Behavioral Public Economics based on Unconditional Love and Moral Virtue

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Abstract
Behavioral economics has not yet developed a basis of systematic public policy evaluation such as Pareto efficiency in traditional economics. Pareto efficiency is a good basis if preferences are assumed to be stable and exogenous to the economic system. In behavioral economics, however, preferences are often assumed to be unstable and endogenous. For example, in the literature of cultural preference formation, parents influence preferences for their children. For value judgment in policy evaluation, it is desirable to have a basis that is stable and exogenous. “Unconditional love” is unchanging and exogenous unlike conditional love such as “I love you because you are my child,” “I love you because you belong to the same religion,” or “I love you because you are young and beautiful.” If we assume that at least most people are not able to unconditionally love, then a policy that helps them to learn to unconditionally love can be judged to be desirable. This idea leads to policies that promote moral virtue. For example, in a cultural transmission model of preferences called the tough love model, if a parent spoils a child with high consumption during her childhood, then she grows to be impatient (without obtaining a virtue of patience). If the government lowers the bequest tax rate in this model, then the parent has less incentive to spoil the child during her childhood.

Key Words: Learning, Norm, Moral virtue ethics, Utilitarianism, Libertarian paternalism

JEL Classification Numbers: D03, Z18
1. Introduction

Behavioral economics has not yet developed a basis of systematic public policy evaluation such as Pareto efficiency in traditional economics. There are many difficulties in applying Pareto efficiency when preferences are unstable and/or endogenous as in behavioral economics. This paper proposes learning unconditional love as a basis for policy evaluation in behavioral economics.

One example of unstable and endogenous preferences is Kahneman and Tversky’s (1979) prospect theory where reference points play an important role in individual decision making. Preferences defined by prospect theory are unstable in the sense that they change when reference points change as seen in the endowment effect. As long as reference points are endogenously determined in the economic system, preferences defined by prospect theory are endogenous.

Another example of unstable preferences is found in the literature of hyperbolic discounting. In the models of hyperbolic discounting or quasi-hyperbolic discounting such as Laibson’s (1997), time discounting applied between periods t and t+1 in period t is different from that in period t-1. As a result, the time inconsistency problem exists. In this sense, preferences are unstable. One can still apply the idea of Pareto efficiency by considering preferences of present and future selves. However, time inconsistency causes difficulties by adding such complications.

The issue of endogenous preferences is also addressed in the literature of intergenerational

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1In this paper, we define behavioral economics to be economics based on theories of individual decision makings without assuming homo economicus who has infinite ability to maximize his utility function.
cultural preference transmission and formation (see, e.g., Bisin and Verdier 2001, and Bhatt and Ogaki 2012, 2013). In the models of studied in this literature, children’s preferences are affected by parents’ decisions. In many of these models, it is not clear how Pareto efficiency should be applied because preferences are endogenously determined. For example, in Bhatt and Ogaki’s (2012, 2013) tough love models, the child’s discount factor is endogenously determined to be a decreasing function of her childhood consumption. Hence, the child will grow to be impatient if the parent spoils the child by providing her high childhood consumption. The parent evaluates the child’s life time utility using an exogenous discount factor and when this factor is relatively high the parent exhibits tough love. In this setting, the child will have different preferences during childhood (immature preferences) and during adulthood (mature preferences). It is not clear if the society or the parent should honor the child’s immature preferences during her childhood.

In this paper we make several contributions to the existing literature. First, we highlight the limitations of Pareto efficiency when preferences are endogenous. Specifically, we extend Bhatt and Ogaki (2012) tough love altruism model by adding a bequest motive for the parent. In this setting using numerical methods we show that under certain parametric specifications a policy that gives a Pareto improvement in terms of the child’s period one utility (immature preferences) may not lead to a Pareto improvement in terms of period two utility (mature preferences). This illustrates the limited role of Pareto efficiency in models with endogenous preferences.

For value judgment in policy evaluation, it is desirable to have a basis that is stable

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2 Note that there is no time inconsistency in these models. For details see Bhatt and Ogaki (2012, 2013).
and exogenous especially when preferences are endogenous, as is often the case in behavioral economics. As our second contribution, we identify one such basis, unconditional love. Unconditional love is not just a feeling (such as romantic love), but is to unconditionally will the good of another. The key features of unconditional love are its unchanging nature and universal appeal. The philosophical foundation for such love can be derived from Kantian duty ethics. We combine the existing models of endogenous altruism (Mulligan, 1997) and endogenous time preferences (Becker and Mulligan, 1997; Bhatt and Ogaki, 2012) and propose a simple mathematical framework for understanding the principle of unconditional love.

Finally, we argue that most people find it difficult to practice unconditional love. We propose that introducing a learning stage may be desirable, wherein individuals learn to unconditionally love and policies that promote such love are deemed to be better. Here we draw on Aristotle’s moral virtue ethics where virtues are to be cultivated through virtuous behavior in daily life. Hence, our proposal to introduce a learning stage in our framework serves as a bridge between Kantian ethics and Aristotle’s moral virtue. We conclude our discussion by arguing that promoting moral virtue through policy can be a stable basis for policy analysis in behavioral economics.

The rest of the paper is organized as follows. Section 2 provides a brief review of the related literature. Section 3 presents a tough love altruism model with bequest and highlight the limitations of Pareto efficiency in models with endogenous preferences. Section 4 presents the principle of unconditional love and a mathematical model to highlight such love within
the utility framework. Section 5 proposes learning to unconditionally love as a desirable policy objective, and Section 6 concludes.

2. Related Literature

In this section we start with discussing the role played by Pareto efficiency in traditional economics. This is followed by a discussion of limitations of this approach in behavioral economics, and an overview of alternative policy evaluation methods recommended in the literature.

In traditional economics, with stable and exogenous preferences, the paradigm of Pareto efficiency is applied for evaluating alternative policies. An allocation of goods is said to be Pareto efficient if no other allocation can make at least one individual better off without making anyone else worse off. Analogous to Pareto efficiency of allocations, we have Pareto criterion that states that a policy is desirable if it makes at least one person better off and no one else worse off. Using this criterion we can evaluate alternative policies and choose the ones that are Pareto efficient.

In behavioral economics preferences are often endogenous and unstable. In such a setting many studies have raised concern about the applicability of Pareto efficiency. One criticism emphasizes the importance of revealed preference principle underlying traditional welfare economics. According to the revealed preference principle, we can infer individuals’ preferences from their observed choices. As long as preferences satisfy this principle there is no need to distinguish between behavioral and welfare components of economic decision-making models. We can simply act as proxy for individuals and determine what they would prefer.
from their observed choices. This greatly simplifies evaluation of policies as we can extrapolate individual policy choices using the revealed preference principle and then apply the Pareto criterion in evaluating alternative policies (Bernheim and Rangel, 2005). The principle of revealed preference has been seriously challenged by recent developments in behavioral economics. For instance, Beshears et al. (2008) emphasize that equality between revealed preference and normative preferences, as commonly assumed in traditional economics, may not be accurate in many cases. They suggest that in many cases choices reflect a combination of normative preferences and decision-making errors caused by myopic impulses, analytical errors, inattention, and misinformation. Similarly, Rabin (1998) and Koszegi and Rabin (2007, 2008) argue that in many cases well-being of an individual depends not only on the outcome of the choice but also the choice set itself. Examples include loss aversion, shame, other-regarding behavior such as altruism, revenge, and fairness. They emphasize that in many cases such choice-set dependence can be strong enough rendering welfare analysis based on revealed preferences ineffective. Gul and Pesendorfer (2007) emphasize that individual behavior conflicting with self-interest, such as addiction, necessitates a measure of well-being that is independent of revealed preferences. They suggest that in the presence of mistakes and biases in individual decision making, true utility cannot be inferred from revealed preference.

The above mentioned limitations of revealed preference principle have strong implications for welfare analysis and policy evaluation in behavioral economics. In this paper, we argue that even if revealed preference principle is satisfied, Pareto efficiency may not be a useful
guide for policy evaluation when preferences are endogenous. To illustrate this, in Section 3, we propose a tough love altruism model with a bequest motive for the parent and endogenous time preference for the child. We show that in such a framework, allocations that represent a Pareto improvement using immature preferences of the child may not represent such an improvement when using the mature preferences of the child.

To the best of our knowledge there is no consensus measure of evaluating alternative policies in behavioral economics. As stated by Bernheim and Rangel (2007),

“The fundamental problem of behavioral welfare economics is to identify appropriate criteria for evaluating alternatives when, due to choice reversals and other behavioral anomalies, the individual’s choices fail to provide clear guidance.”

One school of thought attempts to incorporate behavioral biases such as temptation and self-control within the revealed preference framework for studying choices. This is accomplished by defining choices over the both allocations and the choice set (Gul and Pesendorfer, 2001). The idea is that if some choices are tempting when available and that distracts an individual from achieving well-being, then an individual may prefer smaller choices sets. With additional assumptions this allows tracing the actual preferences from choice data by applying the principle of revealed preference. This approach has the limitation of ignoring the possibility that an individual may feel shame/humiliation from limiting his or her choice set via commitment (Koszegi and Rabin, 2008). A second school of thought emphasizes use of both choice data and non-choice data in conducting welfare analysis in Behavioral economics. For instance, Koszegi and Rabin (2007, 2008) argue that acknowledging mistakes in
decision making can improve the efficacy of revealed preference principle. However, it may have to complement by alternative measures of well-being for more reliable welfare analysis in Behavioral Economics. Bernheim and Rangel (2004) propose a framework for substance use where individuals maximize their utility given true preferences but randomly face conditions that lead to systematic mistakes. Hence, in their case preferences and choices diverge and such divergence is rationalized using the evidence from neuroscience on the neural processes at work in decision-making. Bernheim and Rangel (2005) suggest identification of true preferences by combining choice data with non-choice data such as self-reported survey measures of preferences and well-being as well as measures of physical state. Using this approach Bernheim and Rangel (2007) propose to extend the standard choice-theoretic approach to welfare analysis to behavioral economics.

3. A Tough Love Model with Bequest

In this section we follow Bhatt and Ogaki (2012), and introduce a bequest motive for the parent in their tough altruism model. Imagine a three-period model economy with two agents, the parent and the child. For simplicity, we consider the case of a single parent and a single child. The three periods considered are childhood, work and retirement. The model has seven features. First, the timing of the model is assumed to be such that the life of the parent and the child overlaps in the first two periods of the child’s life. Hence, the parent

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3 They abstract from bequest in their analysis in order to analytically prove the main implications of the tough love altruism model.

4 For ex-positional ease, we begin by making the simplifying assumption that these three periods are of equal duration. Note that results presented in this paper are robust to varying durations for the three periods.
has the child in the second period of his own life, which in turn corresponds to the first period of the child’s life. Second, the parent not only cares about his own consumption, but is also altruistic toward the child. He assigns a weight of $\theta$ to the child’s lifetime utility, where $0 < \theta < 1$. Third, the parent receives an exogenous income, denoted by $y^P$, in period 2 of his life. For simplicity, we assume that the parent receives no income in the last period of his life but simply divide savings from the previous period into his own consumption and bequest, which is taxed by the government. Fourth, the parent maximizes utility over the last two periods of his life by choosing consumption, inter-vivos transfers, denoted by $C^P$, $T$, and $B$, respectively. Fifth, the child is assumed to be a non-altruist and derives utility only from her own consumption stream $\{C^K_t\}_{t=1}^3$. $y^K_2$ denotes child’s second period exogenous income, and we assume that she receives no income in the first and last period of her life. Sixth, the child is assumed to be borrowing constrained in period 1. Lastly, there is no uncertainty in the economy.

In the tough love model, the parent has a trade off between giving material satisfaction to the child in period 1 versus promoting moral virtue of patience. We introduce the tough love motive of the parent via asymmetric time preferences between generations and endogenous discounting. In this model, the parent uses a constant and high discount factor, denoted by $\beta_{t,P}$, to evaluate the child’s lifetime utility. The child herself uses a discount factor that is

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$^5$When compared to the framework of Bhatt and Ogaki (2012), we have the following relationship:

$$\theta = \bar{\beta} \left( \frac{1 - \eta}{\eta} \right)$$

$^6$In this simple consumption good economy, we view consumption as a composite good that may include leisure activities such as TV time, video game time etc.
endogenously determined as a decreasing function of period 1 consumption:

\[ \beta_K(C^K_1) ; \frac{d\beta_K}{dC^K_1} < 0. \]

With the borrowing constraint faced by the child in period 1, her period \( t \) discount factor is given by \( \beta_K(T) \).

In this model, the parent solves the following optimization problem:

\[
\max_{C^P,T,B} \left[ v(C^P) + \tilde{\beta} v(R(y^P - C^P - T) - B) \right] + \theta \left[ u(T) + \beta_P u(C^K_2) + \beta^2_P u(R(y^K_2 + (1 - \tau)B + s - C^K_2)) \right],
\]

subject to:

\[
\{ C^K_2 \} \equiv \arg \max_{C^K_2} \left[ u(C^K_2) + \beta_K(T)u(R(y^K_2 + (1 - \tau)B + s - C^K_2)) \right].
\]

where \( v(.) \) and \( u(.) \) are standard concave period utility functions of the parent and the child, respectively. \( \tilde{\beta} \) is the parent’s own discount factor whereas \( \beta_P \) is the discount factor used to evaluate the child’s future utility. \( R \) is the gross nominal interest rate, \( B \) is a bequest, and \( \tau \) is the bequest tax rate, and \( s \) is a lump sum subsidy. \( \theta \) denotes the altruism parameter. Finally, \( \beta_K(T) \) denotes the child’s endogenous discount factor which is assumed to be a decreasing function of parental transfers \( T \).

In the above framework, the government can influence the child’s patience by changing the bequest tax rate. If the bequest tax rate is reduced, then the parent has more incentives...
to leave bequests than to make transfers to the child. Lower transfers in turn would imply a higher discount factor for the child.

3.1. Limitations of Pareto Efficiency as a guide for Policy Evaluation

We use the tough love altruism model presented in the previous section to illustrate the limitations of Pareto improvement as a yardstick for comparing alternatives when preferences are endogenous. For this purpose we will present simulation results for our benchmark model presented in Section 3. Using numerical methods we show that under certain parametric specifications a policy that gives a Pareto improvement in terms of the child’s period one utility (immature preferences) may not lead to a Pareto improvement in terms of period two utility (mature preferences). This limits the status of Pareto efficiency as a yardstick for policy evaluation in economic models with endogenous preferences.


The optimization problem for the parents described by equations (1) and (2) has no closed form solution. Hence, we numerically solve the parent’s optimization as a non-linear root finding problem. For the purpose of simulations, we impose the following parametrization:

\[
u(x) = v(x) = \frac{x^{1-\sigma}}{1-\sigma}.
\]

The discount factor is given by:

\[
\beta(T) = \beta_0 + \frac{1}{1 + aT} \quad \text{where} \quad a > 0 \text{ and } \beta_0 \leq 0.
\]
We use the following utility functions for the parent and the child in our simulations:

\[ U_P = \frac{C^{P+1-\sigma}}{1-\sigma} + \beta P \sum_{i=1}^{3} \frac{C^{'P+1-\sigma}}{1-\sigma} + \theta \left( \frac{C^{K+1-\sigma}}{1-\sigma} + \beta P \frac{C^{K+1-\sigma}}{1-\sigma} + \beta^2 \frac{C^{K+1-\sigma}}{1-\sigma} \right) \]

(5)

\[ V_K = \frac{C^{K+1-\sigma}}{1-\sigma} + \beta K (C^{K+1-\sigma}) \sum_{i=1}^{3} \frac{C^{'K+1-\sigma}}{1-\sigma} + \beta K (C^{K+1-\sigma})^2 \frac{C^{K+1-\sigma}}{1-\sigma} \]

(6)

In our solution algorithm we impose the government’s budget constraint: \( s = \tau B \). We use the same parametric values as used by Bhatt and Ogaki (2012).

### 3.1.2. Simulation Results

In this section we aim to illustrate, using simulations, that Pareto improvement has limited role in evaluating policies when we have endogenous preference. For this purpose we numerically solve our benchmark model in Section 3 and carry out the following thought experiment. Suppose we have two alternative bequest tax policies denoted buy \( \tau_0 \) and \( \tau_1 \) such that \( \tau_1 > \tau_0 \). Let \( x^P(\tau_i) \) denote the vector of optimal choices for the parent and \( x^K(\tau_i) \) denotes optimal choices for the child, under the bequest tax rate of \( \tau_i \), where \( i \in 0, 1 \). Then, \( U_P(x^P(\tau_i)) \) and \( V_K(x^K(\tau_i)) \) denote the optimal value for the parent and child’s life time utilities, as identified by equations (5) and (6), when the tax rate is \( \tau_i \).

i) In step 1, we solve our model for a given set of parameter values and show that
\begin{align*}
U_P(x^P(\tau_1)) &> U_P(x^P(\tau_0)) \\
V_K(x^K(\tau_1)) &> V_K(x^K(\tau_0))
\end{align*}

Hence, we have a Pareto improvement under the tax rate of \(\tau_1\) when compared to that of \(\tau_0\).

ii) In step 2, we first compute the endogenous discount factor of the child using the optimal transfers when tax rate was \(\tau_0\):

\begin{equation}
\beta_K(T(\tau_0)) = \beta_0 + \frac{1}{1 + a \times T(\tau_0)}
\end{equation}

We then evaluate the child’s life time utility using the optimal choices under \(\tau_1\) but the discount factor given in (8):

\begin{align*}
V_K(x^K(\tau_1), \beta_K(T(\tau_0))) &= C_1^{K+1-\sigma} + \beta_K(T(\tau_0)) C_2^{K+1-\sigma} + \beta_K(T(\tau_0))^2 C_3^{K+1-\sigma} \\
&= C_1^{K+1-\sigma} + \beta_K(T(\tau_0)) C_2^{K+1-\sigma} + \beta_K(T(\tau_0))^2 C_3^{K+1-\sigma}
\end{align*}

We show that:

\[ V_K(x^K(\tau_1), \beta_K(T(\tau_0))) < V_K(x^K(\tau_0)) \]

Table 1 presents the results of this exercise. We observe that both the parent and child have higher lifetime utility under tax regime \(\tau_1\) when compared to \(\tau_0\). Hence, it represents a Pareto improvement in our model economy. But when we evaluate the child’s lifetime utility under \(\tau_1\) using the discount factor obtained under \(\tau_0\), we find that it less than her
Table 1: Pareto Efficiency and Policy Evaluation

<table>
<thead>
<tr>
<th>Global Parameters</th>
<th>$\theta = 0.51; \ R = 0.4; \ \sigma = 1.2; \ \beta_0 = -0.5$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{\beta} = \beta_p = 0.99; \ y^K_2 = 1; \ y^P = 15; \ a = 0.02$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$\tau_0 = -0.55$</th>
<th>$\tau_1 = -0.5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$U_P(x^P(\tau_i))$</td>
<td>-16.7120</td>
</tr>
<tr>
<td>$V_K(x^K(\tau_i))$</td>
<td>-8.2529</td>
</tr>
<tr>
<td>$\beta_K(T(\tau_0))$</td>
<td>0.4715</td>
</tr>
<tr>
<td>$V_K(x^K(\tau_1), \beta_k(T(\tau_0))$</td>
<td>-8.2536</td>
</tr>
</tbody>
</table>

lifetime utility $\tau_0$. Such a reversal illustrates our main point about the usefulness of Pareto improvement as a yardstick for policy evaluation in models with endogenous preferences.

4. Unconditional Love and Policy Evaluation

In this section we first define the principle of *unconditional love* as a stable basis for policy evaluation in behavioral economics. We then propose an extension of the endogenous altruism model a la Mulligan(1997) as a mathematical formulation of our idea of unconditional love. Finally, we propose a model of unconditional love with both altruism and discounting components that nests Mulligan’s endogenous altruism model and our tough love altruism model with bequest as special cases.

4.1. Defining Unconditional Love

In our view, unconditional love is not just a feeling (such as romantic love), but is to unconditionally will the good of another. The key features of unconditional love are it’s unchanging nature and universal appeal. Such love is understood to be enduring and constant and is
offered to all conscious beings without exception. The idea of unconditional love has be studied and explored in a variety of subjects dealing with human condition. One of the most important sources comes from religion. For example, in Christianity we have the concept of *agape*,

“Agape in the New Testament, is the fatherly love of God for humans, as well as the human reciprocal love for God. The term necessarily extends to the love of ones fellow man.” - Brittanica Encyclopedia.

Lewis (1960) describes unconditional love to be a Christian virtue and deems it to be the most important of all types of love. Similarly, in Hinduism we have the concept of *Bhakthi* which implies unconditional devotion and love for God.

Another source for unconditional love comes from science. In a recent study, Beauregard et al. (2009) investigated whether there is neural basis for unconditional love where they defined unconditional love to be the love that is extended to all without exception, in an enduring and constant way. Using fMRI techniques they find that unconditional love is mediated by a distinct neural network relative to that mediating other emotions such as romantic love and maternal love. This can be interpreted as evidence for the capacity of human beings to feel unconditional love. Harris (2010) suggests the use of above mentioned scientific methods in providing an absolute moral value system based on well-being of the conscious beings. In particular he suggests there are moral absolutes that can be agreed upon and then used to form a value system that is conducive to flourishing of entire societies.

As evident from the above discussion, unconditional love can be sourced from either
religion or science. However, what is important is that it is an absolute idea and in that sense is can be viewed as a duty.  

By its very definition unconditional love is stable and unchanging and hence can be used to evaluate policies in behavioral economics.

The philosophical inspiration and foundation for unconditional love can be derived from Immanuel Kant (1724-1804). In Kant’s view of ethics, “pure practical reason” excludes any sensible incentives and gives the supreme principle of morality called the categorical imperative. One formulation of the categorical imperative is to act in such a way that one always treat humanity, whether his own person or in the person of any other, never simply as a means, but always as an end. In this sense our principle of unconditional love can be seen as an interpretation of Kant’s view of ethics. Our proposal is to use this ethical principle as a stable and exogenous basis of policy evaluation in behavioral economics, just as Pareto efficiency is used in traditional economics. The main difference lies in the route to seek the stable and exogenous basis. Pareto efficiency is derived from utilitarianism (Jeremy Bentham,1748-1832) whereas our principle of “unconditionally love” is derived from Kant’s duty ethics.

4.2. A Simple Model of Unconditional Love

We attempt to formalize our conceptualization of unconditional love by presenting a simple framework that is inspired by Mulligan (1997). He proposes a model of endogenous altruism
with two generations: a parent and a child. In this simple setting the parent is assumed to accumulate altruism toward his child by expending resources. These resources are typically in terms of time and effort, such as time spent in interacting with the child. Let \( R_F \) denote the resources denoted by the parent to develop familial altruism (altruism toward his child). Then we have the following objective function for the parent:

(10) \[ u(C^P) + \theta_F(R_F)u(C^K) \]

where \( u(C^P) \) denote utility for the parent from own consumption and \( u(C^K) \) denotes child’s consumption utility. \( \theta_F(R_F) \) denotes the altruism function and Mulligan(1997) proposes that \( \frac{\partial \theta_F}{\partial R_F} > 0 \). Hence, the parent can accumulate more altruism toward the child by investing more resources.

For the purpose of modeling unconditional love in a simple way, we argue that the above reasoning can be extended to include a stranger in the parent’s objective function. We can think of the parent also expending resources to become more altruistic toward a stranger. For example, he may perform volunteer work to help strangers. Greater the time spent in this activity, the more altruistic he may become toward strangers. Suppose, \( R_S \) denotes resources spent by the parent to accumulate altruism toward a stranger. Then, the objective function of the parent can be expressed as follows:

(11) \[ u(C^P) + \theta_F(R_F)u(C^K) + \theta_S(R_S)u(C^S) \]
where the additional argument, when compared to (10), is the consumption utility of the stranger \((u(C^S))\). \(\theta_S(R_S)\) denotes the altruism function applied to the stranger where \(\frac{\partial \theta_S}{\partial R_S} > 0\).

Using the formulation of the parent’s objective in (11) we can define the virtue of altruism to the child and the stranger:

**Definition 1.** Virtue of Familial Altruism: \(\theta_F(R_F) = 1\)

**Definition 2.** Virtue of Stranger Altruism: \(\theta_S(R_S) = 1\)

Combining the above two virtues we capture our idea of unconditional love as follows:

**Definition 3.** Unconditional Love: \(\theta_F(R_F) = \theta_S(R_S) = 1\)

Hence, one way to think of unconditional love of the parent in this simple model of three agents is to regard welfare of the own child and the stranger in the same way as one’s own consumption utility. This can also be interpreted as broadening the meaning of happiness as defined under traditional economics. Rather than narrowly defining happiness to originate only from parent’s own consumption and his child’s consumption, under unconditional love principle, we define happiness to also include consumption utility of a stranger.

### 4.3. A Dynamic Model of Unconditional Love

The model for unconditional love specified in (11) abstracts away from the dynamic aspect of utility maximization and hence is silent on discounting of future generations. We now present a framework that encompasses the endogenous altruism model of Mulligan (1997)
Imagine an economy with three generations: a parent, his child, and his grandchild. Let \( P \) denotes parent, \( K \) the child, and \( G \) denotes the grandchild. We also include a stranger, \( S \), who is assumed to be a peer of the parent. The stranger’s welfare is also assumed to be affected by the utilities of his own child, \( SK \), and grandchild, \( SG \). The rest of the model structure is identical to the one presented in our tough love model in section 2. In such a setting the objective function of the parent consist of three components and can be expressed as follows:

\[
W = U_{Own} + \theta_F(R_F)\tilde{\beta}(R_t, T-1)U_{Family} + \theta_S(R_S)U_{Stranger}
\]

where,

\[
U_{Own} = u(C_P^2) + \tilde{\beta}(R_t, T-1)u(C_P^3)
\]

\[
U_{Family} = \left[u(C^K_1) + \tilde{\beta}(R_t, T-1)u(C^K_2) + \tilde{\beta}(R_t, T-1)^2u(C^K_3)\right] + \tilde{\beta}(R_t, T-1)\left[u(C^G_1) + \tilde{\beta}(R_t, T-1)u(C^G_2) + \tilde{\beta}(R_t, T-1)^2u(C^G_3)\right]
\]
\[ U_{\text{Stranger}} = (u(C^S_2) + \tilde{\beta}(R_t, T_{-1})u(C^S_3)) + \theta_F(R_F)\tilde{\beta}(R_t, T_{-1})[u(C^{SK}_1) + \tilde{\beta}(R_t, T_{-1})u(C^{SK}_2) + \tilde{\beta}(R_t, T_{-1})^2u(c^{SK}_3)] \]

\[ + \theta_S(R_S)\tilde{\beta}(R_t, T_{-1})^2[u(C^{SG}_1) + \tilde{\beta}(R_t, T_{-1})u(C^{SG}_2) + \tilde{\beta}(R_t, T_{-1})^2u(c^{SG}_3)] \]

\(\tilde{\beta}(R_t, T_{-1})\) denotes endogenous discount factor where \(R_t\) denotes the resources spent by the parent to become patient and \(T_{-1}\) denotes the level of transfers received by the parent during his own childhood. Hence, the above discount factor formulation combines the human capital approach of Becker and Mulligan (1997) (\(\frac{\partial \tilde{\beta}(.)}{\partial R_t} > 0\)) and the tough love framework of Bhatt and Ogaki (2012) (\(\frac{\partial \tilde{\beta}(.)}{\partial T_{-1}} < 0\)). \(\theta_F(R_F)\) and \(\theta_S(R_S)\) are endogenous altruism functions as defined earlier. In the above framework we can define unconditional love as follows:

**Definition** Unconditional Love: \(\tilde{\beta}(.) = \theta_F(.) = \theta_S(.) = 1\)

Hence, the ideal of unconditional love is attained when the parent attach identical weight to his present, his future, his family, and the stranger. Note that if we eliminate the dynamic component and the associated discounting of future from the above framework we can derive Mulligan’s endogenous altruism model. Similarly, if we assume constant altruism function, remove the concern for the stranger from the parent’s objective function, and abstract from the human capital approach to endogenous time preference, the above model is identical to the tough love model presented in section 2.
5. Learning to Unconditionally Love as Yardstick for Policy Evaluation

In this section we seek to achieve three goals. First, we propose that since most people find it difficult to exhibit unconditional love we need a learning stage where people can learn to unconditionally love. Second, in the context of the learning stage we discuss moral virtue as a potential guide to policy making. Finally, we propose that the principle of learning to unconditional love can be viewed as a bridge that connects the Kantian unconditional love developed in section 3 with Aristotle’s moral virtue ethics.\(^9\)

In this paper we propose the principle of unconditional love as a stable and exogenous basis for policy evaluation in behavioral economics. The ethical foundation of our proposal is Kant’s ethics. In reality, most people will find it difficult to practice unconditional love. This is not to say that no body can display unconditional love. An example is Mother Teresa, a famous Roman Catholic nun from India, who devoted her lifetime into deeply helping poor people. We believe that she is clearly a practitioner of the unconditional love. However, most people cannot behave like her. Unconditional love in that sense is unrealistic for most people to practice.\(^10\) The principle of unconditional love is useful to have a stable basis for policy evaluation in behavioral economics. However, it is only useful as an ideal target that we all can aspire to achieve over time.

Given that most people may find it difficult to display unconditional love we may find it

\(^9\)References on ethics in this section Sandel(2009).

\(^{10}\)In fact, Kantian ethics, from which we derive unconditional love, is too strict for most people to practice. For instance, according to Kant, lying is always immoral even if a murderer came looking for a friend who was hiding in your house.
desirable to promote learning to love unconditionally. One way to achieve this is to introduce a learning stage in our framework. Note that there is no corresponding learning stage in Kantian ethics, limiting it’s direct application to real world. Once we add the learning stage to our proposal, it can be acceptable not to love unconditionally. Our idea of learning stage is inspired by Sandel (2009), a modern communitarian. According to communitarianism, a person’s community, family or geographical region, plays an important role in shaping his or her beliefs and norms. In a world where we don’t have unchanging principle, we have to behave under our senses and social norm and custom. This principle relies on people’s common sense and ethically can be called moral virtue ethics. Aristotle’s ethics is seen as the origin of the moral virtue ethics. According to Aristotle, “moral virtue comes about as a result of habit.” In his explanation, “the virtues we get by first exercising them, as also happen in the case of the arts as well.” In addition, the purpose of politics for Aristotle is not to set up a framework of rights that is neutral among ends. It is to form good citizens and to cultivate good character. His idea is close to communitarianism in modern times.

In real world, application of moral virtue ethics may be more practical than Kant’s ethics. Aristotle’s purpose is to cultivate virtues in daily lives. We interpret cultivating virtue as the learning stage of Kantian ethics. In this sense our proposal of introducing learning stage of unconditional love can be viewed as synthesizing Kant’s view of ethics with Aristotle’s moral virtue ethics. Hence, learning to love unconditionally, an application of Moral virtue ethics, can be a stable basis for policy evaluation. Policies that promote this moral virtue are good policies. Here one should note that in order to do an act of unconditional love,
one needs freedom not to do it. Hence, policies should allow free will and only nudge people into making choices. Following are the few examples where learning can be promoted via policies,

i) Suppose a more equal distribution of incomes is a desired social outcome, driven by unconditional love principle. To ensure that people learn to love unconditionally, it is imperative that policy does not force rich people to help the poor. A possible policy rule is to nudge rich people by asking them to help (e.g., once a year, high income people are asked to choose one: donate 0%, I donate 5%, donate 10% of the income to one of the approved charities).

ii) In the literature on savings, self control and temptation have been identified to be major deterents. One way to avoid temptation is via commitment. For instance can put money in time deposit accounts with penalties to withdraw money for a specified period rather than to demand deposit accounts. Hence, it is a good policy to allow banks and financial institutions to issue various forms of illiquid assets with high penalties of cashing them before a specified point in time.

An interesting example of learning to unconditionally love is considered in Bhatt and Ogaki (2013). They focus on the virtue of patience and define the moral virtue of patience based on Aristotle’s definition of virtue being a mean between two extremes. It seems a deficiency to value your present self more than your future self (the discount factor of less than one), and an excess to value your future self more than your present self (the discount
factor of greater than one). Hence, they define the discount factor of one to represent the moral virtue of patience.

In Section 2 we discussed Bhatt and Ogaki’s tough love altruism model with bequest. We will call the parent’s optimization problem outlined in equations (1) and (2) as the benchmark model. To illustrate the possibility of achieving moral virtue via government policy, Bhatt and Ogaki extend the benchmark model in two important ways. First, they consider two distinct groups of parents in their model: low patience type and high patience type. Second, in the benchmark model, bequest tax rate is the only policy tool at the disposal of the government and it is not possible to achieve moral virtue of patience for both groups with a single policy tool. In behavioral economics, policies to affect norms have been discussed (Sandel, 2009). So they introduce norms about childhood transfers in their model so that the government can use affecting norms as another policy tool.

Using the above framework, Bhatt and Ogaki (2013) emphasize two important predictions of their model. First, the policies that are recommended by moral virtue ethics may not necessarily coincide with the policies recommended by Pareto efficiency. Second, it is possible to achieve moral virtue via government policy. Specifically, they start at an initial state where each group in their framework has formed a norm about childhood transfers and at that level of norm and particular bequest tax rate, no group has achieved moral virtue of patience. They then consider a government policy involving changing the bequest rate and norm transfers for the high patience and low patience groups. Using numerical methods they find that under a reasonable parametric specification, the virtue of patience can be achieved.
for both groups by combining the above mentioned policy tools.

6. Conclusion

In behavioral economics there is no commonly accepted basis, such as Pareto efficiency, for policy evaluation. In this paper we first highlight the limitations of Pareto efficiency when preferences are endogenous. Next, we define unconditional love as an unchanging and stable basis for evaluating alternatives. We provide a simple mathematical formulation of our idea of unconditional love and argue that many people do not show unconditional love. We propose that learning to unconditionally love can be a stable basis for policy evaluation in behavioral economics. Policies that promote unconditional love are good policies. A practical implication of this discussion is that policies should aim to promote moral virtue. Finally we provide examples that illustrate the use of policies for achieving moral virtue.
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