Personal Financial Planning, by Happiness Economists

In the pursuit of happiness: Does financial independence significantly affect life satisfaction? Given the costs to well-being of achieving financial independence, are the benefits sufficient to pursue financial independence noting the related time costs?

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Abstract

Income may partially determine the well-being of an individual; this paper considers the effect of financial independence – financial sustenance from non-labor income sources – on well-being. What is the value of being financially independent for well-being? How difficult is financial independence to achieve? This paper considers how wealth is grown and how financial independence is achieved. Considering both the costs and benefits of financial independence for well-being, is financial independence a worthwhile goal to pursue? For instance, should a young adult in a developed country pursue a job with a high income to save with the goal of financial independence instead of pursuing a job that maximizes career well-being? Time is arguably the most valuable commodity; it is non-negotiably finite. How is it optimally allocated, to maximize well-being? Is the pursuit of financial independence the best way to achieve happiness? (It is acknowledged that this question is approached from the perspective of an economically developed country.) How does one obtain the maximal return, in terms of well-being, on their investment of time? A financially independent population of 240 taken from the Panel Study of Income Dynamics is considered.

Motivation: Why consider well-being?

All individuals might benefit from better allocation of their time. Traditionally, economics seems to advocate the fundamental subjectivity of “better allocation”. However, other disciplines of study offer valid evidence that the allocation of time to some activities, as opposed to others, lead to more happiness.

Economists' traditional measure of welfare – utility – differs from happiness. Utility is defined by revealed preference: An individual's selection from a set of options would define the item from the choice set that yields for theirself the greatest utility. However, people may choose outcomes that do not maximize their happiness.

Many disciplines of study, from many societies, addressed the purpose of life. For simplicity, economics seems to largely elect money as the proxy for happiness: Actually, many lay people mistake the study of economics for the study of money. However, inductive logic from the context of some resource other than money might better inform the optimal distribution of resources, given *the scarcity of resources*. Further, does the distribution of time (assumedly, a constant unit), an individual's elemental resource, more significantly affect life outcome?

Further, maybe, economics wrongly defined life outcome. Economists define utility according to revealed preference, or the actual choices made by either a person or a population. Fundamentally, economics seeks to maximize either utility or welfare. Though economists are the brunt of jokes for their assumptions, hypotheses form the crux of the scientific method. To avoid inefficient waste, or deadweight loss, in terms of time, scientists assume the validity of their hypothesis and proceed toward either experimentation or analysis. However, researchers and individuals must always mind their objectives – hypotheses and/or assumptions, so as to continuously affirm the correctness of their direction of research. Acting correctly, according to a hypothesis or an assumption, may still lead to unhelpful results. The definition of a problem may be of the greatest importance, when comparing the expected utility of the different steps of problem-solving. To illustrate, consider the definition of a problem as the identification of the destination, when a person sets out to navigate somewhere. Maybe, they would serendipitously end up at their destination, after starting immediately to apply their methods of navigation; however, would loss aversion explain the weight of the prospect of navigating toward the entirely wrong destination? The explanation may lie in the time costs: to spend a relatively small additional amount of time to plan the navigation process may be worthwhile to avoid the possibility of wasting a relatively large quantity of time that it may take to navigate toward an incorrect destination.

Then, why are most people unable to describe what they want to do with their time in any given day, year, or with their lifetime? Granted: diminishing marginal returns must apply to the rate increase in well-being with respect to time spent planning. A basic strategy within problem-solving is to identify subproblems to solve.

Partially, this paper addresses the definition of utility. Economics seeks to maximize utility: microeconomics – the utility of an agent, and macroeconomics – the utility of some national aggregations of agents. Colloquial wisdom dictates that "money cannot buy happiness". Also, popular understanding of economics may often center around money. This paper regards money as a necessary, though insufficient, factor for happiness.

However, a person – or other agent – must always maintain focus on its ultimate objective: the solution to the initially defined, or ultimate, problem. In fact, it is logical to assume that the optimization of multiple subproblems leads to a suboptimal solution to the initial problem.

Defining the problem of personal financial planning to optimize well-being really addresses the allocation of time. The objective function in this consideration is some configuration of happiness, well-being, or life satisfaction. If the importance of time allocation underlies considerations regarding money, proper approach to the money problem requires understanding the relationship between time and money. For a career or occupation, is time best preferentially allocated to increasing wealth or to developing expertise in a field that one enjoys? When is it best to preferentially allocate time to one, as opposed to the other?

Well-being literature review: Does financial independence significantly affect well-being?

Aristotle said that, "More than anything else, men and women seek happiness". In life, happiness may be the ultimate goal, so it may serve well as the yardstick against which to measure expected outcomes for decisions to allocate time toward some activity. Happiness economics analytically examines decision-making, to maximize well-being instead of utility. (Utility is that indicated according to revealed preference, and happiness is a feeling.)

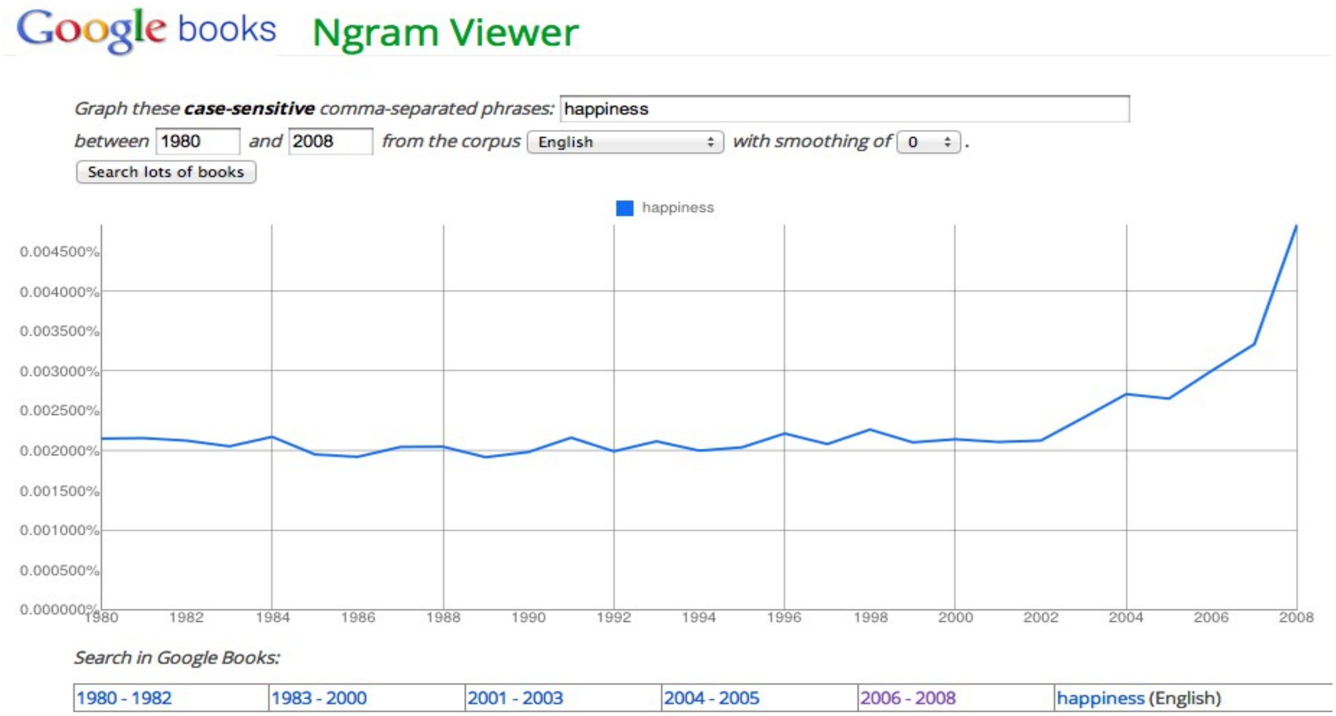

Figure 1: This graph shows the frequency with which the word 'happiness' was used each year from 1980 to 2008.[1]

Happiness is naturally a topic of concern, but it seems to be receiving an influx of attention in recent years, as can be seen in figures 1 and 2. These graphs use Google books' Ngram Viewer, which is a “phrase-usage graphing tool which charts the yearly count of [a word,] as found in over 5.2 million books digitized by Google Inc”.[2]

Well-being has also been receiving more attention on a governmental level. Both the UN and the British government have released work on well-being in the year 2012.[3][4] The Office for National Statistics (ONS) released the first national well-being report for various geographic areas and countries within the UK, which attempts to measure “subjective well-being of individuals, which is measured by finding out how people think and feel about their own lives.”[5] The World Happiness Report released by

1 http://books.google.com/ngrams/graph?content=happiness&year_start=1980&year_end=2008&corpus=0&smoothing=0
2 Whitney, Lance. Google's Ngram Viewer: A time machine for wordplay. December 17, 2010. http://news.cnet.com/8301-1023_3-20025979-93.html
3 Helliwell, Layard, and Sachs. World Happiness Report.
4 First ONS Annual Experimental Subjective Well-being Results. Office for National Statistics. 24 July 2012.
5 First ONS Annual Experimental Subjective Well-being Results. Office for National Statistics. 24 July 2012. p. 2.

the UN includes assertions of the theoretical determinants of well-being, along with analyses of data, which yield policy implications.

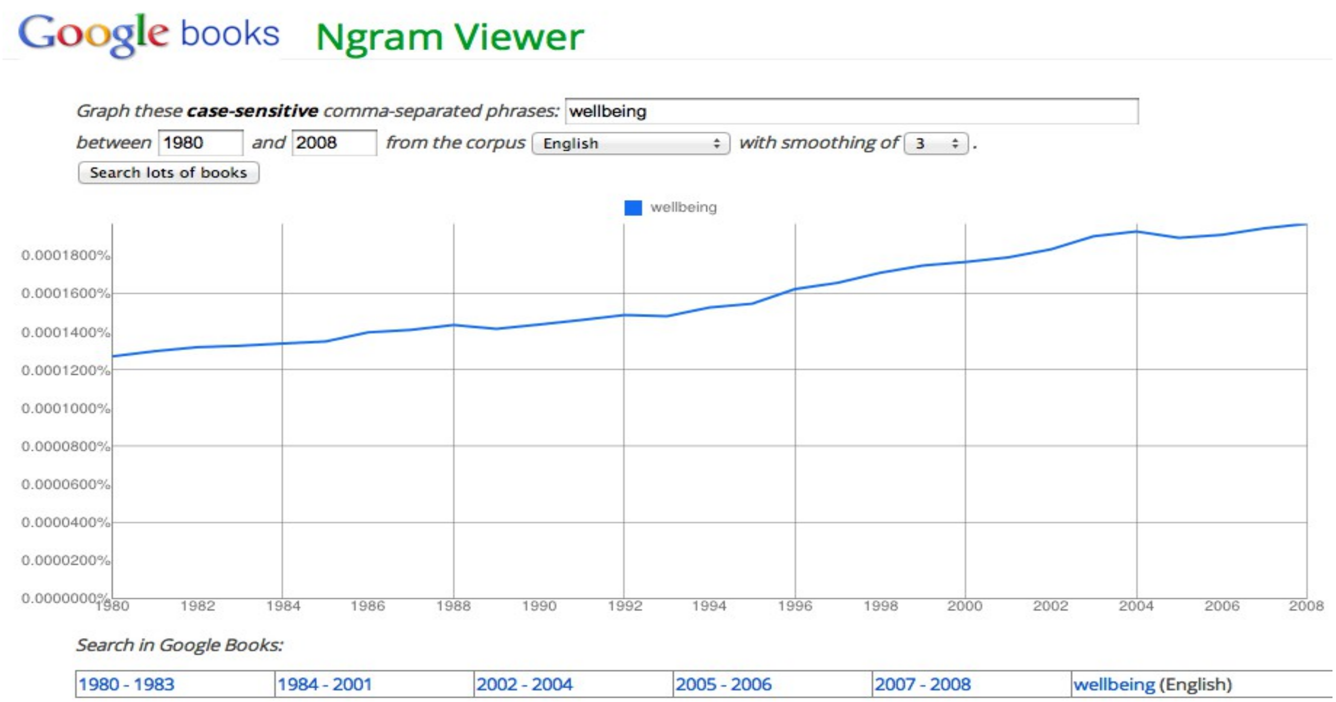

Figure 2: This graph shows the frequency with which the word 'wellbeing' was used each year from 1980 to 2008.[6]

While on first glance, the terms utility and happiness might be conflated, it is useful to recognize their unique conceptions. Miles Kimball asserts that the definition of each word might be said to have been established by separate academic fields of study, those of economics and psychology. The term utility has been used in economics to reflect people's choices, and the term happiness has been used in psychology to reflect people's feelings.[7] In short, this paper is meant to address choices as they might be made if a person were to deliberately attempt to maximize their well-being, a concept which differs from both utility and happiness. (This issue with vocabulary will be dealt with through out this paper.)

Financial well-being intuitively must be a determinant of happiness, because the lack of basic

6 http://books.google.com/ngrams/graph?content=wellbeing&year_start=1980&year_end=2008&corpus=0&smoothing=3

7 Utility and Happiness. Kimball.

necessities, such as nutritious food or basic healthcare, would be expected to significantly negatively impact well-being. What is the role of the financial element to well-being? What worth does financial independence carry? Income could influence the endowment of available time; in this sense, financial well-being provides agency to an individual. The determinants of well-being will be considered, so as to create a context in which the question about the relationship between financial independence and well-being is nested. It is assumed that the relative importance of financial well-being is not constant but instead depends on both its absolute level and its level relative to other determinants of well-being. Therefore, the relative importance of financial well-being as a determinant of well-being depends on the overall level of well-being.

Well-being literature review: How might deliberate choices lead to greater happiness?

Many theories about well-being have been developed. I will give attention to three: one is a positive psychologist's concept of the full life – as composed by a pleasant life, an engaged life, and a purposeful life; another concept is a Nobel prize winning behavioral economist's contrast between experienced well-being and remembered well-being; and finally a theory derived from data collected by the Gallup Poll will describe five proposed elements of well-being. To maximize happiness one must consider the ultimate constraint in life: available time.

<u>The full life: A pleasurable, engaging, and meaningful life</u>

In Martin Seligman's theory, the hthe utility of any given activity for happiness is balanced against the most fundamental constraint, available time.

This paper asserts there may only be meaning through interpersonal interaction. What activities that don't influence other living beings might have meaning?...(Note: Oneself is a living being.) The quantity of people with whom a person interactsThe value of helping others – the value of meaning -

Positive psychology's concept of the full life is one theory of well-being. According to this theory, happiness is considered a multidimensional goal that breaks down into the pursuit of different sorts of activities: those that are pleasant, engaging, and meaningful.[8] To live a full life requires that some *basic needs* are fulfilled – namely, that minimal amounts of pleasure, engagement, and meaning are experienced. An empty life is one in which the basic needs of none of these three aspect of happiness are fulfilled, and a poor life is one in which at least one of the basic needs are not met.

Rational choice theory is used to formalize the concept of the full life: A Stone-Geary utility function (which incorporates basic needs, as well as preference parameters for pleasure, engagement, and meaning) is used to examine the maximization of well-being with respect to a time constraint, in which the time (opportunity) costs associated with pleasurable, engaging, and meaningful activities are regarded as the respective prices for these types of activities. (Consideration of bounded rationality or prospect theory would modify this analysis.)

This analytical method for the allocation of time yields individual differences between choices of activities, because there are individually determined components of both the utility function and the time budget constraint. In the utility curve, there are individually determined values for both basic needs and the weights (parameters) associated with pleasure, engagement, and meaning; in the budget constraint, different time opportunity costs yield different prices for each sort of activity.

The first dimension of a full life – a pleasant life – entails experiencing and savoring positive emotions about the past, present, and future. This aspect of well-being is considered by the philosophical theory of hedonism, "namely concentrating on the pursuit of pleasures".[9] These pleasures include both momentary positive emotions, induced by sensual perceptions, and those pleasures that are achieved through higher cognitive function. This focus on pleasure is reminiscent of the utilitarian theory of Jeremy Bentham, which holds that greater aggregate pleasure over aggregate pain is to be

8 Prinz,Aloys and Bünger, Björn. Balancing 'full life': An economic approach to the route to happiness.Journal of Economic Psychology. p. 59.

9 Prinz,Aloys and Bünger, Björn. Balancing 'full life': An economic approach to the route to happiness.Journal of Economic Psychology. p. 59.

ultimately sought.

The second dimension of the full life – an engaged life – consists in “using strengths and virtues to obtain abundant gratification in the main realms of life".[10] One psychologist specifically considers the state of engagement he calls flow, “a state of concentration so focused that it amounts to absolute absorption in an activity”.[11] To achieve a high degree of engagement, it is useful for an individual to identify, develop, and apply their central strengths in daily life.[12] 24 character strengths are delineated by Seligman and his colleagues in their Values in Action (VIA) classification. Financial independence would freedom a person to choose work with more regard to utilizing strengths and seeking engagement, instead of preoccupation with managing one's financial expenses.

The employment of one's strengths would also well serve a person's higher purpose. The third dimension of the full life – a meaningful life – entails guidance by a purpose more broad than a person's own self interest.[13] To this end, one might pledge their efforts toward various institutions including religion, politics, family, community, or nation. This concept of the meaningful life has been associated with objective list theories of well-being, which assume that there are certain universal objectives that, considering what is best for them, all human beings should pursue.[14]

A person’s happiness can be explained in part by a person's set point or baseline (50%), life circumstances (10%), and intentional activities (40%).[15] According to the theory of the full life, the three ends must be simultaneously sought through intentional activities to achieve well-being: pleasure, engagement, and meaning. The happiness set point implies a constraint in the pursuit of happiness: The individual characteristics and abilities of a person influence their experience of happiness. Another

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10 Ibid. p. 59.

11 Csikszentmihalyi, Mihaly. Flow: The psychology of optimal experience. New York, HarperCollins; 1990.

12 Prinz,Aloys and Bünger, Björn. Balancing 'full life': An economic approach to the route to happiness.Journal of Economic Psychology. p. 59.

13 Prinz,Aloys and Bünger, Björn. Balancing 'full life': An economic approach to the route to happiness.Journal of Economic Psychology. p. 59.

14 Ibid. p. 59.

15 Ibid. p. 60.

constraint is available time, the ultimate finite resource. The decision whether to allocate some time toward some activity prompts a cost-benefit analysis. Preference parameters α, $ß$, and γ – for respectively pleasure, engagement, and meaning – reflect the relative importance of the different dimensions of happiness in the utility function for a given individual. Individual factors such as genetics may impact basic needs for each of the dimensions causing them to vary among individuals.

Utility is the subjective benefit attributed to something. The general utility of the combination of some amount p of pleasurable activities, some amount e of engaged life activities, and some amount m of meaningful life activities is denoted

$$U(p, e, m).$$

The theory of the full life specifies that a full life necessarily involves the experience of all three dimensions of happiness, i.e.,

$$U(0, e, m) = U(p, 0, m) = U(p, e, 0) = 0.$$[16]

Empirical evidence implies that total nonsubstitutability between pleasure, engagement, and meaning does not exist.[17] This means that to some extent these dimensions of happiness may serve as substitutes for one another. Each of the categories of activities are also important, so neither does total substitutability make sense; the multiplicative quality of the Stone-Geary utility function reflects the fact that it seems that pleasure, engagement, and meaning are mutually necessary for a person's well-being.

The Stone-Geary utility function seems to effectively represent Seligman's idea of the full life:

$$U(p, e, m) = (p – p\_min)^\alpha \cdot (e – e\_min)^ß \cdot (m – m\_min)^\gamma.$$[18]

(Note that if p_min = m_min = e_min = 0, then a Cobb-Douglass function emerges.) These minimal

[16] Ibid. p. 61.
[17] Ibid. p. 61.
[18] Ibid. p. 62.

values for each dimension of happiness, i_min $i = p, e, m$, represent a person's basic needs – the respective minimum values for each category of activity necessary for a satisfactory life. An empty life is one in which none of these basic needs – sufficient pleasurable, engaging, nor meaningful activities – are met, and a poor life is one in which at least one of the three basic needs – p, e, or m – are not satisfied. It is imposed that

$$p < p\_min \text{ or } e < e\_min \text{ or } m < m\_min \rightarrow U(p, e, m) = 0.$$

The preference parameters α, ß, and γ, where

$$\alpha, \beta, \text{ and } \gamma \text{ are all} > 0 \text{ and } \alpha + \beta + \gamma = 1,$$

weight each factor – pleasure, engagement, and meaning – in the utility function according to the importance with which the individual weights the given dimension of happiness. (The necessity of each category of behavior for well-being requires that the preference parameters are greater than zero.) "These weights represent attitudes and characteristics and may be determined by an individual's personality", as well as by the norms of their peer group.[19]

The allocation of time among activities is ultimately guided by the constraint of time, as all activities have positive time opportunity costs. The inclination of a person to experience pleasure, engagement, and meaning may be represented by individual time costs t_i for $i = p, e$, and m; in other words, the time cost of an activity categorized in each aspect of happiness is interpreted as the price for that type of activity. "For instance, a person with a propensity for pleasurable activities (or ability or 'talent' to enjoy a pleasurable life) will have low time costs per unit of this activity, compared to a person with different abilities or propensities".[20] Further, most money is earned through the labor market, and, inasmuch as this is so, monetary costs of activities can be thought of as indirect time costs. The following is a time constraint for an individual:

19 Ibid. p. 62.
20 Ibid. p. 62-63.

$$T \geq t\_p \cdot p + t\_e \cdot e + t\_m \cdot m,$$

where each term in the sum represents the time cost of an activity that engenders pleasure, engagement, or meaning.

Further, the time constraint can be made to accommodate situations in which an activity has an effect on more than one dimension of happiness, i.e., on more than one argument of the utility function. The modified time constraint that accommodates such side effects is

$$T \geq (p - b\_p \cdot e - c\_p \cdot m) \cdot t\_p + (e - a\_e \cdot p - c\_e \cdot m) \cdot t\_e + (m - a\_m \cdot p - b\_m \cdot e) \cdot t\_m.$$

This theory of the full life holds that to pursue all three routes to happiness simultaneously is the way to achieve the ultimate goal of 'authentic happiness'. The results of various studies though specify that an engaged and meaningful life is more important for life satisfaction than a pleasant life.

Various results are presented from a study with n=845 based on the revised Orientation to Happiness Questionnaire, which consists of 18 items that support a three factor model of a pleasant, engaged and meaningful life.[21] A pleasant life is a weaker predictor of individual life satisfaction than an engaged and meaningful life. (It is worth noting that the three dimensions of happiness are intercorrelated with a mean of r=0.51.[22]). An additional finding substantiates the definition of an empty life: Simultaneous low levels of pleasure, engagement, and meaning are associated with "lower levels of life satisfaction than would have been expected by the small values".[23]

Another study using a sample of 12,622 adults from the US (and a sample of 322 adults from Australia), also found that engagement and meaning had the most explanatory power for subjective well-being. In contrast, meaning and pleasure – but not engagement – were significantly related to life satisfaction in an Orientations to Happiness study with 342 college students.[24] For a sample of about

[21] Ibid. p. 59.
[22] Ibid. p. 58-59.
[23] Ibid. p. 59.
[24] Peterson, Christoper et. al. (2007). Strengths of character, orientations to happiness, and life satisfaction. Journal of Positive Psychology, 2(3):149-156. http://www.zora.uzh.ch/3647

13,000 of adults participating in an online survey, the character strengths most associated with life satisfaction were also associated with pleasure, engagement, and meaning; they included love, hope, curiosity, zest, gratitude, and perseverance.[25]

An analytical approach to the allocation of time with the purpose of maximizing well-being has significant potential for public policy, as well as self-improvement guided by an individual. Martin Seligman's theory of the full life is a step toward enabling individuals and institutions to improve their well-being.

Remembered well-being and experienced well-being

The issue with vocabulary previously noted is partially addressed by the behavioral economist Daniel Kahneman. He claims that there is a fundamental lack of usefulness of the word 'happiness', because it has been used in too many different contexts to refer to different ideas. In order for the scientific community to address happiness, it needs to have specific ways to refer to specific phenomena. (Possibly correlated vocabulary include affective happiness and evaluative happiness.)

Experienced well-being is the duration-weighted sum or a person's affect during experiences. If not considering its aggregation, it is how a person feels in real time, and the psychological present is considered to be approximately three seconds long. It is the immediate pain or pleasure that a person experiences.

Remembered well-being is based on the story of one's life; it is the level of satisfaction a person feels when they consider their own story. Interestingly, it is not the temporal integral of experienced well- being. In fact, only a small fraction of experienced well-being contributes to remembered well-being, namely the *significant moments, changes, and endings* of experiences.[26] The duration of an

[25] Ibid.

[26] Daniel Kahneman: The riddle of experience vs. memory | Video on TED.com. (2010, March). *TED: Ideas worth spreading.* Retrieved April 12, 2011, from http://www.ted.com/talks/lang/eng/daniel_kahneman_the_riddle_of_experience_vs_memory.html

experience is a variable that does not influence one's memory of it, though duration is important when considering experienced well-being. The term 'life satisfaction', which is often used in research, seems to refer to remembered well-being.

The fact that the end of an experience is so significant to how that experience is remembered might create conflict with microeconomic theory, which recommends that a good or service be consumed until marginal cost is equal to marginal benefit. From a well-being perspective, does the increase of experienced well-being from consuming an additional, albeit marginally less beneficial, unit of a good outweigh the decrease of remembered well-being from a lesser benefit from the final consumed unit?

Goals and achievement are primarily important for remembered well-being. For example, a person's remembered well-being increases as they experience greater financial achievement. This is in contrast to money's influence on experienced well-being, which is negligible after one is able to support their needs, namely approximately $60,000 for Americans.[27]

The distinction between remembered and experienced well-being is well illustrated by considering the length of a vacation. For experienced well-being, a two week vacation is twice as good as a one week vacation (assuming the two weeks of the vacation were of a similar good quality), as there is twice as much positive experience. However, for remembered well-being, the two week vacation is barely better than the one week vacation, because no new memories were added, and the memory of the vacation, i.e., the experience's significant moments, changes, and ending, is not much altered.

It is important to note that decisions are made by considering remembered well-being. Daniel

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[27] Daniel Kahneman: The riddle of experience vs. memory | Video on TED.com. (2010, March). *TED: Ideas worth spreading.* Retrieved April 12, 2011, from http://www.ted.com/talks/lang/eng/daniel_kahneman_the_riddle_of_experience_vs_memory.html

Kahneman has said, “We do not choose between experiences; we choose between memories of experiences”. So when a person is making a decision, they do so based upon the anticipated well-being for their potential outcomes and not what they will actually experience.[28]

The five elements of well-being

The five elements of well-being are those found to be universally important for a flourishing life, per research conducted by the Gallup Organization in over 150 countries: physical well-being, career well-being, social well-being, financial well-being, and community well-being. These elements of well-being are special in that they can be influenced by mindfully influenced. All five elements are important, and any one should not be neglected. Monitoring the elements of one’s well-being should be considered a priority. Generally, when it is possible, it is recommendable for a given activity to jointly contribute to multiple elements of well-being.

Creating default behaviors – habits – that maximally contribute to well-being is a powerful strategy for improving well-being. The power of default behaviors may be demonstrated by data that shows the drastically different participation rates in organ donation programs between countries that construct the question in different ways: Participation rates are much lower for countries in which a person needs to check a box to indicate that they want to participate in an organ donation program, while they are much higher for countries in which a person needs to check a box to indicate that they do not want to participate in an organ donation program.[29]In other words, for both designs of a form utilized to sign people up for organ donation programs, the option which did not require a person to put a checkmark in a box was the more favored outcome.[30] In an individual's pursuit of happiness, creating habits of behaviors that are proven to increase well-being makes these behaviors more likely.

[28] Ibid.
[29] Rath, T., & Harter, J. K. (2010). *Wellbeing: The Five Essential Elements*. New York: Gallup Press.
[30] Ibid.

Physical well-being

Healthy habits and lifestyle choices regarding diet, exercise, and sleep are the determinants of physical well-being and lead an individual to feel better, have more energy, look better, and live longer.[31] The profound impact that food has on our mood, health, and lifespan means that people with high physical well-being make dietary choices for nutrition. Just "a single meal high in saturated fat reduces our arteries' ability to carry enough blood to our brains and bodies", which could slow down and impair thinking.[32] Meals high in carbohydrates actually incite hunger, while consumption of unsaturated fats lead to satiety.[33] During sleep, the learning and experience of the previous day are synthesized, and insufficient sleep leads to trouble concentrating, being forgetful, and being irritable the following day. People with high physical well-being get the recommended seven to eight hours of sleep.

Career well-being

Of major life events, such as marriage, divorce, birth of a child, or death of a spouse, sustained unemployment may be the only one from which a person may not fully recover within five years, according to a study in *The Economic Journal*.[34] Usually at least half of a person's waking hours, during the week, are spent at work. "People with high career well-being are more than twice as likely to be thriving in their lives overall".[35]

"Do you like what you do each day?" Enjoying one's work is largely determined by

[31] Ibid.
[32] Ibid.
[33] Ibid.
[34] Ibid.
[35] Ibid.

engagement.[36] A high level of engagement at work leads to lower stress levels and more positive emotions, such as interest. To be engaged, it is important for a person to incorporate their strengths and interests into their work: Those people who do are six times as likely to be engaged.[37] For those who regard their work as enjoyable, work activities tend to spill over into leisure time.

A person's career is a natural venue for aspirations and achievement, which are primary contributors to remembered well-being. People who indicate that they have a "best friend" at work are seven times as likely to be engaged.[38] Even small increases in social cohesiveness in the workplace, including non-work related interaction, lead to increased productivity.[39] Engagement contributes to both experienced and remembered well-being, as it leads to more positive emotion and productivity, respectively.

"While the standard retirement age for men in the 1950s was closer to 65, men who lived to see 95 did not retire until they were *80 years old* on average. [Further], 93% of these men reported getting a great deal of satisfaction out of the work they did, and 86% reported having fun doing their job".[40]

Financial well-being

Financial well-being is largely defined by financial security and the resulting lack of daily stress about finances. In other words, high financial well-being would be having enough money to do what one wants. Ratings of financial security and lack of stress about money contribute three and two times more to well-being, respectively, than income.[41]

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36 Ibid.
37 Ibid.
38 Ibid.
39 Micromanagement: Every move you make | The Economist. (2008, August 20). *The Economist - World News, Politics, Economics, Business & Finance.* Retrieved April 20, 2011, from http://www.economist.com/node/11957553?story_id=11957
40 Rath, T., & Harter, J. K. (2010). *Wellbeing: The Five Essential Elements.* New York: Gallup Press.
41 Ibid.

An increase in income positively affects experienced well-being, until a person's needs are met; then, the effect of income on experienced well-being is negligible. However, according to Gallup's data, for remembered well-being, income and well-being are strongly positively correlated, as shown in f*igure 3*.[42] Besides the satisfaction from feeling accomplished, money may increase remembered well-being through the purchase of experiences, such as social outings, whose memories can be recounted.

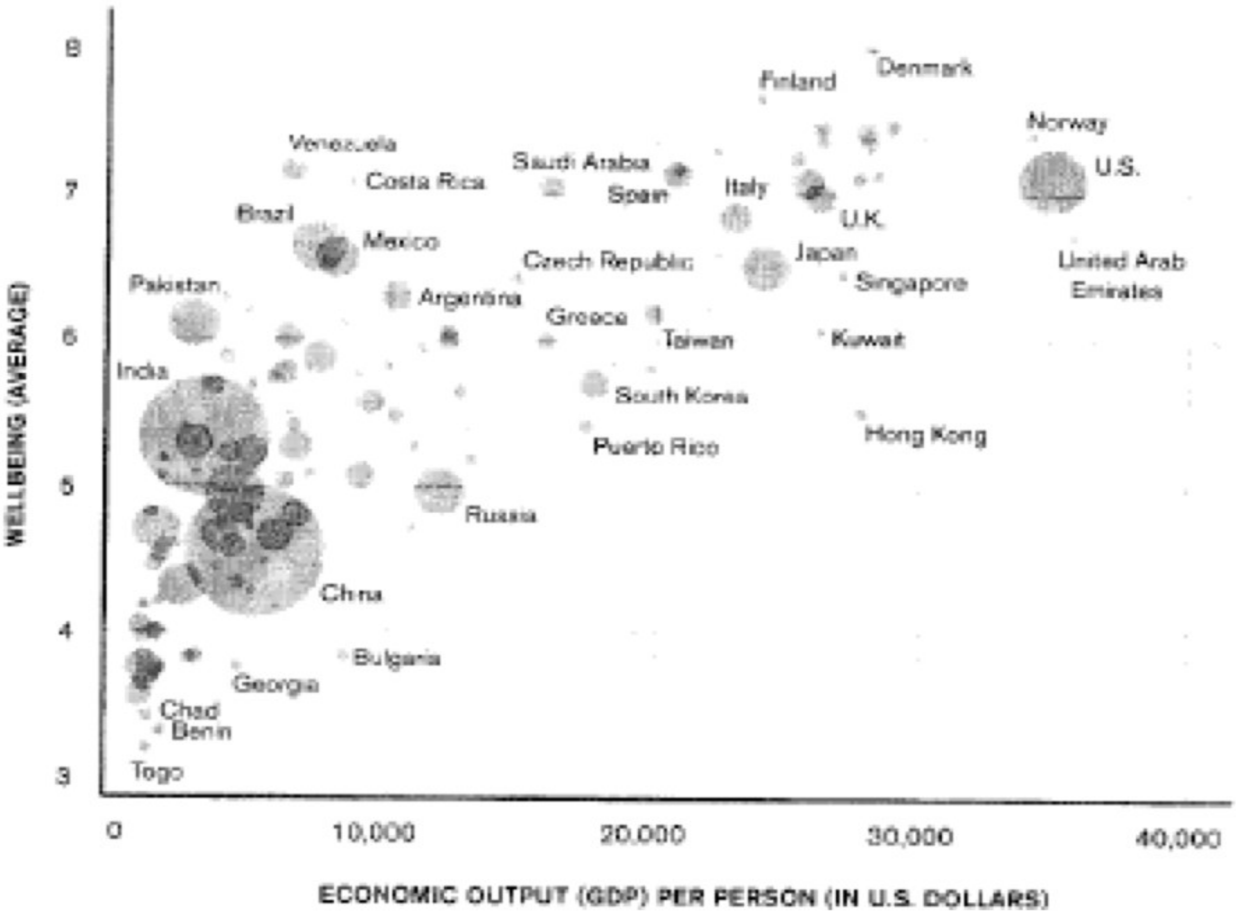

Figure 3. The relationship between remembered well-being and GDP is shown here: Well-being is evaluated to be higher in wealthier nations.[43]

Interestingly, an individual's relative income, compared to their peers, more significantly predicts well-being than absolute income.[44] However in an experiment in which subjects were

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42 Ibid.

43 Ibid.

44 Kahneman, D. & Krueger, A. B. (2006). Developments in the Measurement of Subjective Well-Being. *Journal of Economic Perspectives,* 20(1), 3-24.

presented with the following options, nearly half of subjects chose option 2: 1) an income of $50,000, while peers make $25,000, or 2) an income of $100,000, while peers make $200,000. Another interesting point is that dissatisfaction with one's income can be mitigated by engagement at work: People with high career well-being report more satisfaction with their standard of living.[45]

While satisfaction with material purchases decreases with time after purchase, spending money on others is shown to increase well-being. A study showed that, of people who received a bonus at work, those who spent theirs on a gift to an individual or charity experienced a sustained boost in well-being that was not experienced by those who spent their bonus on personal items.[46]

Social well-being

Relationships are a leading contributor to happiness, especially experienced well-being.[47] Friendships can help an individual to achieve, enjoy life, and increase their physical well-being. Social well-being broadly considers the quality of one's relationships and more specifically considers one's close relationships. Kahneman says that close relationships might be the most important factor for experienced well-being.

We are greatly influenced by our friends, as well as our friends' social networks. A 30+ year longitudinal study by Harvard found that a person's probability of being happy increase by 15% when they have a friend (a direct social connection) whom is happy. More interestingly, a person's probability of being happy increases by 10%, when a friend of their friend (an indirect social connection) is happy; a person's probability increases by 6% when a connection three degrees removed

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45 Rath, T., & Harter, J. K. (2010). *Wellbeing: The Five Essential Elements.* New York: Gallup Press.
46 Ibid.
47 Daniel Kahneman: The riddle of experience vs. memory | Video on TED.com. (2010, March). *TED: Ideas worth spreading.* Retrieved April 12, 2011, from http://www.ted.com/talks/lang/eng/daniel_kahneman_the_riddle_of_experience_vs_memory.html

is happy.[48] To gain perspective, consider the following results: A $10,000 increase in income is associated with only a 2% increase in happiness.[49] From this information, it may be concluded that people have a good share of stock in the well-being of others.

Having close relationships is positive for one's health. A study found that a person with three or four very close friendships is expected to have higher well-being, to be healthier, and to be more engaged at work. Congruously, those without close friendships experience more boredom, depression, and loneliness.[50] In the Harvard study about social networks, a person's chance of being happy increased by 9% when they have a happy friend and decreased by 7% when they have an unhappy friend. This suggests that on average an additional friend will increase a person's happiness.

Hours of Social Time and Daily Mood

HOURS OF SOCIAL TIME IN A DAY	PERCENTAGE WITH A LOT OF HAPPINESS/ ENJOYMENT WITHOUT A LOT OF STRESS/WORRY	PERCENTAGE WITH A LOT OF STRESS/WORRY WITHOUT A LOT OF HAPPINESS/ ENJOYMENT	RATIO OF HAPPINESS TO STRESS
0	32%	27%	1:1
0.1 to 1	35%	20%	2:1
1.1 to 2	40%	15%	3:1
2.1 to 3	44%	11%	4:1
3.1 to 4	49%	8%	6:1
4.1 to 5	51%	7%	7:1
5.1 to 6	54%	6%	9:1
6.1 to 7	54%	5%	11:1
7.1 to 8	56%	6%	9:1
8.1 to 9	56%	6%	9:1
More than 9	56%	6%	9:1

Source: Gallup-Healthways Well-Being Index

Figure 4. As the number of social hours in a day increases, the ratio of happiness to stress increases.

48 Rath, T., & Harter, J. K. (2010). *Wellbeing: The Five Essential Elements.* New York: Gallup Press.
49 Ibid.
50 Ibid.

Besides close friendships, the sheer amount of time spent socializing is important for increasing positive emotions and decreasing stress. As can be seen in *figure* 4, the first through sixth hours of social time each day increase the probability that a person will report more happiness and enjoyment and less stress and worry; no social time results in an approximately equiprobability of having a good or a bad day.[51]

Self-esteem may influence well-being, and one definition says it has two components: feeling capable and feeling accepted. These correspond to Gallup's social and career elements of well-being.

Community well-being

Community well-being is defined by the sense of engagement that one has with the area where they live. Those with high community well-being feel secure and safe where they live, and they take pride in their community. Thriving community well-being hinges on a person's contribution to their community or society in a way that utilizes their strengths and passions. Such contribution stimulates deeper social connections, provides meaning and purpose, and encourages a more active lifestyle.[52]

Community well-being hinges on active involvement in some community organization. The pinnacle of community well-being is giving back to society.[53] Community involvement may lead to the establishment of social relationships. After volunteering, nine out of ten people claim to experience a "helper's high", a feeling of strength, motivation, and energy. Studies have shown a link between altruistic behavior and extended longevity, and researchers hypothesized that this was partly due to the abatement effects on stress and negative emotion.[54]

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[51] Ibid.
[52] Ibid.
[53] Ibid.
[54] Ibid.

Personal financial planning: An academic approach

Why are people motivated to pursue money? Does pursuing money serve happiness? From an individual's perspective, personal finance is a subproblem, within the problem defined over the space of the individual's lifespan. Therefore, an individual's financial objectives should be derived from their life's objectives. Personal financial planning (PFP) studies the preparation to efficiently fulfill future household financial needs. Being financially well is an instrumental goal, in the pursuit of well-being.

It is important to emphasize that personal finance goals are just instrumental for well-being. This paper asserts that well-being, a concept that requires rigorous definition, is the ultimate goal of a life, and personal finance should be addressed only as it serves overall well-being. Luckily, moral arguments against selfishness can be staved off with Paul Zac's research about happiness, oxytocin, and interpersonal relationships: namely, interpersonal relationships make people happy. Nonetheless, knowing personal finance merely serves an individual's ultimate goals, individuals would benefit from rigorous, analytical knowledge and tools to serve their financial goals.

However, prospect theory suggest that people do not typically remember the broad, life problem domain. Prospect theory tells us that people perceive change instead of adjusted aggregate measures. In other words, an individual perceives an outcome as a cost or a benefit, instead of reflexively integrating such a change into an aggregate idea of wealth. A theory and set of practices for personal financial planning should incorporate the fact that any given decision is not made with an individual's aggregated, financial perspective in mind.

Low rates of financial literacy beg for the rigorous academic study of personal financial planning (PFP), to inform decision-making regarding an average individual's financial imperatives[55]:

- to minimize taxes
- to plan cash flow (savings/spending rates)

[55] Altfest, Lewis. Personal Financial Planning: Origins, Developments and a Plan for Future Direction. American Economist, Fall 2004. p. 53.

- to invest, efficiently allocating resources across time
- to limit uncertainty-exposure (risk management, e.g. insurance)
- to plan, for an individual's expected lifespan (“life cycle planning”)
- to organize finances, as it concerns household members (and other people and causes), frequently associated with an individual's death, i.e., estate planning

Consider an example of the lack of financial literacy: Many people may not understand the concept of a bond and the effect of interest rates on a bond's price, on account of a lack of either skill or expertise. The less affluent and less educated may disproportionately represent the non-financially literate population, so the academic study and research of personal financial planning may disproportionally benefit the less affluent and less educated.[56]

In 2004, a paper in the American Economist or growth in the personal financial planning (PFP) discipline, to increase the prestige of the associated field, department, and faculty.[57] Increased reputation would lead both to more academic research and to that research's acceptance into top quality journals. Academic research would include a theory of PFP, in addition to analytical methods and practical material. In universities, personal financial planning course could substitute for others normally subsequent to introductory economics, such as corporate finance, managerial economics, and investments; PFP needs textbooks, to be raised to the pedagogical standards of corporate finance or investments. University instruction would help eliminate deficiencies in financial literacy, both directly by giving students the skills to manage their finances and indirectly by beginning the training program for personal finance professionals that can educate their clients.

Beyond undergraduate education and professional certifications (CFA and CFP), advanced degree (e.g. PhD) and research institutions would elevate the personal finance profession. PFP should offer practical training, in light of the recognition that individuals act irrationally, and both professional

56 Altfest Personal Financial Planning p. 54

57 Altfest, Lewis. Personal Financial Planning: Origins, Developments and a Plan for Future Direction. American Economist, Fall 2004. p. 53.

instruction and professional training should emphasize methods to overcome human weaknesses.

Personal finance professionals act like consultants, for personal finance. More specifically, consider fee-only financial advisors. ¾ of the time, active managers for investment accounts do not "beat the market", i.e., ¾ of the time, it would be expected that passive strategy investing would beat active strategy investing.[58] Profits that can be made from passive investing (along with ¾ of the results of active management) are modest, so paying the overhead for an investment manager may not be recommendable. Instead, fee-only financial advisors are compensated solely by project-based fees, to avoid incentives beyond simply providing quality advice (e.g. they are not compensated for sales). Other professionals include certified financial planners (CFPs) and certified financial analysts (CFAs), and an organization of fee-only advisors – the National Association of Personal Financial Planners (NAPFA) – started in 1983.

Academic treatment would support both the unification and order of knowledge about personal finance. If individual welfare is the basic unit to measure success, a direct, rigorous approach to personal finance merits concerted attention.

<u>A potential mission for personal financial planning: Financial independence</u>

From the perspective of financial well-being, financial independence and retirement are similar. In both states, monetary expenses are covered by non-labor income (or savings). However, financial independence does not imply the lack of an occupation; financial independence separates financial well-being and career well-being. True autonomy requires financial independence, and an individual could reasonably expect autonomy by establishing assets and periodic income from those assets.

Financial independence provides liberty: It frees a person to deliberately allocate all 16 waking hours of a day. Usually, an employer obliges an individual to certain activities approximately ½ of their waking, workweek hours. Cross-temporal expenses, like saving for children's education and paying for

[58] Sethi, Ramit. *I Will Teach You To Be Rich*. Hodder & Stoughton, 2009.

either a house (mortgage) or a car (loan), require most individuals to pass their agency over their time allocation to their employers.

Besides periodic income of at least a certain quantity, to achieve financial independence, an individual would also benefit from positive net worth, with at least some of said savings being moderately liquid, to serve unexpected financial circumstances. Insurance is some effort to manage the risk associated with unexpected, uncertain circumstances. One benefit of financial independence – autonomy – may be associated with well-being, since people desire freedom. Though employment decreases autonomy, being part of an organization can positively influence well-being. Community well-being, from research by the Gallup poll, is noted as a factor that functions to push well-being over a tipping point. The independent capacity to satisfy financial needs most notably affects a relationship with an employer, and financial independence might most serve those individuals that do not feel engaged at work. Involvement in the community or another organization would accompany recommendation surrounding the achievement of financial independence.

This paper does not encourage unemployment, as the purpose of financial independence. The purpose of financial independence would not be to cease working. Ultimately, this paper is considering the role of financial independence for well-being, and a person's occupation is a fundamental determinant of well-being. Actually, both unemployment and with chronic pain are known to be two causes of poor experienced well-being. Part of the value of financial independence lies in the resulting freedom for career choice: A person is relieved of financial pressures and might choose a career based on seeking meaning or utilizing their strengths. By putting little weight on the income characteristic of a job, a career could be selected based on factors that facilitate happiness. Whichever characteristics might form an individual's activity preferences in the pursuit of happiness, financial independence would free an individual to give them more weight relative to a job's labor wage.

The concept of wealth complements the concept of financial independence (which pertains to cash flow). Wealth, or net worth, may increase over time, as people save income. Largely, periodic income would be earned as a fraction of wealth, or principal. The accepted logarithmic relationship between life satisfaction and income does not address the utility of wealth. Financial well-being includes more factors than just income; we can generally describe a person as financially well, if they have enough money to do what they want to do. Maybe, risk management would be the best avenue into which a government might approach the realm of personal finance for a nation's individuals.

The law of diminishing returns applies to the relationship between income and well-being. Obviously, researchers associate income with well-being, else they would not so commonly address income. Cross-sectional regression analyses confirm income, as a statistically explanatory factor for the variation of life satisfaction within a country.[59] Further, multiple studies model the functional form of the relationship between well-being and income as follows: A logarithmic function models closely the relationship between income and life satisfaction. That is, the absolute value of life satisfaction and the logarithm of income vary linearly.[60] Different sources give a figure between the range $60,000 – $75,000 for the level of income after which increased income no longer significantly affects experienced well-being. The marginal return from income decreases, as income increases; that is, the returns on income increase at a decreasing rate.

A second fact regarding the relationship between income and life satisfaction comes from panel data. Regression analyses show that an average country does not become happier over time, even though they are experiencing economic growth.[61]

These two seemingly contradictory facts – 1) at a given point in time, rich people are happier than poor people, and 2) while countries grow economically over time, average levels of happiness are not increasing – have come to be known as the Easterlin Paradox. A hypothesis was proposed to explain this: Relative income, and not absolute income, is an explanatory factor for life satisfaction.

59 Helliwell, Layard, and Sachs. World Happiness Report. p. 60
60 Helliwell, Layard, and Sachs. p. 60
61 Helliwell, Layard, and Sachs. p. 60

Financial independence is defined as financial sustenance through non-wage income. It is a concept of freedom that is not experienced by most people. For full-time employees, the manner in which a person expends their time is dictated by their employer for at least half of their waking hours during the work week. An employee's freedom is to choose how to expend his time is traded for his periodically received income.

Understanding an average individual's financial obligations illustrates their lack of freedom caused by their employment. A loan for a car, a house, or an education create obligations over long periods of time. Further, having dependents, such as children or an unemployed partner, create cyclical financial obligations. The importance of these obligations Quitting their job would leave a person without the means to support themselves and their families. 97% of the population (of the US? The world?) are categorized either as employees or as being self-employed.[62] (A self-employed person's situation might be likened to that of an employee's, that is, they might feel similar pressure that leads to lack choices. It might even be more intense, as they may have leveraged much if not all of their personal savings to fund the operations of their business.)

Patterns of high magnitude of borrowing and lending lead a person to experience constant financial strain over long time periods, once they are in debt. From a theoretical standpoint, it could be argued that long duration, high activity and long duration, inactivity are unhealthy; borrowing and lending seem to prepare us for periods of unhealthily high activity, so we can fund periods of unhealthy sloth.

In the economy, labor income is said to constitute about 2/3 of total income; financial independence would be derived instead from capital income. Earning money from assets – capital income – constitutes financial independence, when these earnings are equal to, or greater than, expenses.

As a starting point, maybe, yearly expenses and costs would most tractably ...

[62] Kiosaki, Robert. Rich Dad, Poor Dad. Grand Central Publishing. May 2000.

Financial independence is defined as the state where the difference between a person's monthly expenditures and their monthly non-wage income is zero. That is,

$$g(x) – h(x) = 0,$$

where g(x) is defined as periodic expenditures and h(x) is defined as periodic non-wage income. Non-wage income, h(x), includes income earned from assets, or liquid assets. Obviously, this is the same as saying that

$$g(x) = h(x).$$

One strategy to achieve financial independence would be to deliberately minimize financial needs. An example comes with the famous Warren Buffet, whom is reputed to have owned his first car, a Ford Taurus, long after he could have afforded something much nicer. He is also said to have lived in his first, modest house for a surprisingly long time.

This minimization of expenditures leads to a maximal savings rate, which maximally increases capital. This principal directly affect the quantity of non-wage income that could be earned through investments. Many people might increase their living expenses as their labor income increases. Instead, they could maintain their minimized monthly financial costs and increase their savings rate as their income increases.

One might consider something like home equity as implicit non-wage income. If one's house is payed off, this will be reflected in a smaller total periodic expense, g(x). There would, therefore, be lower non-wage income requirements for financial independence.

As opposed to the consideration of this difference, a ratio of periodic income over periodic expenses could be considered. Theoretically, a ratio of a value 1 would define financial independence.

$$g(x) / h(x) = 1$$

Normatively speaking, minimizing costs is ideas, as doing so would prevent waste and protect the environment.

How is financial independence achieved?

Different economic systems provide different safety nets (e.g. social security), but most ask each individual to make decisions regarding personal finance (though this might include its delegation). This decision-making occurs under uncertainty. As compared to other elements of finance, e.g., public finance and corporate finance, academic communities (namely, finance and economics) neglect the study of an individual's financial well-being. A wealthy individual might engage the expertise of any, or all, of the following professionals to aid their financial decision-making: a lawyer, an investment manager, an accountant, an insurance broker, and a banker. Researchers and educators should develop the personal finance discipline,, largely to benefit non-wealthy individuals.

Which resources an individual should allocate to personal finance is a subproblem of personal finance. The resources a person might allocate to personal finance include time (in hours) and money (in USD). To analyze exhaustively, units of inattention (in hours) would measure the difference between a hypothetically recommended quantity of resources allocated to personal finance. An individual must allocate time (in hours) to their personal finance, either their own time or another individual's. Either money (in USD) or interpersonal influence (in hours) can engage the time of other individuals. Money could engage the time of a professional or purchase a product (which would then also require time to operate). A person could also engage the help of a friend, which would cost them time, though maybe improve a relationship, if a person returned the favor.

A person could choose to manage their personal finance, with varying quantities of engagement of a personal finance profession. There may be a decision over agency: An individual would need to decide how much agency to retain over the decisions pertaining to their personal finance. Their degree of agency would vary from employing an active manager, depending on the number of hours for which they might employ a fee-only financial advisor, or maybe they will not engage professional services and will retain full agency. The quantity of the individual's time engaged increases across services, from employing an active manager, to employing fee-only advisors for increasing number of hours, to applying a varying number of their own hours to financial decision-making. The cost both in terms of the individual's time and in terms of the dollars spent on professional services must be weighed in this decision.

The rate at which an individual approaches financial independence is the derivative of a dynamic function representing financial independence. More generally, such a derivative might represent the change in the degree of a person's financial independence. (This is assuming that financial independence is not binarily defined, i.e., that the definition of financial independence is not binary. This assumption could also be said as assuming that theory does not define financial independence discretely.)

Choosing a job according to passion – maybe, either according to day-by-day enjoyment of applying fruitful effort or from serving a cause that deeply improves others' lives – might lead to choosing a job with a relatively low starting salary. A salary is contractual, periodic income, and having a salary lets a person expect to receive a certain amount of income over certain periods, such as a month or a year. An individual's salary is a significant factor for achieving financial independence, and it would significantly impact the rate at which a person progressed toward financial independence. The salary associated with a post of employment significantly influences progress toward financial independence.

To manage one's own finances, with or without the consultation of a personal finance professional, would require the development of pertinent expertise, and the opportunity cost for this application of time would need to be considered. Not only an initial allocation of time to learn the basics of personal finance (e.g. how to invest their savings), but also time periodically into the future to maintain and to update personal finance knowledge. Fee-only financial advisors may well serve an individual that would wish to retain agency over their financial decisions, to decrease the time necessary to perform financial analysis and transactions. An individual would need to consider the opportunity costs, in terms of the well-being they could derive from alternative activities, when they decide how much time to dedicate to their personal finance.

Saving

Fundamentally, the most prohibitive requirement for obtaining regular, non-wage income is the necessary principal for sizable periodic payments. The required quantity of principal necessitates both a high personal savings rate and high labor income, at least until an individual accumulates sufficient principal. Along with a high savings rate, financial independence would be sooner achieved with the reinvestment of all earnings until the quantity of non-wage income reached the desired amount.[63]

The desired amount of non-wage income would be the optimal income level. Some well-being literature says that the law of diminishing returns sets in significantly after an income level of $60,000-70,000; that is, the effect that increasing income has on well-being after approximately a $60,000-70,000 yearly income is negligible. One potential situation would be that a person aspire to $30,000 non-wage income, such that an average income of approximately $35,000 would be sufficient to provide this $60,000-70,000 yearly income. For example, if a person were pursuing a yearly non-wage income of $60,000, assuming an interest rate of 8%, they would need $750,000 in principal. For $30,000, assuming an interest rate of 8%, $375,000.

Passive Investing

Passive investing consists largely of index funds, which provide diversification. In other words, the objective is to eliminate firm specific risk and Ibbotson and Kaplan say that 90% of returns are attributable to asset allocation.[64] A hypothetical fund might include an S&P 500 ETF fund, long-term

63 Robin, Vicki. Your Money Or Your Life: 9 Steps To Transforming Your Relationship With Money And Achieving Financial Independence.

64 Ibbotson, Roger G. and Kaplan, Paul D. Does Asset Allocation Policy Account for 40, 90, or a 100 Percent of

bonds, a TIPS fund, and foreign stock.

What is the appropriate allocation between stocks and bonds?

Safe long-term income-producing investments such as US treasury bonds and government agency bonds are suggested for achieving financial independence, because risky investments are not desirable when the income they produce is required to fund one's basic expenditures.[65] However, until monthly non-wage income is at least equal to monthly expenditures, it may be optimal to seek a higher return.

Given the higher potential equity return in the long-term, some people may elect an equity bias. This bias intuitively becomes less recommendable over time, as a person becomes more risk averse with greater age. This might result from having fewer year to make up money that might be lost in fluctuations of the market.

Active Investing

How does a company beat the market?

The current CEO of General Electric, Jeffrey Immelt, frequently mentions the value of a leader's deep domain expertise for those companies that consistently beat the market.[66] The value of this characteristic was identified in a study that looked at 15 companies such as Dell and Toyota that had grown for a decade at a rate at least three times that of GDP.[67] Some companies may hire leadership from outside their own company, but this insight suggest that a worker's industry experience matters.

A financially independent population in the United States of America

The Panel Study of Income Dynamics (PSID) offers a population of n = 246 to consider financial independence. Excluding wages, the United States Census Bureau would regard the income of

Performance? Association for Investment Management and Research. 2000.

65 Robin, Vicki. Your Money Or Your Life: 9 Steps To Transforming Your Relationship With Money And Achieving Financial Independence.

66 Colvin, Geoff. Talent is Overrated: What Really Separates World-Class Performers from Everybody Else. Nicholas Brealey Publishing. 2008.

67 An Interview with Jeffrey R. Immelt. Growth as a Process. Harvard Business Review. http://www.ge.com/files/usa/stories/en/Growth_The_HBR_Interview.pdf

each of these families to be two times the quantity for the upper limit of poverty. This population could be used to explore the concept of financial independence.

PSID data from 2009 about non-wage income were used to construct a *proxy variable for financial independence*. Various forms of income unassociated with labor were summed, and a ratio was created of this sum over a quantity for income level (an approximation for the upper limit of poverty (ER46972)). (The poverty level for a given family is individually determined depending on factors such as the size of the family.) A family is considered financially independent, if their income is considered to be twice the poverty level, from their non-wage income alone. The poverty level is taken from United States Census and is determined per family, by considering characteristics such the number of family members. (This is an imperfect measure of financial independence: Even if a person's passive income puts them much above poverty level, this income may not be more than their living expenses. Therefore, such a person would not actually be considered financially independent.) The majority of families in the sample actually had non-labor income levels equal to zero. The financially independent population, about 2% of the sample, had enough non-wage income that it alone put them two times above poverty level. (In order to consider data that is more remarkable, families whose head of household was older than 60 years of age were excluded.)

From a population sample of 7048 families, 246 have an income level twice the poverty level from their non-labor income alone. Of these 246, the average family had a non-labor income level that was 5.49 times that of the poverty level. The family with the greatest amount of non-labor income would be considered by the census to have an income level 118.86 times greater than the poverty level.

For this population of families with a financial independence ratio of at least two, the primary sources of non-wage income is primarily earned as asset income from a business, or is money that could be obtained by selling 5% of their stocks or annuity/IRA. The sources of non-wage income considered can all be seen in *table 1* below.

Sources of Income for Financially Independent Families	
Income source	Average percentage of total non-wage income (%)
Dividends (head)	3.5
Dividends (wife)	1
Asset income from business (head)	20.9
Asset income from business (wife)	7
Rent income (head)	8.2
Rent income (wife)	2.7
Interest income (head)	2.2
Interest income (wife)	1
VA pension (head)	3
Retirement/pensions (head)	11

Sources of Income for Financially Independent Families Contd.	
Income source	Average percentage of total non-wage income (%)
Income from trusts and royalties (head)	1
Income from trusts and royalties (wife)	0
Head other retirement	0
Total asset income from other family members	0.5
Potential income from stock (0.05 • stock value)	16.8
Potential income from annuity/IRA (0.05 • annuity/IRA value)	15.4
Head annuities	1.7

Table 1. For those families whose non-wage income alone qualified them as having an income two times that of the poverty level, their greatest non-wage income sources on average were asset income from business and potential income from selling 5% of their stock holding or IRA account.

Other possible forms of non-labor income include royalties and advertisement earnings from websites. It is relevant to note that bonds, and other low risk investments, (though they could be part of annuity/IRA) are not the primary sources of income, because these are the investment instruments recommended be various books about financial independence.[68]

Does financial independence significantly affect life satisfaction?

More precisely, does non-labor income significantly affect life satisfaction, if its quantity constitutes an income level two times the poverty level? A regression could be constructed to investigate this question.

The survey acquired information about life satisfaction by asking the following questions: "Before we start the interview for this year, we have a new question to ask about life in general. Please

[68] Robin, Vicki. Your Money Or Your Life: 9 Steps To Transforming Your Relationship With Money And Achieving Financial Independence.

think about your life-as-a-whole. How satisfied are you with it? Are you completely satisfied, very satisfied, somewhat satisfied, not very satisfied, or not at all satisfied?"

Results from regression analyses using Stata

To investigate the relationship between a financially independent status and life satisfaction (ER42024), the regression controls for the following factors: health (ER45272 and ER44175), age (ER42019 and ER42017), wealth (ER46970), educational achievement (ER46981and ER46982), whether they were unemployed (ER42338), marital status (ER42023), and the number of children in the family (ER42020). An indicator variable for financial independence (an indicator that the value of the previously described proxy variable for financial independence has at least a value of two) is included to determine whether this factor has a significant influence on life satisfaction. The output from this regression is as follows:

Source	SS	df	MS
Model	502.049141	11	45.640831
Residual	5675.25846	7036	0.806602965
Total	6177.3076	7047	0.87658686

Number of observations = 7048	F(11, 7036) = 56.58	Prob > F = 0.0000	R-squared = 0.0813	Adjusted R-squared = 0.0798	Root MSE = 0.89811

er42024	Coefficient	Standard Error	t	P > |t|	Beta
er42017	-.0046899	.0011314	-4.15	0.000	-.055871
er42019	-.0021172	.0007277	-2.91	0.004	-.0543575
er45272	.0479843	.0115571	4.15	0.000	.0733604
er44175	.1758958	.0106106	16.58	0.000	.2007176
er46970	-3.93e-08	1.75e-08	-2.25	0.025	-.0338201

er46981	-.0007806	.0005993	-1.30	0.193	-.0156246
er46982	-.0015519	.0006557	-2.37	0.018	-.0322999
er42338	-.0509846	.0082076	-6.21	0.000	-.0725195
er42023	.0876687	.0113965	7.69	0.000	.1153971
er42020	-.0253078	.0090442	-2.80	0.005	-.0330681
finind	.0060729	.0070647	0.86	0.390	.0127874
constant	2.126318	.0591334	35.96	0.000	

This first regression (as well as in regressions with different configurations of a dummy variable for the financial independence proxy) suggests that financial independence is not significantly, statistically associated with life satisfaction. In other regressions in which the financial independence proxy was configured as a dummy variable, neither did this variable suggest the concept of financial independence to be statistically significant. In addition to these basic tests of the statistical significance of financial independence – as a continuous variable and as a dummy variable categorizing variable values below and above 2 – other configurations of the proxy variable were tested. These included varying definitions of the categorical variable. This proxy measure of financial independence was never found to be statistically significant. Further statistical investigation regarding the concept of financial independence could better define a proxy variable, including a dynamic configuration of household costs.

A researchers confidence in the explanatory power of an explanatory variable in regression depends on its level of statistical significance; besides the statistically insignificant financial independence proxy variable, educational achievement for the male counterpart of a domestic relationship (ER46981) is also statistically insignificant, when a regression investigates the relationship between life satisfaction and a linear combination of health, age, wealth, educational achievement, unemployment, marital status, and number of children.

The next regression both excludes these two statistically insignificant variables and adds the square of the female's age is found to be statistically significant. Though it is not found to be statistically significant at an alpha value of 0.05, wealth is still included. In the end, the relationship between life satisfaction and the following linear combination is considered: female's age (and age squared), health of male and female, wealth, unemployment, marital status, and the number of children in family. Beta coefficients, or standardized regression coefficients, are included in the table.

Source	SS	df	MS
Model	518.792584	8	64.849073
Residual	5658.51502	7039	.803880526
Total	6177.3076	7047	.87658686

Number of observations = 7048	F(11, 7036) = 80.67	Prob > F = 0.0000	R-squared = 0.0840	Adjusted R-squared = 0.0829	Root MSE = .89659

er42024	Coefficient	Standard Error	t	P > |t|	Beta
er42019	-.0089337	.0010307	-8.67	0.000	-.2293602
er45272	.093154	.0133406	6.98	0.000	.1424178
er44175	.1614368	.010371	15.57	0.000	.1842183
er46970	-2.53e-08	1.36e-08	-1.87	0.062	-.0218148
er42338	-.0520592	.0081295	-6.40	0.000	-.074048
er42023	.0555816	.0113497	4.90	0.000	.0731613
er42020	-.0215468	.0088478	-2.44	0.015	-.0281539
er42019sq	9.64e-06	1.38e-06	6.97	0.000	.1227777
constant	2.087612	.0546354	38.21	0.000	

This regression suggests that life satisfaction decreases with the increasing age of the female partner of the household, though the significance of the squared term implies that that this decrease occurs at a decreasing rate. The effect of the female partner's age is the most economically significant variable in this regression, as an increase of female's age by 1 standard deviation leads to an expected increase of life satisfaction by -.229 + 2(.1227)(female's age) standard deviations. The effects of health measures of both the female and male partners, .1424 and .1842, both suggest a significant effect of health outcomes on life satisfaction. Besides these three most significant factors – health outcomes and female's age – unemployment, marital status, and the number of children in the family are all found to have a significant effect on life satisfaction; these effects are all of a magnitude less than .1 standard deviations of life satisfaction.

The results related to health should influence the interpretation of theories regarding well-being. The importance of physical well-being can be regarded more robustly, and individuals, organizations, and governmental systems might take more effort to encourage effective self care (physical well-being) procedures. Perhaps, a place of employment holds a good vantage point from which to address this issue.

The negative effect of female's age on the life satisfaction measure of the household contrasts with some other literature. Generally, people have been found to be more happy as they age. There are at least a couple reasons this opposing result might have come about. Maybe, the various definitions for life satisfaction lead to results that are not actually directly comparable. As was expected, the regression suggested a negative effect of unemployment on life satisfaction. Having more children is associated with a lesser life satisfaction measure.

The most impactful result from this regression is that regarding health outcomes. Besides having a significant influence on life satisfaction, health outcomes are tractable measures. People can create daily routines to improve their health, including eating nutritious food and exercising regularly. (Besides, the host of cited benefits – such as higher energy levels – may motivate a person to exercise.) This important statistically and economically significant result could be taken to heart by any individual or organization.

Empirical steps forward

The empirical study of financial independence would ideally adhere to the concept's definition. Instead of using a theoretical estimate for household costs, their actual tabulation would allow, e.g., investigation of an individual whose periodic income could afford the individual financial independence but the individual's periodic expenses are preventatively high. An augmented lifestyle could explain such a case, if an individual's were to augment their lifestyle instead of increasing their savings rate as their wage rate increased. Seeing how the life satisfaction of these two populations compared would lend much insight to the understanding of financial well-being.

Many different indices attempt to measure well-being. Some include measures that kept the concept of remembered well-being in mind and make a composite of ratings of high, low, and end points of an experience.

A common issue might be the idea of experiencing less happiness in the present so as to invest in one's happiness in the future. A person might say, for instance, that they will refrain from leisure activities so as to study to receive a good grade on an exam. In the context of this paper, a person might choose to pursue a high income job in order to work toward financial independence instead of choosing a job that has a greater positive impact on their well-being in the present. To address this issue, lifetime well-being could be modeled and then maximized. In such a model, the distinction between remembered and experienced well-being would be significant.

To develop a biologically plausible mathematical model of lifetime well-being would be the ultimate goal of this sort of study. Parameters would need to be included to account for individual variation, and it would be optimal for biologically measured indicators to contribute to these parameters.

The argument has been proposed that energy actually plays the role that I have asserted for time: the most fundamental unit of value to be allocated. Imagine how the performance of a person who is unfit and sleep deprived might differ from someone who is well and therefore has high energy. The relationship between this notion of energy and time might further inform the consideration of maximizing well-being.

What characteristics predict future financial independence?

It might interest individuals, organizations, and governments to discover that certain characteristics correlate with future achievement of financial independence. Financial independence would require planning and effort over time to establish, since an individual, organization, or government would require time to accrue the necessary substantial principal. Data showing relationships across time would serve this investigation. Panel data, such as from the Panel Study of Income Dynamics (PSID) aggregates information across time, so a researcher could discover which characteristics commonly associate themselves with future financial independence.

Some factors in a cross-sectional regression that may predict financial independence follow: age (ER42019 and ER42017), educational achievement (ER46981and ER46982), occupation (ER42167 and ER42419), industry of work (ER42420 and ER42168), whether they own a business (ER43552), and their wealth (ER46970).

For these families categorized as financially independent in 2009, data from 10 years earlier are examined. A model using cross-temporal data might include the following predictors of a family's status as financially independent. The characteristics from 1999 include age (ER13010 and ER13012), occupation (ER13215 and ER13727), industry of work (ER13216 and ER13728), whether they owned a business (ER14349), wealth including home equity (S417), whether they have yet opened an annuity or IRA account (S418), whether they had money invested in stocks other than through their employer based investment funds or an IRA (S410), and educational achievement (ER16516 and ER16517).

Various rationale would substantiate the inclusion of these explanatory variables. Higher education achievement may be associated with the amount of capital that a person is able to acquire, which enables them to obtain passive income sources. Different industries might be associated with different average levels of financial literacy; also, income would be expected to act as an intermediary variable for both industry and occupation. The age of the husband and wife should be included, because it is to be expected that the degree of financial independence will increase as people age. (As previously noted, families whose head of household is older than 60 in 2009 are excluded, as a status of financial independence would be less remarkable in these cases.)

Path dependence is relevant in considering the cross-temporal model. A choice may have a seemingly disproportionate impact on an individual's future. Factors such as whether one starts to invest early in life and the income level of a chosen profession can, in fact, prove very limiting to the potential for financial independence later in life, and personal finance resources attempt to stress to lay readers the importance of compounding interest.

Strategic time allocation: Which distribution of most likely leads to happiness?

Many choices are driven by monetary motivations. Financial independence may be a worthwhile financial goal; separately, is there an ideal point in time for attaining it? To what degree should other objectives be neglected to pursue financial independence, i.e., should a person balance their time between objectives or focus on earning principal for their financial independence? The answers to these questions would influence the professional role selected. In general, individuals would benefit from an analytical theory regarding the ideal allocation of time.

How is the maximal return (in terms of well-being) achieved for time invested? The *happiness-return* for any invested unit of time should be dynamically optimized.

Financial independence is fundamentally dependent on having sufficient capital, so the most important step toward achieving this financial state is saving. One possible way of speeding up this saving process would be to pointedly obtain a high income job. This process toward financial independence translates to time costs. How do we value time? An alternative to Becker's approximation – the monetary value of the next hour of work being equal to the value of a unit of time, the value of a unit of time may be equal to the value of its least important use, or to its least marginal value to well-being.[69] This idea accounts for how time can be seemingly wasted on activities such as watching television.

This explanation might lead time to be undervalued, as the least important use of time is doing nothing. However, each person has only a finite allocation of time, and, further, they are unaware of the amount of this allocation. As more time passes, a person's guess as to how much time they have left must necessarily decrease; this might be interpreted as a decreased probability of future experiences. This is relevant when facing a choice between consumption now and consumption in the future; maybe it can be incorporated into the time discount factor. Another curious characteristic of time is that it is highly perishable.[70] Time cannot stored for consumption in a subsequent period. This is very relevant to the contrast between the concepts of experienced and remembered well-being. Experienced well-being is gone as soon as the moment's over, while remembered well-being is open to repeated experience.

Consumption might be the exchange of time for feelings in the psychological present – approximately 3 seconds; in contrast, the investment of time might be the deliberate allocation of time to a work-like activity, while expecting a sort of exchange of current suboptimal degree of happiness for a higher maxima of happiness in the future. A microcosm of this inter-temporal happiness exchange exists in trying to focus to complete a project: It may be displeasurable to focus some given 3 seconds on work, but doing so will bring the task closer to completion. If investment were to optimize consumption across time, is sacrificing experienced well-being for the betterment of remembered well-

69 Maidment, Paul. The Price of Time. http://www.forbes.com/2008/02/28/economics-time-price-oped-time08-cx_pm_0229maidment.html

70 Ibid.

being? From an organization's perspective, can this question be considered across individuals?

Given limited resources, is the focused pursuit of money rational? A preoccupation with money is reflected in academic, economic literature and young adults' professional aspirations. The influence of marketing, and the fundamental nature of the economy, seem to require financial payment in exchange for all that we humans want. How much of our limited time should we dedicate exclusively to the pursuit of wealth and financial independence?

Time may be an individual's most elemental resource. According to the World Bank, life expectancy in the US was 78.2 years, in 2010.[71] Assuming an individual sleeps the recommended 8 hours per night, each day gives them 16 hours of available time to allocate among possible actions. (Recommended sleep need varies across lifespan, but researchers recommend 8 hours for young to middle aged adults.) During the workweek, an 8 hour workday leaves only 8 hours per day for a person's deliberate allocation. [sentence putting all numbers in same units]

Instead of time, some people may reflexively consider money as the must fundamental resource. Gary Becker proposed a method to approximate the monetary value of an hour of time: An hour of time is worth the monetary value of the next hour of work. However, the variable value of time asks for dynamic modeling instead of a constant approximation. The neuroscience of sleep describes the systematic variance in alertness through out a day according to an individual's circadian rhythm; this implies a systematic variance in the value of a unit of time (all other inputs to a well-being function held constant). Instead of a consideration of time to live ideally, the allocation problem might accurately reduce to the optimal allocation of energy. To value units of time, a researcher could also consider patterns of alertness over time periods greater than a day, such as over a month, a year, or lifespan. Within the well-being problem, it could be fruitful to consider the objective function with respect to energy instead of to either periodic income or net worth. Energy may influence the benefit

71 http://www.google.com/publicdata/explore?ds=d5bncppjof8f9_&met_y=sp_dyn_le00_in&idim=country:USA&dl=en&hl=en&q=average+lifespan

(in terms of well-being) of time, in a way similar to inflation's influence on the purchasing power of money.

Physical well-being modifies the equation that relates the values of money and time. Energy level may influences the value of time, as inflation affects an individual's purchasing power. Time's monetary value depends on an individual's human capital. Physical well-being influences human capital, which is harvested over a worker's time. The function for the monetary value of time may show periodic patterns of varying periods over time. As an example, consider degree of alertness as determined by physical activity patterns including sleep patterns. Someone might consider patterns of alertness within a few hours, within a day, within a year, etc. Alertness, or an idea of cognitive energy, varies through out the day according to the circadian rhythm's effect on a person's energy level. The effect of exercise on energy level has a longer period – maybe 3-4 days – than intraday variation in alertness. Further longer-term behavioral patterns, a.k.a., routines, might create autocorrelated patterns of energy levels over the timespan of months. The monetary value of a unit of labor varies according to multiple inputs, particularly physical well-being.

The relative importance among various resources depends on the context determined by a problem's objective. (There may simultaneously be multiple objectives, so the relatively important resource depends on whichever objective is currently receiving attention, i.e., on the problem domain.) At different times, different resources delimit choice sets, i.e., the resource that is in relatively short supply depends on the objective of a problem. The factor that most limits progress in a problem, or the factor “in short supply”, might be called the limiting factor. The greatest positive marginal-effect on life outcome would come from the limiting factor.

The definition of a problem presents its objective and its problem-space (resource endowments, e.g., time constraints and budget). Focusing on a given objective during any given unit of time (during a given hour, day, or year) creates perspective which may direct focus to the limiting resource. (Within neuroscience and biological psychology, the study of motivation is experiencing a lot of change.) In the long-run, time is the limiting factor. Anecdotes tell us that people realize the importance of happy, in-the-moment experiences, when they expect to soon die. That's because the limitation on time is then salient. Their attention focuses on the ultimate limiting factor. In our lifetimes, instead of “the sky”, time “is the limit”.

The aforementioned approach to a problem can be likened to a discrete approach. This might accurately describe an individual living literally moment-to-moment. However, instead of remaining in the moment, cognition may address both a future time and a different place. Units of time are not taken as continuous: We consider an hour, a day, or a year. Does the individual that lives moment-to-moment approach the problem called life continuously? Does approaching life moment-to-moment consist of never planning and never remembering? Those who practice meditation heavily may be the best approximation of living moment-to-moment.

The description of focus onto one given goal might also be taken as a simplification of a problem: Often, people examine problems by holding constant all elements but one at a time. People often pursue multiple goals during a given time period. However, such a time period must be sufficiently long, as neuroscience claims there is no such thing as multitasking. In other words, on a physiological level, attention can direct only one behavior at a time. However, more tractable periods of time – like days, months, and years – may address multiple goals. In any case, the resource – be it money or time – that receives the most focus may be determined by a problem's context and by being the limiting factor.

As life-cycle theory would hint, an individual should allocate the 16 daily, available hours in relation to total expected lifetime hours instead of only the currently available hours. E.g. an American 22 year old that expects to live to be 78.2 years old can expect (78.2 – 22 years)*(8,760 hours/year)*(2/3) = 328,208 *waking hours*. Assuming a 40 hour work week, on average, for 50 weeks per year, a 22 year old individual would expect to work 2,000 hours every year, and the individual might expect to work until age 67, according to the Gallup poll.[72] A 22 year old might expect to work (67 – 22 years)*(2,000 hours/year) = 90,000 hours before they retire. A 22 year old that expects both to live until age 78.2 and to work 40 hours per week, and 50 weeks per year, would expect to have (328,208 – 90,000) = 238,208 hours to deliberately allocate among non-professional activities. A 22 year old expecting to live to 78.2 would expect to work for approximately 1/3 of their expected waking hours. Assuming that a profession is chosen only to receive money in exchange for time, is such a focused pursuit of money rational?

Many subproblems of life, and the associated time restrictions, form through interpersonal involvement in organizations, which can be global, national, organizational, and dyadic; these interpersonal involvements require goal-driven behavior. In place of a heuristic, an individual can employ logical reasoning, a time-intensive cognitive tool, to rationally guide behavior. Planning entails the attribution of cognition to the future; technology aids memory in this task. From a pen and paper to computer program including well timed reminders and to-do lists, the tasks of a problem can be arranged according to different timeframes. Long-term goals may translate to daily habits, whether tasks are periodically necessary (exercise) or whether tasks accumulate to a final product (writing a paper). Periodically necessary tasks might be likened to business operations, while work for finite projects are more similar to project management.[73] An individual can approach a time allocation problem from different temporal contexts.

Without clear lifetime objectives, might the best method to allocate time be to do so according to cross-sectional preferences? In other words, should we seek what we want and what fulfills our current desires? There are obvious restrictions to this notion, since we need to save to cover periodic expenses of a magnitude that our periodic income may not cover. Alternatively, might the best decision

[72] http://www.gallup.com/poll/154178/expected-retirement-age.aspx
[73] http://en.wikipedia.org/wiki/Project_management

be to choose an organization whose objective best matches one's current objectives?

It is currently popular to discuss a more holistic measure of welfare, rather than the utilitarian, hedonic concept of utility, and a more broad measure of welfare may, in fact, yield more benefit. If utility, or revealed preference were to yield the most benefit, then a person could not rightly regret a choice. For an individual that makes a choice in the moment, this choice may have been made based on biological motivation, instead of a reasoned plan. However, this utilitarian guide to decision-making may not yield the greatest welfare for an individual. Affective happiness may guide decisions made in the moment, while, evaluative happiness may guide premeditated, reasoned decisions. Importantly, the study of affective forecasting informs us that an individual is not likely to accurately predict what will make theirself happy in the future. Instead of a simply utilitarian, hedonic pursuit of happiness, a more holistic pursuit of happiness would allocate time to activities to experience all of the following: positively valenced feelings, engagement (or flow), and meaning (maybe, valued in relation to service of others; maybe, something can not be meaningful, if it is meaningful only to oneself.)

An individual's well-being function, a maximization problem, would determine their life outcome; more specifically, the well-being function is an optimization problem composed of multiple subproblems, in which each subproblem's outcome is a determining factor of well-being (e.g. interpersonal relationships, physical health, and productive effort to serve interpersonally). Since humans share millions of years of evolutionary history, they should share a significant objective factor of well-being; interest in measuring well-being suggests an empirical model, to be borrowed from finance: a single-index model. A national measure of well-being would be used to empirically estimate the well-being of the country's citizens. Such a model could be applied to measures for different interpersonal groups.

An interpersonal group – potentially global, national, or organizational – should optimize a function whose inputs are all the life outcomes of its constituent individuals. (Organizations might include different ideas of communities, neighborhoods, families, etc.) One efficiency constraint would dictate that participation in an interpersonal group should not make any individual worse off than that individual would be without the organizational influence on their life outcome. The prefixes micro- and macro- indicate the approach to a problem, as microeconomics explains the economy from the bottom-up, and macroeconomics from the top-down. Microeconomics explains the behavior of the actors in the economy, and macroeconomics explains the result of the interaction of these actors. However, both of these branches of economics ultimately are to serve individuals by improving their well-being. This theoretical approach could inform policy for interpersonal groups' administration.

Researchers might interpret the *meaning* in an individual's life to be their influence on others' welfare. One well-being theory recommends the simultaneous pursuit of meaning along with engagement (flow) and positively valenced feelings. Some sort of weighted average of the welfare (e.g. life satisfaction survey question) of those in an individual's interpersonal (social) network might approximate that individual's meaning. An interpretation for meaning, which one well-being theory says is simultaneously sought along with positively valenced feelings and engagement, is in terms of welfare as it is considered by economics. This interpretation translates to meaning to signify the positive effect on others' welfare.

Research recounts some methods for spending money, to positively affect well-being. A person should spend money both on experiences instead of goods and on others instead of theirself. The ways that spending money can have the greatest positive effects on happiness. Ultimately, the allocation of time in exchange for money should serve well-being. Diminishing marginal returns to income reflect that other activities may yield more individual benefit. The development of an analytical tool that accounted for the current values of various determinants of well-being – e.g. the quality of interpersonal relationships or the degree of immersion within an organization that improves the welfare of others – would help people to address the age old problem of discovering the purpose of their lives and the purpose of any given day.

Further research

Further address of this topic might pursue many courses, including the nature of collaboration for the study of happiness and the allocation of time. If the categories (or concepts) around which universities organize scientific knowledge were to significantly influence interpersonal research collaboration, these categories may limit scientific progress. Interdisciplinary research (amusingly so-called “antidisciplinary research”) may serve research, by diversity in both expertise and habits of thought. To solve problems, non-traditional collaborations organized according to the problem addressed might serve researchers' collaborative creativity. Three problems addressed by a think tank pose examples for potential departmental organization, as these are imminent, enduring global problems: violent extremism, illicit networks, and fragile states (e.g. nations).[74] Inasmuch as interdisciplinary research serves to effect change, organizations, like universities, should organize research project around cross-disciplinary problems. The study of happiness and time allocation could benefit from the input of many fields, including happiness economics, behavioral economics, investing, behavioral finance, philosophy, neuroscience, labor economics, and positive psychology.

[74] http://www.google.com/ideas/focus.html#fragile-states