative answer, based on the evidence at hand, I suggest, is this. Most people could increase their happiness by devot-

ing less time to making money, and more time to nonsubstantive goals such as family life and health (Easterlin 2004, 33).

But what is the source of such shakedown moralizing? If we want to avoid such moralizing, we must return to rationality-based rules of why the internal norm, which we may call “aspired well-being,” is restrained. Only then we can offer a solid, *non*-ad hoc solution to the income-happiness paradox.

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