Moderation, contentment, work, and alms – a Buddhist household theory

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Abstract

The paper deals with household theory from the angle of Buddhist thought. We build on the Buddhist terms of tanha versus chanda to express Buddhist preferences and Buddhist household theory in terms of textbook microeconomic terms. We find that preferences of Buddhist (enlightened) people may differ from those of non-Buddhist people in a systematic manner. Among other hypotheses, we deduce that Buddhists work harder than non-Buddhists if we control for meditation time. We argue that any full-grown Buddhist economics (if it is to exist) needs to build on Buddhist preference and household theory, either as presented here or in a different form.

Keywords: Buddhism, tanha, chanda, moderation, happiness research

1 Introduction

Buddhism has an undeniable attraction to many people brought up in our modern culture and even to Christians. At first sight, the central Buddhist tenets seem to contradict modern economics – understood as the way economic actors behave in market economies or understood as standard economic teaching. Therefore, it may come as a surprise that Buddhist economics is a subject some economists or others talk and write about.

The term "buddhist economics" has probably been coined by Ernst Friedrich "Fritz" Schumacher, a German-born statistician and economist. Schumacher is best known for his 1973 booklet "Small Is Beautiful" that contains the reprinted article "Buddhist Economics" which was first published in 1966. In this paper, we do not try to summarize the quite diverse articles or books claiming to contribute to Buddhist economics. Indeed, the author is agnostic on whether Buddhist economics can be made into a serious object of study.[1] The aim is more modest. On the basis of the often-cited book "Buddhist Economics – A Middle Way for the Market Place" by Ven. P. A. Payutto (1994), I try to translate some Buddhist ideas into microeconomic household theory. If a Buddhist household theory cannot be developed, then – so I would like to argue – no Buddhist economic theory is possible. Sidelining formal household theory, the most comprehensive overviews of Buddhist economic theory have been undertaken by Piboolsravut (1997) and Puntasen (2008).

The paper builds on a central Buddhist concept, tanha (craving, thirst, unwholesome desire). It is explicitly mentioned in the second and the third of the Four Noble Truths and also in the theory of "dependent origination". We follow Payutto (1994) in contrasting tanha with chanda (sincere desire for well-being). As with these words, we consistently stick to the Pāli rather than the corresponding Sanscrit words, but do not use any diacritical marks.

In the next section, these Buddhist teachings are expounded in more detail. The section after next explains the basics of household theory. We then show how standard tools of microeconomic theory help to shed light on some central Buddhist tenets: moderation, overconsumption, non-consumption, contentment, and the attitude towards work.

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[1]On YouTube, you can find Schumacher saying "I might have called it Christian economics but then no one would have read it."

2   Basic Buddhist teachings

Siddhattha Gotama was the founding father of Buddhism. We do not deal with the question of which of the following aspects of Buddhist teaching are attributable to Gotama himself, to his disciples or to some or other of the many branches of Buddhism (a very readable discussion is presented by Bahm 1993).

2.1   Dependent origination

Legend has it that Siddhattha Gotama (after living the spoiled and well-educated life of a prince and after engaging in ascetic practices) meditated under a tree for seven days. Following the Numata Center for Buddhist Translation and Research (2003, p. 20), Gotama realized that

1. from ignorance arose

2. karmic activity and hence

3. consciousness,

4. name and form,

5. the six sensory organs (eye, ear, nose, tongue, body, consciousness,

6. contact,

7. feelings,

8. desire,

9. grasping,

10. becoming,

11. birth,

12. old age and death, anxiety, sorrow, pain, suffering, and anguish.

These twelve steps are often summarized as the theory of "dependent origination" or "dependent arising". The idea is that ignorance and attachment to sensual pleasures lead to craving (tanha) and finally to birth and death. Thus, dependent origination shows how suffering comes about and is perpetuated again and again. Building on that sequence, Gotama developed the Four Noble Truths, the cornerstone of his teachings. From then on, he was now called the Buddha (the enlightened one).

Dependent origination is depicted on the outer ring of the Wheel of Life (also known as Wheel of rebirth or Wheel of suffering). Tanha (craving, desire, thirst for life) is typically symbolized by a woman who offers a drink to a man.

2.2 The Four Noble Truths

The Buddha's teaching and Buddhist teaching rest on, and revolves around the Four Noble Truths. I abbreviate the long version found in Numata Center for Buddhist Translation and Research (2003, pp. 30):

1. Noble Truth of suffering: To exist as a human being is suffering (birth, sickness, death, not obtaining what you seek).

2. Noble Truth of the cause of suffering: Thirsting lust produces new life, accompanied by pleasure and greed.

3. Noble Truth of the cessation of suffering: Suffering ceases when its cause is removed.

4. Noble Truth of the path that leads to the cessation of suffering: It is the Eightfold Noble Path of

   (a) right view,
   (b) right thought,
   (c) right speech,
   (d) right action,
   (e) right livelihood,
   (f) right effort,
   (g) right mindfulness, and

(h) right meditation.

Thus, tanha (craving or unwholesome desire), the eighth step of dependent origination, is explicitly mentioned in the second and third Noble Truth.

2.3 Tanha versus chanda

Payutto (1994) develops Buddhist household theory around the concepts of tanha versus chanda. In chapter 2 (pp. 29), he explains these two words (this subsection) while chapter 3 is devoted to particular aspects of preference and household theory (section 4).

Tanha is "blind craving", "wanting to have", or "seeking of objects which pander to self interests and is supported and nourished by ignorance". Marketing departments all over the world try to address the "five sense pleasures" sought by tanha: sights, sounds, smells, tastes, and bodily feelings. In short, tanha is the "desire for pleasure objects".

In contrast, chanda is "directed toward benefit, it leads to effort and action, and is founded on intelligent reflection." The short translation is "desire for well-being". Figure 1 juxtaposes these two important preference concepts. For example, tanha means desire for pleasure objects and shows artificial value whereas chanda is desire for well-being and shows true value.

In the following sections, we show how to incorporate tanha and chanda into preference theory, i.e., our aim is to develop Buddhist preference theory. Each of the following sections contains a quote by Payutto followed by its "translation".

3 Basic household theory

3.1 Overview

Before dealing with Buddhist household theory, we need to present a short sketch of microeconomic household theory which can be ignored by any student of microeconomics. The humans we are dealing with are called households, agents or Buddhists. We proceed in five steps:

- We first discuss the concept of bundles of goods.

TANHA ↔ CHANDA

= desire for

pleasure objects ↔ well-being

shows

artificial value ↔ true value

leads to

blind seeking ↔ effort/action

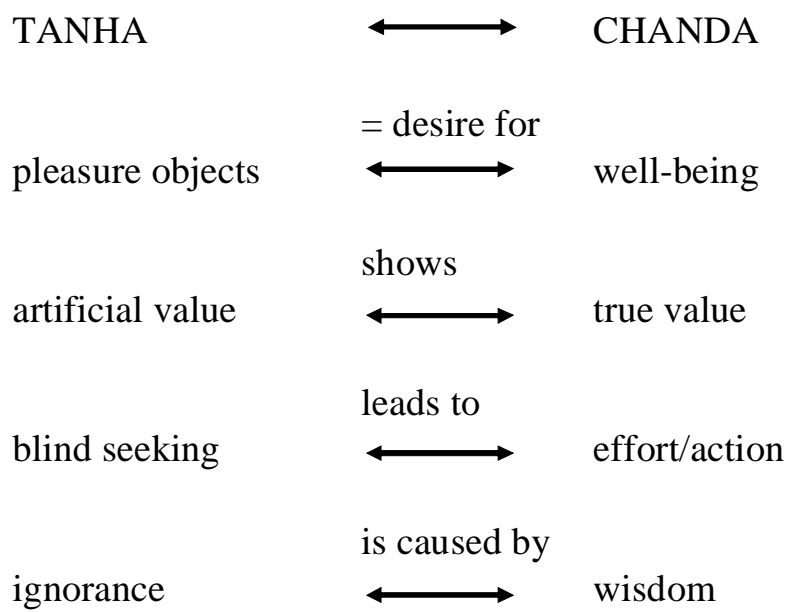is caused by

ignorance ↔ wisdom

Figure 1: Tanha versus chanda

- We then go on to present some basic preference theory – which bundles does the agent prefer over other bundles? This is household theory's first pillar.

- The second pillar of household theory is budget analysis – which bundles of goods can the agent afford?

- Building on the two pillars, we discuss the household optimum. This is the most preferred bundle among the affordable ones.

- Finally, we apply household theory to the supply of labor.

3.2 Bundles of goods

Every agent is confronted with goods he considers consuming. Depending on the problem at hand, these goods can stand for

- apples,

- material goods,

- leisure and material goods, or

- time spent for meditation.

Thus, the concept of a good is broad and may well encompass aspects of spiritual life.

To simplify the analysis, we deal with two goods at a time, only. Thus, we deal with bundles of goods, such as

- 4 apples and 2 pears,

- 10 hours leisure and monetary income of 60 Euros for consumption purposes, or

- 2 hours meditation and 10 hours consumption of material goods.

Formally, bundles of goods are elements of the two-dimensional space $\mathbb{R}^2_+$ (where "+" means that we have non-negative amounts of both goods). Figure 2 shows three bundles of goods. x_1 stands for the amount of good 1 (apples, for example) while x_2 represents the amount of good 2 (pears). At point A
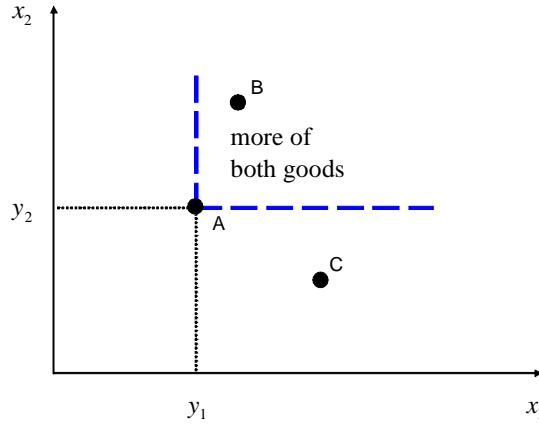
Figure 2: Bundles of goods in two-dimensional space

(i.e., point (y_1, y_2)) the agent consumes y_1 units of good 1 and y_2 units of good 2. If one moves from A to B (or to any point north-east of A) the units of good 1 and good 2 increase. In contrast, moving from A to C means that consumption of good 1 increases while consumption of good 2 decreases.

3.3   Preference theory

We assume that our agent has weak preferences (a weak preference relation) on the goods space $\mathbb{R}^2_+$, denoted by $\precsim$. $x \precsim y$ means that the household finds $y = (y_1, y_2)$ at least as good as $x = (x_1, x_2)$. Similarly, $\leq$ is used to express size differences where $5 \leq 7$ means that 7 is at least as great as 5.

Also, we use $x \sim y$ to indicate that the household is indifferent between bundles x and y while $x \prec y$ means that the agent strictly prefers y to x. Every agent's preferences between any two bundles x and y are

- either $x \prec y$: the agent strictly prefers y to x

- or $y \prec x$: the agent strictly prefers x is to y

- or $x \sim y$: the agent is indifferent between x and y.

Oftentimes, agents have monotonic preferences – they prefer to have more rather than less. In that case, the agent would strictly prefer bundle B over bundle A in figure 2.

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Economists use two convenient methods to describe preferences, utility functions and indifference curves. Utility functions attach numbers to bundles such that a better bundle has a higher utility number ($U(x) > U(y)$ in case of $x \succ y$) and indifferent bundles the same ($U(x) = U(y)$ in case of $x \sim y$). For example, $U(x_1, x_2) = x_1 + 2x_2$ is a utility function which expresses the preferences $(1, 2) \sim (5, 0) \sim (3, 1)$ or $(2, 1) \prec (1, 2)$. The same preferences are expressed by the utility functions $V(x_1, x_2) = 2U(x_1, x_2)$ or $W(x_1, x_2) = \sqrt{U(x_1, x_2)}$. We say that the utility functions U, V and W are equivalent (in expressing the very same preferences). Indeed, the absolute numbers are of no relevance since modern microeconomics is wedded to ordinal preference theory. The only task of utility functions is to describe preferences in a handy manner.

A famous utility function is given by $U(x_1, x_2) = x_1^\alpha x_2^{1-\alpha}$, $0 \le \alpha \le 1$. It is very convenient to work with. We can safely assume that the sum of the powers is 1, because otherwise, we can find an equivalent utility function where the sum of the powers is just 1.

The second way to describe preferences uses the x_1-x_2 diagram and links indifferent bundles (i.e., bundles with the same utility). Every bundle lies on one indifference curve. Given such a bundle, one can ask the question which other bundles are seen as indifferent from the agent's point of view. An indifference curve links all these bundles.

Consider point x in figure 3. Let us increase the consumption of good 1 by $y_1 - x_1$ units. If the household is to stay indifferent, he needs to give up $x_2 - y_2$ units of good 2. He then ends up in point y and we have indifference between points x and y. In the same fashion, we can derive other points on that indifference curve.

However, we need the additional information of which indifference curve is preferred to another one. This information is provided by numbers attached to indifference curves. Consider figure 4. On the left-hand side, we have an example of monotonic preferences (more is better) while the right-hand diagram shows non-monotonic preferences for noise and dirt.

Finally, we need to discuss how much of good 2 the household is prepared to give up for additional consumption of good 1. A discrete version of this "rate of substitution" is given by $\frac{x_2-y_2}{y_1-x_1}$ in figure 3. If, instead, we focus on a "very small" unit of good 1, we arrive at the "marginal rate of substitution" which we abbreviate by MRS. Graphically, it is the absolute value of the slope of an indifference curve at a bundle (x_1, x_2). Thus, if one additional unit of good 1 is consumed while good 2's consumption reduces by MRS
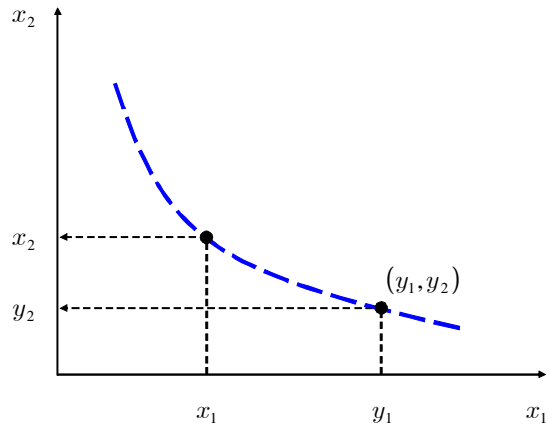
Figure 3: Points x and y lie on one indifference curve
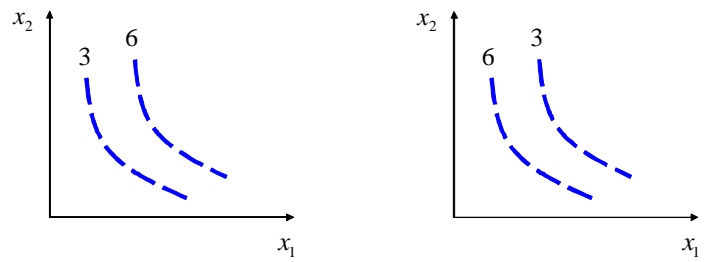

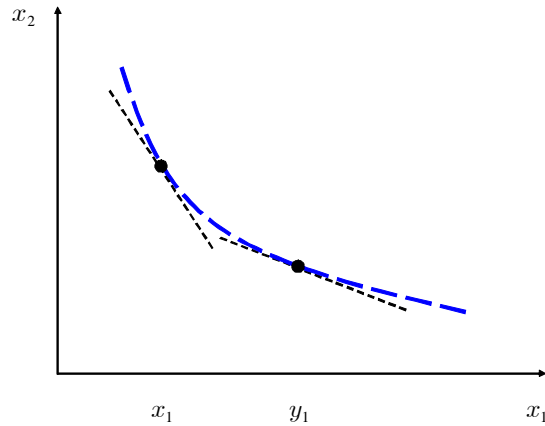Figure 4: Indifference curves with numbers

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Figure 5: The marginal rate of substitution decreases as x_1 increases

units, the consumer stays indifferent. We could also say: MRS measures the willingness to pay for one additional unit of good 1 in terms of good 2.

We often deal with indifference curves that look like the one in figure 5. If the consumption of good 1 (wine) increases while the consumption of good 2 (cheese) decreases, the MRS often decreases. Indeed, the extra wine is not worth a lot of cheese if I consume a lot of wine already.

3.4 Budget theory

Budget theory is simpler than preference theory. Assume an agent with some amount of money m at his disposal. The budget is the set of good bundles that the agent can afford, i.e., the set of bundles whose expenditure is not above m. The expenditure for a bundle of goods $x = (x_1, x_2)$ at prices $p = (p_1, p_2)$ is given by $p_1 x_1 + p_2 x_2$. Thus, the budget is the set of those bundles (x_1, x_2) that fulfill the inequality

$$p_1 x_1 + p_2 x_2 \leq m.$$

If the household does not consume good 1 ($x_1 = 0$), he can consume up to m/p_2 units of good 2. (Just solve the inequality for x_2.) In figure 6, the household can afford bundles A and B, but not C. Point B lies on the budget line which is defined by $p_1 x_1 + p_2 x_2 = m$.
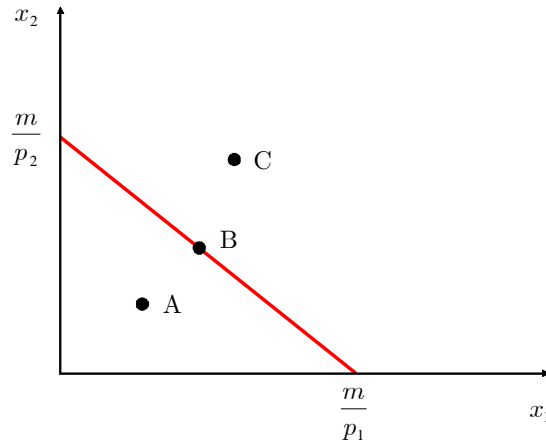
Figure 6: Affordable and non-affordable bundles

The budget line's slope is $-\frac{p_1}{p_2}$ (in case of $p_2 \neq 0$). Assuming positive prices, the budget line is negatively sloped. Assume prices $p_1 = 6$ and $p_2 = 2$. If I consume one extra unit of good 1, I need to give up $\frac{p_1}{p_2} = \frac{6}{2} = 3$ units of good 2. We call the absolute value of the budget line's slope the marginal opportunity cost (of consuming one additional unit of good 1 in terms of good 2). It is denoted by MOC (see figure 7).

3.5 The household optimum

The household aims to find the highest indifference curve attainable with his budget. The chosen bundles are called household optima. Look at the household situations depicted in figure 8. We assume monotonicity of preferences (more is better) and ask ourselves whether the highlighted points A or B are optima.

In subfigure (a), points A and B do not correspond to an optimum. Every point between A and B is better than A or B. In subfigure (b), point A is the household optimum. In subfigure (c), points A and B are optima but so are all the points in between. Turning to subfigure (d), point A is the best bundle of all the bundles on the budget line.

Most indifference curves that we deal with in this paper are of the type depicted in subfigures (a) and (d). Then, finding an optimum means finding
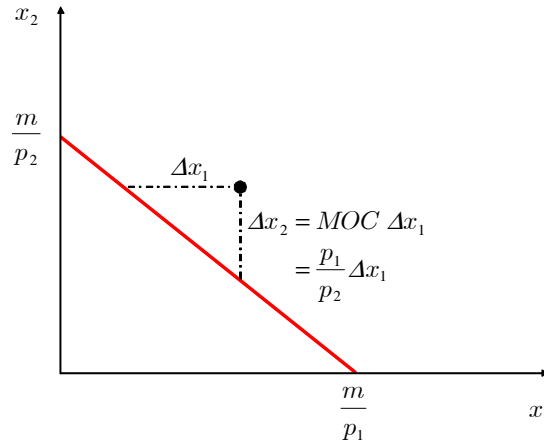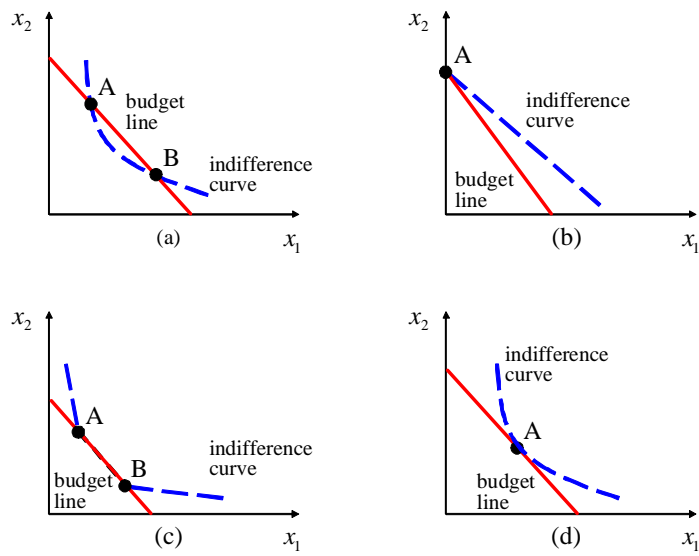
Figure 7: The marginal opportunity cost

Figure 8: Are the bundles A or B optima?

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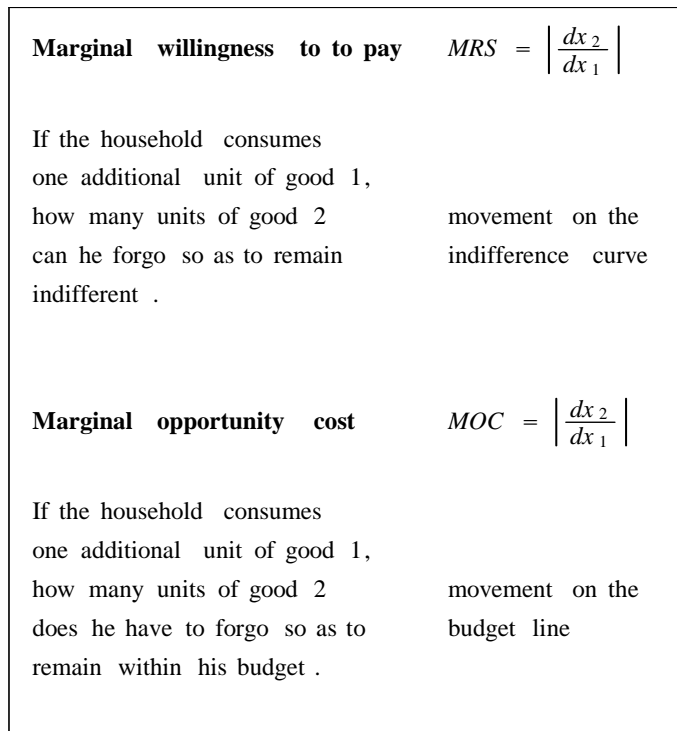|	
Marginal willingness to to pay	$MRS = \left\lvert \dfrac{dx_2}{dx_1} \right\rvert$
If the household consumes one additional unit of good 1, how many units of good 2 can he forgo so as to remain indifferent .	movement on the indifference curve
Marginal opportunity cost	$MOC = \left\lvert \dfrac{dx_2}{dx_1} \right\rvert$
If the household consumes one additional unit of good 1, how many units of good 2 does he have to forgo so as to remain within his budget .	movement on the budget line

Figure 9: MRS versus MOC

a point on the budget line where the marginal rate of substitution equals the marginal opportunity cost (see figure 9).

Assuming a Cobb-Douglas utility function $U(x_1, x_2) = x_1^{\alpha} x_2^{1-\alpha}$, $0 \leq \alpha \leq 1$ (in section 3.3, we explain why the sum of the powers can savely be assumed to be 1) the household optimum is given by

$$x_1^* = \alpha \frac{m}{p_1} \text{ and } x_2^* = (1 - \alpha) \frac{m}{p_2}.$$

3.6   Demand for leisure

Household theory can be adapted to model the demand for leisure or, differently put, the supply of labor. We depict the budget line in figure 10. Recreational hours are denoted by R. By definition, the household works $24 - R$ hours. Recreational time is the good 1, the second good is real
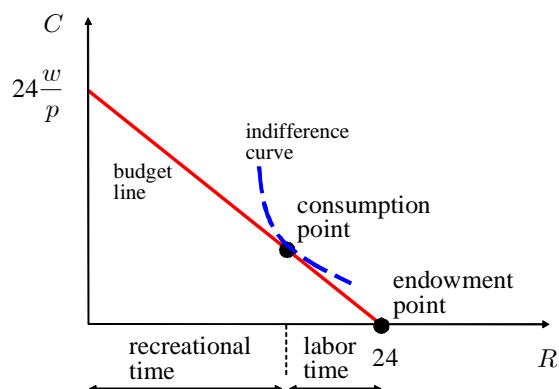
Figure 10: Recreation versus labor time

consumption C. C may stand for the only consumption good (bread, for example) bought and sold at price p. Alternatively, you can think of a bundle of goods C and an aggregate price (index) p.

At a wage rate w, the household earns $w\,(24 - R)$. Thus, the household's consumption in nominal terms is

$$pC = w\,(24 - R)$$

which can also be rewritten as

$$wR + pC = 24w = m$$

where $(24, 0)$ is the "endowment point". The endowment point is the consumption that is possible without participating in the market by buying or selling.

The price of leisure is the wage rate. Indeed, if a household chooses to increase its recreational time by one unit, it forgoes w (in monetary consumption terms) or $\frac{w}{p}$ (in real consumption terms). The marginal opportunity cost of one unit of recreational time is

$$MOC = \left| \frac{dC}{dR} \right| = \frac{w}{p}$$

units of real consumption.

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Depending on the preferences for leisure and consumption, the household chooses an optimal point which may, as in the figure, imply a leisure time of 16 hours and a working time of 8 hours. For the utility function $U(R,C) = R^\alpha C^{1-\alpha}$, $0 \leq \alpha \leq 1$, we find the household optimum

$$R^* = \alpha \frac{m}{w} = \alpha \cdot 24 \text{ and } C^* = (1-\alpha)\frac{m}{p} = (1-\alpha)\frac{24w}{p}.$$

4 Household preferences and actions between tanha and chanda

4.1 Moderation and overconsumption

In chapter 3, Payutto details how tanha and chanda affect preferences, consumption and work. Broadly following the set-up chosen by Payutto, we address moderation, non-consumption, contentment and work. With respect to moderation, Payutto (1994, pp. 42) writes:

> At the very heart of Buddhism is the wisdom of moderation. When the goal of economic activity is seen to be satisfaction of desires, economic activity is open-ended and without clear definition – desires are endless. According to the Buddhist approach, economic activity must be controlled by the qualification that it is directed to the attainment of well-being rather than the "maximum satisfaction" sought after by traditional economic thinking. ... There is no excess, no overconsumption or overproduction. In the classical economic model, unlimited desires are controlled by scarcity, but in the Buddhist model they are controlled by an appreciation of moderation and the objective of well-being.

Although Payutto uses some economic terms differently from the way known to students of economics, the message seems clear. Buddhist preferences are not monotonic: more is not always better. In terms of indifference-curves diagrams, monotonic (tanha) preferences are depicted in the left-hand side of figure 11 while moderate (chanda) preferences are shown in the right-hand side. In Payutto's (1994, p. 43) words:

> ... whenever we use things, be it food, clothing, or even paper and electricity, we can take the time to reflect on their true purpose,
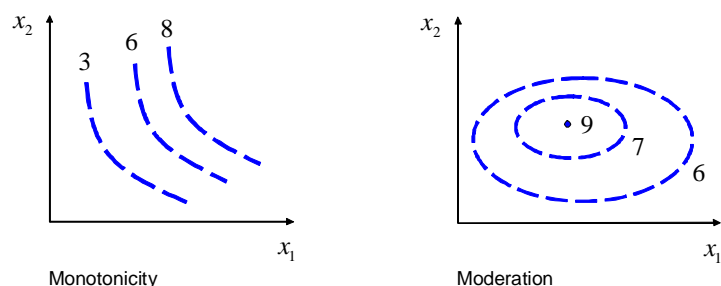
Figure 11: Monotonicity (tanha) versus moderation (chanda)

> rather than using them heedlessly. By reflecting in this way we
> can avoid heedless consumption and so understand "the right
> amount," the "middle way."

Indeed, binge drinkers may well benefit from Buddhist moderation. Of course, non-monotonic preferences are not foreign to the archetypal homo oeconomicus who knows that there may be "too much of a good thing" such as cheese or wine. Also, dynamic consumption models have been presented to show how consumption in the past influences consumption and well-being in the future (see, for example Becker & Murphy 1988).

Payutto (1994, p. 44) also comments on overconsumption which, to us, seems to be non-moderation:

> Drinking alcohol, for instance, satisfies a desire, but is a cause of
> ill-health, unhappy families and fatal accidents. People who eat
> for taste often overeat and make themselves ill.

Figure 11 illustrates monotonicity versus moderation in terms of two-good diagrams. (Cobb-Douglas utility functions are monotonic and convex as in the left-hand side diagram.)

Another theoretical point of view on the same issue is given by Puntasen (2009) who suggests the concept of "optimal consumption". According to Puntasen's idea, optimality is not guided by tanha preferences (stemming from craving) but by chanda preferences (motivated by well-being). In order to capture this idea in a formal way, Puntasen (2009, pp. 23) proposes a production-theory approach. Goods and services (factors of production) feed into a well-nourished (or deficient) body, a peaceful (or restless) mind, etc.

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(output). We could still use the same graphical display but indifference curves would not reflect craving for goods but good bundles chosen by Buddhist consumers or, perhaps, by a Buddhist benevolent dictator. Indeed, here we are back to consumer sovereignty as discussed by Scitovsky (1962) and Lerner (1972).

The happiness research that has sprung up over the last years, takes a similar approach. We refer the reader to the book by Frey & Stutzer (2002). Seen from this perspective, one may follow Daniels (2005) and highlight the impact Buddhist economics has, or should have, on mainstream economics.

Interestingly, the Buddhist duality of tanha versus chanda is mirrored in some recent findings of neuroscience. Obese and non-obese women were confronted with high-calorie food (such as cake or french fries). The brain reactions of obese women differed markedly from those of non-obese women. Tanha preferences seem to be related to dopamine, the so-called "desire chemical" (for an overview, see Small & Scott 2009).

Moderation is closely related to "sufficiency economy" which is an official economic principle of the government of Thailand (see Piboolsravut 2003). However, the interconnections between moderation (household theory) and sufficiency (economic policy) lie well outside the scope of our paper.

4.2   Non-consumption

Payutto (1994, pp. 43) notices that consumption may interfere with spiritual activities:

> Lacking a spiritual dimension, modern economic thinking encourages maximum consumption. It praises those who eat the most – three, four or more times a day. If someone were to eat ten times a day, so much the better. By contrast, a Buddhist economics understands that non-consumption can contribute to well-being. ...

> Like consumption, non-consumption is only a means to an end, not an end in itself. If abstinence did not lead to well-being, it would be pointless, just a way of mistreating ourselves. The question is not whether to consume or not to consume, but whether or not our choices lead to self-development.
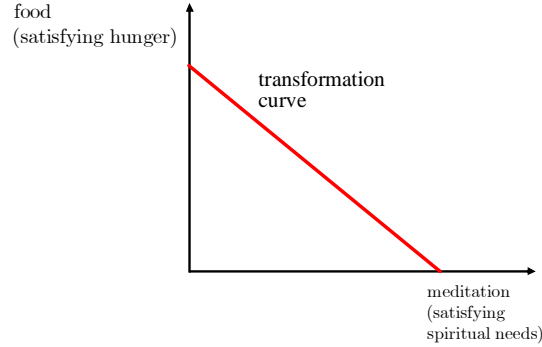
Figure 12: Opportunity cost

From the point of view of household theory, Payutto's quotation can be expressed by a transformation curve which is depicted in figure 12 and by the tanha versus chanda choices shown in figures 13 and 14.

In all three figures, we see the transformation curve which tells us the maximum amount of food obtainable or consumable when a specific number of hours is devoted to meditation or other endeavors fulfilling spiritual needs. Typically, transformation curves (with budget lines as special instances) have negative slopes. The more time we spend on meditation, the less time we have for the procurement of food or for the consumption of food.

Figure 13 shows the tanha choice, the point chosen by an agent who lacks the spiritual dimension. In contrast, figure 14 reveals the chanda choice, undertaken by a Buddhist.

The different bundles chosen in these two figures can also be represented by different Cobb-Douglas utility functions $U(x_1, x_2) = M^{ch} F^t$, $ch \geq 0$, $t \geq 0$, $ch + t = 1$, where M stands for meditation and F for food. Then, the slope of the transformation curve is $-\frac{p_M}{p_F}$ and the household optimum is

$$M^* = ch \frac{m}{p_M} \text{ and } F^* = t \frac{m}{p_F}.$$

A tanha person has a low value of ch (with ch standing for chanda) and a high value of t (with t standing for tanha). For example, $ch = 0$ and $t = 1$ leads to the tanha choice shown in figure 13. In contrast, a chanda person (take, for example, $ch = \frac{3}{4}$ and $t = \frac{1}{4}$ leads to a bundle approximately shown in figure 14.
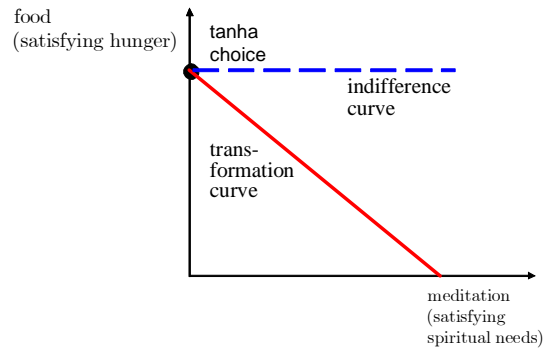
Figure 13: Tanha choices value material goods more than spiritual needs
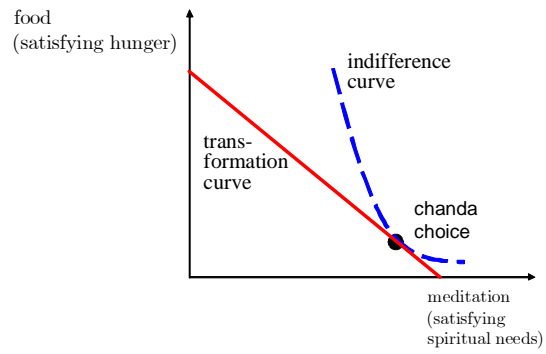

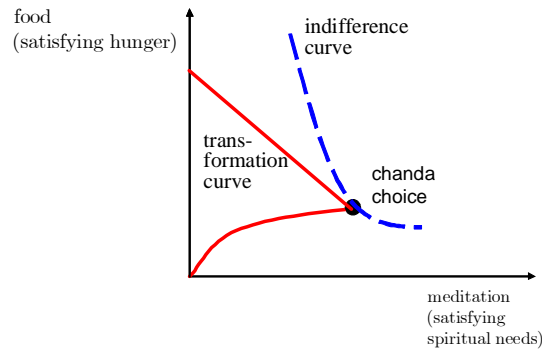Figure 14: Chanda choices put the focus on spiritual needs

Figure 15: A hungry man cannot meditate

In this context, the story about a hungry peasant is worthwhile mentioning. We cite Payutto (1994, pp. 88) (chapter 5) once again:

> The Buddha taught that basic material needs must be met before spiritual development can begin. ... The peasant heard the news of the Buddha's visit and, since he had been interested in the Buddha's teaching for some time, he decided to go to listen to the discourse. ... By the time he arrived at the place set up for the talk, he was exhausted and very hungry.
>
> When the Buddha saw the peasant's condition, he asked the city elders to arrange some food for the poor man, and only when the peasant had eaten his fill and was refreshed did the Buddha start to teach.

Thus, the Buddha's common sense translates into figure 15 that reproduces the above figures with the exception that a very low level of nutrition makes meditation difficult or impossible.

4.3   Contentment

Another important Buddhist concept is contentment. We first consult Payutto (1994, pp. 45):

> While not technically an economic concern, I would like to add a few comments on the subject of contentment. ... Obviously,
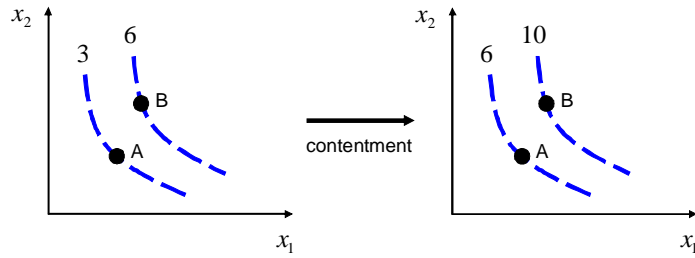
Figure 16: A content person is happy with less (material goods)

people who are content will have fewer wants than those who are discontent. However, a correct definition of contentment must be qualified by the stipulation that it implies only the absence of artificial want, that is tanha; chanda, the desire for true well-being, remains. In other words, the path to true contentment involves reducing the artificial desire for sense-pleasure, while actively encouraging and supporting the desire for quality of life.

One aspect of contentment shows itself in the comparison between figure 13 (wanting lots of material things) and figure 14 (desiring a high quality of life through meditation, etc.).

Another aspect of contentment can be explained by way of figure 16. The left-hand side shows the original set of indifference curves for materialistic goods 1 and 2. After becoming a Buddhist, the person in question has a higher level of contentment with less consumption of material goods. That is, you would rather be a chanda person with bundle A (right-hand diagram) than a tanha person with the same bundle (left-hand diagram). Or, you are indifferent between consuming bundle A with chanda preferences (right-hand diagram) and consuming bundle B with tanha preferences (left-hand diagram).

As a practical matter, being content may be influenceable by means of rational arguments, meditation, or prayer (compare Christians who thank God for providing the means of daily life).

In terms of utility functions, we suggest to use the Cobb-Douglas utility function with a prefixed $ch > 0$ so as to obtain $U(x_1, x_2) = ch \cdot x_1^\alpha x_2^{1-\alpha}$, $0 \leq \alpha \leq 1$, where $ch > 0$ is high for a (chanda) person trained to be content and
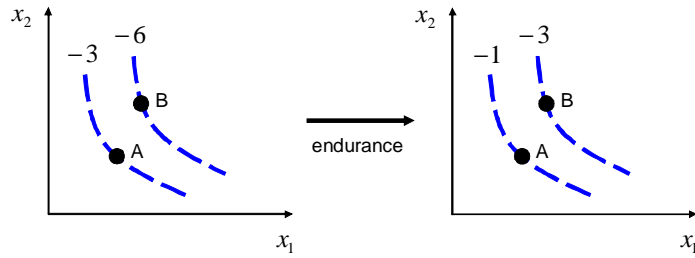
Figure 17: Endurance helps to cope with disagreeable things more easily

low for a malcontent (tanha) person. Referring back to Puntasen's (2009, pp. 23) production-theory approach, ch is a parameter of consumption progress (rather than technological progress in production theory and growth theory).

Of course, one may wonder how to deal with bad things. In terms of our microeconomic model we could consider two bads (dirt and disagreeable noise) as in figure 17. While the tanha person gets very upset about the state of affairs at A, the chanda agent who has trained his mind accordingly keeps a peaceful mind.

The corresponding utility function is $U(x_1, x_2) = -(1 - ch) \cdot x_1^{\alpha} x_2^{1-\alpha}$, $0 \le \alpha \le 1$, where $0 < ch < 1$ is high for a chanda person. In a very similar vein, Snyder (2009, p. 30) quotes Shinzen Young's formula $S = P \times R$ where S stands for suffering, P for pain and R for resistance, and remarks: "The enlightened person does not deny the existence of pain. The goal is to not put any resistance to it." If ch is high, $1 - ch = R$ is low so that a low level of resistance to pain (disagreeable things) ensues.

Of course, it is not quite clear psychologically whether this utility function is possible for negative aspects while the above contentment utility function can be brought to bear on positive things. Indeed, the idea of equanimity (upekkha) which belongs to the so-called four immeasurables is to accept both positive aspects and negative aspects of life. A similar attitude is hidden behind the verse from the old testament (book Job): "The Lord gave, and the Lord has taken away; blessed be the name of the Lord."

4.4 Work

Standard household theory can also serve to develop a theory of how many hours to work (see the microeconomic section). Payutto's (1994, pp. 46) view on work can be summarized by the following quote:

> Buddhism ... recognizes that work can either be satisfying or not satisfying, depending on which of the two kinds of desire is motivating it. When work stems from the desire for true well-being, there is satisfaction in the direct and immediate results of the work itself. By contrast, when work is done out of desire for pleasure-objects, then the direct results of the work itself are not so important. With this attitude, work is simply an unavoidable necessity to obtain the desired object. The difference between these two attitudes determines whether or not work will directly contribute to well-being. In the first case, work is a potentially satisfying activity, and in the second, it is a necessary chore. ...

> With only tanha to get their salary but no chanda to do their work, people will only go about the motions of performing their duties, doing just enough to get by. The result is apathy, laziness and poor workmanship.

Payutto addresses several aspects. First of all, chanda influences indifference curves. Have a look at figure 18. Since Buddhist work is also done for the "satisfaction in the direct and immediate results of the work itself", an extra hour of work (reduction of leisure by one hour) need not be compensated by a lot of additional consumption in order to make the Buddhist indifferent. A related argument as been put forward by Frey (1997) who argues that intrinsic motivation can be threatened by an overuse of extrinsic motivation.

The second aspect mentioned by Payutto (laziness and poor workmanship) can be linked to X-inefficiency as identified by Leibenstein (1966) and was already put into relation to Buddhism by Pryor (1991).

4.5 Putting work and spiritual needs together

Figure 18 implies that a Buddhist works more and consumes more than a non-Buddhist because the Buddhist likes work more. This seems quite counterintuitive. The reason is that the picture is incomplete. Let us build a fuller model that also takes time to meditate into account.
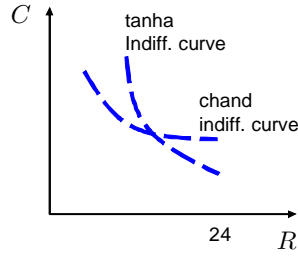
Figure 18: Chanda makes indifference curves less steep

Thus, we have three goods:

- consumption of material goods C,

- recreation time R, and

- meditation time M.

The budget line is defined by

$$
\begin{aligned}
pC &= w\left(24 - R - M\right) \text{ or} \\
wR + wM + pC &= 24w.
\end{aligned}
$$

We use the utility function $U\left(C, R, M\right) = C^{t_C} R^{t_R} M^{ch_M}$, $t_C \geq 0$, $t_R \geq 0$, $ch_M \geq 0$, $t_C + t_R + ch_M = 1$, where chanda and tanha people differ systematically:

	chanda preferences	tanha
t_C	low	high
t_R	very low	high
ch_M	high	low

The tanha parameters t_C and t_R are low for chanda preferences. In line with the previous section, the ratio $\frac{t_R}{t_C}$ is smaller for chanda preferences than for tanha preferences – Buddhists do not see work only as a nuisance in order to be able to consume and hence put less stress on leisure.

25

Let us consider two different sets of parameters. The first set contrasts chanda preferences of a Buddhist monk with tanha preferences:

	chanda	tanha
	preferences	
t_C	$\frac{2}{6}$	$\frac{1}{2}$
t_R	$\frac{1}{6}$	$\frac{1}{2}$
ch_M	$\frac{1}{2}$	0

We find the household optima

	chanda	tanha
	optimum	
C^*	$\frac{2}{6} \cdot \frac{24w}{p}$	$\frac{1}{2} \cdot \frac{24w}{p}$
R^*	$\frac{1}{6} \cdot 24$	$\frac{1}{2} \cdot 24$
M^*	$\frac{1}{2} \cdot 24$	$0 \cdot 24$

so that chanda preferences lead to less consumption than tanha preferences.

The second set juxtaposes the tanha preferences with chanda preferences of a Buddhist layperson who puts some focus on meditation:

	chanda	tanha
	preferences	
t_C	$\frac{8}{14}$	$\frac{1}{2}$
t_R	$\frac{4}{14}$	$\frac{1}{2}$
ch_M	$\frac{1}{7}$	0

We then obtain

	chanda	tanha
	optimum	
C^*	$\frac{8}{14} \cdot \frac{24w}{p}$	$\frac{1}{2} \cdot \frac{24w}{p}$
R^*	$\frac{4}{14} \cdot 24$	$\frac{1}{2} \cdot 24$
M^*	$\frac{1}{7} \cdot 24$	$0 \cdot 24$

and the chanda agent works harder and consumes more than the tanha agent.

4.6   Giving alms

In the previous section, we show that it may happen that a chanda agent works more than a tanha agent. In the model presented above, this implies

also more consumption by the chanda agent. But, of course, the chanda layperson may be more inclined to give alms to Buddhist mendicants or to poor people. Citing Payutto (1994, p. 58) one last time:

> Only through understanding suffering can we realize the possibility of happiness. Here Buddhism makes a distinction between two kinds of happiness: dependent happiness and independent happiness. ...

> Dependent happiness leads to competition and conflict in the struggle to acquire material goods. Any happiness arising from such activity is a contentious kind of happiness. There is, however, a third kind of happiness which, while not as exalted as the truly independent kind, is nevertheless more skillful than the contentious kind. It is a happiness that is more altruistically based, directed toward well-being and motivated by goodwill and compassion. Through personal development, people can appreciate this truer kind of happiness – the desire to bring happiness to others ... .

By now, the reader knows how to embellish our model to include altruism: Use the utility function $U(C, R, M, G) = C^{t_C} R^{t_R} M^{ch_M} G^{ch_G}$ where G stands for giving to others. Then, it may happen that a Buddhist may work more than a non-Buddhist and still consume less material goods for himself.

4.7 Meditation and contentment

Meditation may be a means to achieve a higher level of contentment. To discuss this possibility, we consider the utility function $U(C, R, M) = M^{cont} C^{t_C} R^{t_R} M^{ch_M}$, where we have $t_C \geq 0, t_R \geq 0, ch_M \geq 0, t_C + t_R + ch_M = 1$ (see section 4.5) and assume that meditation has a positive influence on contentment (see section 4.3). Thus, we assume $cont > 0$ where $cont$ indicates how meditation "produces" contentment.

In section 4.5, we obtain the household optima

	Buddhist monk	Buddhist layperson
		optimum
C^*	$\frac{2}{6} \cdot \frac{24w}{p}$	$\frac{8}{14} \cdot \frac{24w}{p}$
R^*	$\frac{1}{6} \cdot 24$	$\frac{4}{14} \cdot 24$
M^*	$\frac{1}{2} \cdot 24$	$\frac{1}{7} \cdot 24$

As shown in the appendix, the modified utility function leads to the household optima

	Buddhist monk	Buddhist layperson
		optimum
C^*	$\frac{2}{9} \cdot \frac{24w}{p}$	$\frac{8}{21} \cdot \frac{24w}{p}$
R^*	$\frac{1}{9} \cdot 24$	$\frac{4}{21} \cdot 24$
M^*	$\frac{2}{3} \cdot 24$	$\frac{3}{7} \cdot 24$

In fact, the household optimum in terms of the model's parameters is given by

$$R^* = \frac{t_R}{1 + cont} \cdot 24, \ C^* = \frac{t_C}{1 + cont} \cdot \frac{24w}{p}, \ \text{and} \ M^* = \frac{ch_M + cont}{1 + cont} \cdot 24.$$

Thus, even if a person does not want to meditate ($ch_M = 0$), he or she may still engage in meditation practices to get some contentment otherwise absent.

5 Conclusion

This paper is an attempt to contribute to the dialogue between Buddhism and economic science. We have expounded an important part of Buddhist philosophy from the point of view of microeconomic preference and household theory in some detail. In particular, preferences of Buddhist (enlightened) people may differ from those of non-Buddhist people in a systematic manner:

- Buddhists work harder than non-Buddhists if we control for meditation time.

- Buddhist who may earn less or more than non-Buddhist spend a larger fraction of their income for altruistic purposes.

- Non-Buddhist agents sometimes engage in meditation, too.

We also hinted at the link between Buddhism and neuroscience (see the section on "moderation and overconsumption"), and pointed out the similarity between Buddhist thought and modern happiness research.

We close by making some comments on (i) the tanha-chanda dichotomy exploited in this paper, on (ii) whether microeconomics (or "mainstream

economics") can be brought to bear an Buddhist thought, and on (iii) future research.

(i) In this article, we follow Payutto in distinguishing sharply between tanha and chanda. Indeed, this distinction is a very appropriate pedagogical means to present Buddhist household theory. However, the juxtaposition is examined critically by the late philosopher Bahm (1993, pp. 60) who argues that the difference is one of degree rather than kind. Also, chanda is not always seen in the positive light presented by Payutto.

Bahm (1993, p. 11) presents his "Philosophy of the Buddha" (partly) as an effort in arguing that "everyone is a Buddhist". In a sense, this paper is a corroboration of this claim. We can understand Buddhist ideas surrounding tanha and chanda (by a translation into household theory) and many of us (even economists) would like to be more of a Buddhist, sometimes.

(ii) We argue that Buddhist views on how to consume can indeed be expressed by household theory. In our view, this shows that maximization is not foreign to Buddhist thought.

Of course, not every Buddhist may be happy with the interpretation offered in this paper. One line of criticism is directed against the use of mathematical models in explaining the origins of pain and the ways to gain freedom from pain and to gain enlightment. Surely, economic models such as the ones presented in this paper, concentrate on certain aspects of phenomena or problems, only. Others are just left aside. Thus, this paper does not aspire to be a guide to the many different facets of Buddhism.

Instead, our paper belongs to the many papers and books on Buddhist economics. We would like to argue that any full-grown Buddhist economics needs to build on Buddhist preference and household theory, either as presented here or in a different form. Unfortunately, many writers on Buddhist economic theory (such as Payutto (1994) or Puntasen (2009)) combine their efforts of developing such a theory with generalizations about mainstream economics some of which are ill-founded.

Turning to a second line of criticism, some Buddhist economists seem to hold "mainstream economics" responsible for environmental problems, poverty, and the like. While we think that this is stretching the responsibility of economics as an academic subject too far, it may well be the case that a larger fraction of Buddhists in an economy alleviates some of these problems.

(iii) With respect to future research, we offer the following suggestions:

1. The hypotheses developed in this paper (see above) can and should be

put to empirical tests.

2. It seems to us that the Buddhist "Middle Way" merits examination from the point of view of microeconomics. The Middle Way may come about by convex preferences (which are the standard monotonic preferences used in microeconomic textbooks, see figure 5). Since the Middle Way is a complicated concept (see, again, the insightful book by Bahm 1993), this project has to await a different treatment.

6   Appendix

We work with the utility function

$$
\begin{aligned}
U\left(C, R, M\right) &= M^{cont} C^{t_C} R^{t_R} M^{ch_M} \\
&= C^{t_C} R^{t_R} M^{ch_M + cont}
\end{aligned}
$$

that obeys $t_C \geq 0, t_R \geq 0$, $ch_M \geq 0$, $t_C + t_R + ch_M = 1$, and $cont > 0$. The utility function

$$
\begin{aligned}
V\left(C, R, M\right) &= U\left(C, R, M\right)^{\frac{1}{t_C + t_R + ch_M + cont}} \\
&= C^{\frac{t_C}{1 + cont}} R^{\frac{t_R}{1 + cont}} M^{\frac{ch_M + cont}{1 + cont}}
\end{aligned}
$$

is equivalent, i.e., represents the same preferences. The sum of the powers is 1 for V. Thus, the household optimum is given by

$$
R^* = \frac{t_R}{1 + cont} \cdot 24, \; C^* = \frac{t_C}{1 + cont} \cdot \frac{24w}{p}, \; \text{and} \; M^* = \frac{ch_M + cont}{1 + cont} \cdot 24.
$$

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