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A Note on Moral Licensing and Foot-In-The-Door Effect

Abstract

Literature in economics and psychology on moral behaviour explores the contexts in which people act in ways that are consistent or inconsistent with their past actions. Such inconsistencies appear to violate economists' assumption of rational consumer behaviour. In this note we show that a simple model of rational (utility-maximising) consumer behaviour, in both static and dynamic forms, can explain both consistent and inconsistent behaviour.

JEL-Codes: D110, H410, M310, Q560, Q580.

Keywords: behavioural consistency, moral self-regulation, moral licensing, consumer behavior, sustainable consumption.

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1 INTRODUCTION

How can society make the consumption decisions of households more environmentally sustainable? Consumers increasingly view pro-environmental consumption as a moral choice that is informative about their own ethical standards (Jia et al. 2017; Mazar and Zhong 2010). When making sequential decisions, recent research suggests individuals often alternate moral and immoral choices (e.g., Mazar and Zhong 2010; Mullen and Monin 2016) – called moral licensing, when a bad act follows good, (e.g. Khan and Dhar, 2006) or moral cleansing (e.g. Sachdeva, Iliev and Medin, 2009) when a good act follows a bad act. This seemed to contradict earlier literature which argued individuals act consistently, for example the foot-in-the-door effect, (FITD),(Freedman and Fraser 1966) in which undertaking a small moral act leads to undertaking a more significant moral act.

A significant literature[1] has sought to explain these apparently inconsistent predictions, employing a ***dynamic moral self-regard model of self-regulation*** (Monin and Jordan 2009; Zhong, Liljenquist, and Cain 2009). In line with Demarque and Girandola (2016) we propose a framework in which a consumer may obtain a positive amount of moral self-worth through an initial *preparatory* choice (e.g., walking rather than driving to work); and when making a subsequent *concluding* decision, the consumer may manifest behavioural consistency (e.g., by going to a conference by a train rather than by plane), as well as inconsistency (e.g., by going to a conference by a plane rather than by train). Research suggests that the decision to license (vs consistency) occurs whenever the individual perceives the initial act as affecting her moral identity (Blanken, van de Ven, and Zeelenberg 2015; Effron and Conway 2015; Mullen and Monin 2016).

[1] See Effron and Conway (2015); Miller and Effron (2010); and Mullen and Monin (2016) for surveys of this literature.

Our approach has similarities but also differences, to that taken by Bénabou and Tirole (2011), who present a dynamic self-regulation model of *rational* individual choices, where individuals have an *imperfect* understanding of their identity. Their model explains both consistent behaviour (including the FITD effect), and moral licensing. In this article, we also employ a dynamic model of moral (environmental) self-regulation, where rational consumers have concerns for their **stock** of moral self-worth; this stock can be augmented by the **flow** of moral self-worth derived from purchases made in each period. However, unlike Benabou and Tirole (2011) we assume consumers perfectly understand their identities. We show that this model can explain how, in the same shopping episode, a rational consumer may display both inter-act consistency (i.e., making shopping choices that move his/her stock of moral self-worth towards his/her desired steady-state); and moral licensing (cleansing), where a positive (negative) exogenous shock to his/her sense of moral self-worth leads a consumer to make purchases in a way which reduce (increase) his/her flow of moral self-worth compared to what it would have been in the absence of this shock; however this licensing effect cannot offset the move of his/her stock of self-worth towards the steady-state. Our results follow from the standard assumption of diminishing marginal utility.

While the main focus of this note is on a dynamic model of consumer behaviour, consistent with the existing literature such as Monin and Jordan (2009) and Benabou and Tirole (2011), the key point we are making - that moral licensing will be displayed by a rational consumer – can be demonstrated in a static model[2], with which we begin.

[2] A slightly different version of this argument was made in Ulph, Panzone, Hilton, Gortemaker and Tajudeen (2019).

2 A STATIC MODEL OF RATIONAL CONSUMER BEHAVIOUR WITH MORAL LICENCING

In a single period of time, a consumer chooses purchases of two goods: *x,* a *moral* good, and *h,* a *hedonic* good. In choosing *x* and *h* the individual faces an effort constraint[3] $h = \varphi(x)$, where $\varphi' < 0, \varphi'' < 0$, i.e. the marginal cost of increasing *x* increases because of the required reduction in consumption of *h*. The consumer derives a flow of *moral self-worth:*

$$m = m_0 + x \qquad (1)$$

from consumption of good *x*, where m_0 denotes an exogenous flow of moral self-worth derived from other activities unrelated to purchases of the moral good, measured in units equivalent to the units for measuring *x*. The consumer has a standard[4] utility function $U(m,h)$, capturing the ***flow*** of well-being he/she derives in period from consuming the hedonic good, *h*, and the ***flow*** of moral self-worth *m.*

For any given value of m_0, the consumer chooses $\hat{x}(m_0)$ to maximise $U(m_0 + x, \varphi(x))$ which yields the first-order condition:

$$U_1 + U_2\varphi' = 0 \qquad (2)$$

essentially equalising the marginal utility from an extra unit of the moral good with the loss of marginal utility that entails for the hedonic good. To demonstrate moral licensing, we assume that prior to making purchasing decisions the consumer experiences an increase[5] in m_0. Then totally differentiating (2) we get:

$$\frac{d\hat{x}(m_0)}{dm_0} = -\frac{U_{11}}{U_{11} + U_{22}(\varphi')^2 + U_2\varphi''} \qquad (3)$$

[3] We take this to be a mix of an income constraint, a time constraint, for example the time searching for the characteristics of goods, and psychological constraints, such as will-power.

[4] By standard we mean there is positive but diminishing marginal utility for each good ($U_i > 0, U_{ii} < 0, i = 1,2$), and for simplicity that $U_{12} \cong 0$.

[55] The argument applies also to an exogenous decrease in m_0.

All the terms in (3) are negative, so it is clear that

$$-1 < \frac{d\hat{x}(m_0)}{dm_0} < 0 \qquad (4)$$

So an exogenous increase in the flow of moral self-worth *licences* the individual to reduce her purchase of the moral good, but by an amount less than the original exogenous increase in m_0. The argument is simple – the exogenous increase in the flow of moral self-worth reduces the marginal utility from the flow of the moral good, so to re-establish the equality of marginal utilities of the moral good and hedonic good as shown in (2) the individual increases purchases of the hedonic good and reduces purchases of the moral good. Note that a key point from (4) is that the extent of moral licensing that would arise from a rational consumer with well-defined preferences is bounded, so this provides a test of whether observed moral licensing derives from rational behaviour.

3 A SIMPLE DYNAMIC MODEL OF MORAL SELF-REGULATION

Since much of the literature on moral licensing (for example, Monin and Jordan (2009), Zhong, Liljenquist and Cain (2009)) and foot-in-the door effect derives from dynamic models of consumer behaviour, we extend the model in Section 2 to consider a dynamic model. So the consumer now makes choices over an infinite number of time periods, t. In each period t the consumer purchases x_t units of the *moral* good, and h_t units of the *hedonic* good, subject to the effort constraint $h_t = \varphi(x_t)$, where $\varphi' < 0, \varphi'' < 0$, i.e. the marginal cost of increasing x_t increases because of the required reduction in consumption of h_t. The consumer has a standard utility function $U(m_t,h_t)$, capturing the ***flow*** of well-being she derives in period t from consuming m_t units of the moral good and h_t units of the hedonic good.

We assume that the stock of moral self-worth at the start of period $t + 1$ is given by

$$M_{t+1}(M_t, x_t) = \rho M_t + x_t \qquad (5)$$

where ρ, $0 < \rho < 1$ reflects the rate at which the stock of moral self-worth erodes naturally due to loss of salience from past moral acts, for example due to memory loss. The primary purpose of purchasing the moral good in any period is to add to the individual's stock of moral self-worth.

The flow of *consumption* of the moral good, m_t , in period t derives from three elements: the ***stock*** of moral self-worth, M_t, at the start of period t, the purchase of the moral good, x_t, and a one-period exogenous shock to the flow of moral self-worth, θ_t. At the start of period t, θ_t is a random variable with expected value 0 lying in the range[6] $(-\hat{\theta}, \hat{\theta})$; the value of θ_t becomes known to the consumer before her purchasing decisions. For any M_t, θ_t and x_t the *flow* of consumption of the moral good (which we also refer to as the flow of moral self-worth in period t) is:

$$m_t(M_t, \theta_t, x_t) = \gamma M_t + \mu x_t + \theta_t \qquad (6)$$

γM_t measures the *flow* of moral self-worth the consumer derives from the stock of moral-worth available at the start of period t; this term is analogous to the exogenous flow of moral self-worth m_0 in the static model. μx_t measures how much of the purchase of the moral good in period t contributes immediately to the flow of moral self-worth in period t. As noted above, in this dynamic model of moral self-worth we assume that the purchase of the moral good in any period is designed primarily to add to the stock of moral self-worth, but we allow for a small immediate addition to the flow of moral self- worth, measured by the parameter μ, which we assume to be small; in particular we assume that

$$\mu << \gamma \qquad (7)$$

[6] For example, she may receive a negative shock to her moral self-esteem ($\theta_t < 0$) by being called anti-social, or receive a positive boost to moral self-esteem ($\theta_t > 0$) by being reminded of past good deeds.

The consumer takes as given (M_t, θ_t,) and chooses x_t to maximise the value function:

$$V(M_t,\theta_t) \equiv \max_{x_t}\{U[(\gamma M_t + \mu x_t + \theta_t),\varphi(x_t)] + \delta \underset{\theta_{t+1}}{E} V[\rho M_t + x_t,\theta_{t+1}]\} \qquad (8)$$

where δ, $0 < \delta < 1$, is the discount factor, the future values of θ_{t+1} is unknown at time t; we assume that the value function satisfies the usual conditions $V_1 > 0, V_{11} < 0$. We denote the optimal purchase of the moral good by $\hat{x}(M_t,\theta_t)$ and the optimal consumption of the moral good by:

$$\hat{m}(M_t,\theta_t) \equiv \gamma M_t + \mu\hat{x}(M_t,\theta_t) + \theta_t . \qquad (9)$$

$\hat{x}(M_t,\theta_t)$ satisfies the first-order condition:

$$\mu U_1 + U_2\varphi' + \delta E(V_1) = 0 \qquad (10)$$

From (5) we derive the movement of the stock of moral self-worth consistent with the optimally chosen purchase of the moral good, $\hat{x}(M_t,\theta_t)$ by :

$$\hat{M}(M_t,\theta_t) = \rho M_t + \hat{x}(M_t,\theta_t) \qquad (11)$$

From which we define the individual's *expected steady-state* stock of moral self-worth M^* in the absence of any current period shock, $\theta = 0$, by:

$$(1-\rho)M^* = \hat{x}(M^*,0) \qquad (12)$$

We now determine the key properties of $\hat{x}(M_t,\theta_t)$. First, we will show that the individual displays *consistency* in the sense that the consumer is maximising a standard value function, and, more precisely, absent any shock, the stock of moral self-worth moves towards its steady state. Second, we will show that this rational individual displays *moral licencing*, in the sense that positive (negative) exogenous shock to the individual's flow of moral self-worth decreases (increases) her purchase of the moral good relative to a no-shock scenario. Finally we will show that the consumer displays the FTID effect for certain parameter values.

3.1 Consistency

Result 1: For any given θ_t: (i) $-\rho < \frac{\partial \hat{x}(M_t,.)}{\partial M_t} < 0$; (ii) $\frac{\partial \hat{m}(M_t,.)}{\partial M_t} > 0$; (iii) for $\theta_t = 0$:

$\hat{M}_{t+1}(M_t,0) \geq M_t \Leftrightarrow M_t \leq M^*$

Proof:

(i) Differentiating (10) with respect to M_t we get:

$$\frac{\partial \hat{x}(M_t,.)}{\partial M_t} = -\frac{\mu\gamma U_{11} + \rho\delta EV_{11}}{\mu^2 U_{11} + \Psi + \delta EV_{11}} \tag{13}$$

where: $\Psi \equiv U_{22}(\varphi')^2 + U_2\varphi'' < 0$

All the terms in both the numerator and denominator of (13) are negative; moreover, when μ=0, it must be the case that

$$-\rho < \frac{\partial \hat{x}(M_t,.)}{\partial M_t} < 0 \tag{14}$$

and these inequalities will continue to hold for sufficiently small positive values of μ, as in (7). So purchases of the moral good fall as the stock of the moral good increases, since the flow of well-being from the moral good coming from the higher stock of moral self-worth reduces the need to boost the flow of moral self-worth from its immediate purchase.

(ii) Differentiating (9) with respect to M_t we obtain:

$$\frac{\partial \hat{m}(M_t,.)}{\partial M_t} = \gamma + \mu\frac{\partial \hat{x}(M_t,.)}{\partial m_t} > 0 \Leftrightarrow \Omega \equiv \left|\frac{\partial \hat{x}(M_t,.)}{\partial M_t}\right| < \frac{\gamma}{\mu} \tag{15}$$

From (7) $\mu < \min(\gamma,\rho) < \frac{\gamma}{\rho} \Rightarrow \rho < \frac{\gamma}{\mu}$; from (14) $\Omega < \rho \Rightarrow \Omega < \frac{\gamma}{\mu} \Rightarrow \frac{\partial \hat{m}(M_t,.)}{\partial M_t} > 0$

So as the stock of moral self-worth increases the flow of moral self-worth also increases. The argument is the same as for (i) above.

(iii) $\theta_t = 0 \Rightarrow \hat{M}_{t+1} \geq M_t \Leftrightarrow \rho M_t + \hat{x}(M_t, 0) > M_t$
$\Leftrightarrow (1-\rho)M_t < \hat{x}(M_t, 0) \Leftrightarrow M_t < M^*$ (16) QED

So, for any given level of shock, the flow rate of purchase of the moral, x_t, is a decreasing function of the stock of the moral good, while the flow rate of consumption of the moral good, m_t, is an increasing function of the stock of the moral good. The reason is that if the stock of the moral good is initially low, i.e. below steady state, then the purchase of the moral good is sufficiently high that it allows both the consumption of the moral good and the stock of the moral good to increase, and hence this allows the purchase of the moral good to fall next period; despite a reduction in the purchase of the moral good. On the other hand if the stock of the moral good is above steady-state, then the purchase of the moral good is low, so the high rate of the consumption of the moral can only be achieved by running down the stock of the moral good, and this can only continue if the consumption of the moral good falls and the purchase of the moral good increase. The dynamic paths of $\hat{M}_{t+1}(M_t,.), \hat{x}(M_t,.), \hat{m}(M_t,.)$ are shown in Figure 1.

3.2 Moral licensing

Result 2: $-1 < \dfrac{\partial \hat{x}(M_t, \theta_t)}{\partial \theta_t} \leq 0$

Proof: Totally differentiate (10) w.r.t θ_t to get:

$$\frac{\partial \hat{x}(M_t, \theta_t)}{\partial \theta_t} = -\frac{\mu U_{11}}{\mu^2 U_{11} + \Psi + \delta(1-\mu)^2 E V_{11}} \qquad (17)$$

If $\mu = 0$, then $\dfrac{\partial \hat{x}(M_t, \theta_t)}{\partial \theta_t} = 0$, while if $1 > \mu > 0$, but μ is small, as we have assumed, then

$$-1 < \frac{\partial \hat{x}(M_t, \theta_t)}{\partial \theta_t} < 0 \qquad \text{QED}$$

This result indicates that, if the individual experiences a positive random shock to her flow of self-worth ($\theta_t > 0$) prior to making her purchasing decision, she responds by subsequently purchasing an amount of the moral good, $\hat{x}(M_t, \theta_t)$, which is *lower* than the value she would have chosen if $\theta_t = 0$[7]. More importantly, a key finding is that the extent of moral licensing is limited: the change in $\hat{x}(M_t, \theta_t)$ in response to a change in the random shock θ_t is strictly smaller, in absolute terms, than the change in the shock, which provides a testable implication for whether moral licensing is compatible with rational consumption behaviour.

One intuition for this result is that the consumer wishes to retain some of the windfall of moral credits obtained from a positive moral shock to increase her stock of moral self-worth, and only use some of windfall to increase her current flow of moral self-worth and hence utility. Another way of expressing this intuition is to suppose that the consumer makes her purchasing decision *before* the shock to the flow of her moral self-worth. In that case, the consumer cannot adjust her purchase of the moral good once the shock occurs, and all of the shock flows through to a higher flow rate of moral self-worth, and hence utility. But if her purchasing decision occurs after a positive moral shock, then by reducing her purchase of the moral-good she can increase her consumption of the hedonic good, and this effectively *smooths* the moral shock over all of her purchasing choices, and hence yields a higher immediate benefit to utility.

3.3 FITD effect

The foot-in-the-door (FITD)effect means that, absent any shocks, an individual may make a small purchase of the moral good in one period, and a *larger* purchase in the subsequent

[7] Similarly if the random shock to her flow of self-worth was negative, ($\theta_t < 0$) she will respond by *increasing* x_t. This again is just a consequence of the standard economic assumption of diminishing marginal well-being.

period. This would seem to contradict the model we have set out above where, as we illustrated in Figure 1, the purchase of the moral *decreases* as the stock of the moral good increases; as we noted this standard result is just the implication of diminishing marginal utility.

We could modify the model we have set out so far to allow for the FITD effect in two possible ways. First, the consumer may initially be uncertain about the true value of μ, i.e., the amount of moral credit associated with consumption of 1 unit of x_t. Because our model assumes the consumer is risk averse, she would initially try consuming a small amount of x_t to learn the true value of μ, subsequently increasing her consumption if μ is greater than expected. The second route, following Benabou and Tirole (2011) is to assume μ is not a constant value but depends in a particular way on the stock of moral self-worth, and we follow a similar approach.

In place of equations (5) and (7) we now assume that:

$$m(x_t, M_t, \theta_t) = \gamma M_t + \mu(M_t)x_t + \theta_t \qquad (18)$$

and there is a constant μ_0 such that $0 < \mu_0 < \mu(M_t) < 2\mu_0 < \min(\rho, \gamma)$, with the function $\mu(M_t)$ taking the sigmoid shape shown in Figure 2. Figure 2 shows that there is a small range of values of M_t, denoted $[\underline{M}, \overline{M}]$, around some specific value $\widetilde{M}$ such that in the range $[\underline{M}, \overline{M}]$ $\mu'(M_t) \to \infty$, while outside that range $\mu'(M_t) \cong 0$. Outside a small range of values around $\widetilde{M}$, $\mu(M_t)$ is effectively constant, while inside that range $\mu(M_t)$ rises very sharply. Then, for sufficiently large values of $\lambda'(\widetilde{M})$

Result 3: For M_t outside the range $[\underline{M},\bar{M}]$, $-\rho < \frac{\partial \hat{x}(M_t,.)}{\partial M_t} < 0$, as in Result 1; however for M inside the range the $[\underline{M},\bar{M}]$ we can have $\frac{\partial \hat{x}(M_t,.)}{\partial M_t} > 0$, the foot-in-the-door effect.

Proof: The first-order condition for the optimal choice of $\hat{x}(M_t,\theta_t)$ now becomes:

$$\mu(M_t)U_1 + U_2\varphi' + \delta EV_1 = 0 \tag{19}$$

Totally differentiating (19) with respect to M_t yields:

$$\frac{\partial \hat{x}(M_t,.)}{\partial M_t} = -\frac{[\mu'(M_t)U_1] + \{\mu(M_t)\gamma U_{11} + \rho\delta EV_{11}\}}{\{[\mu(M_t)]^2 U_{11} + \Psi_t + \delta EV_{11}\}} \tag{20}$$

The terms in curly brackets in the numerator and the denominator are the same as in (12), and hence negative; when M_t lies outside the range of values $[\underline{M},\bar{M}]$, $\mu'(M_t)$ is effectively zero and $-\rho < \mu_t \frac{\partial \hat{x}(M_t,\theta_t)}{\partial M_t} < 0$. However, when $M_t \cong \tilde{M}$ the term in square brackets in the numerator is positive; for large enough values of $\mu'(M_t)$, $\frac{\partial x_t}{\partial M_t} > 0$, the FITD effect. QED

4 CONCLUSIONS

This note presents a model of consumer behaviour that generalises previous research by simultaneously incorporating both moral licensing and moral consistency. This model allows current economic models to more precisely represent and predict behaviour where consumers face a sequence of decisions involving a virtuous product, and is applicable to consumer choices in retailing as well as in other fields where morality or the protection of the public good is relevant.

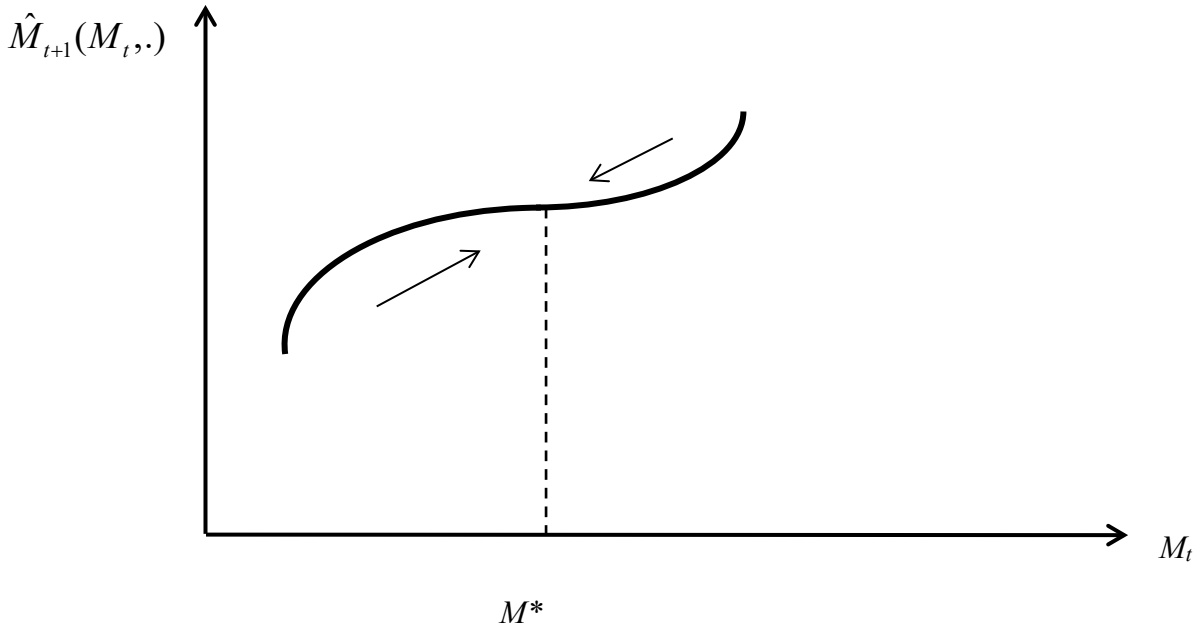

Figure 1(a): Movement of Stock of Moral Self-Worth to Steady-State

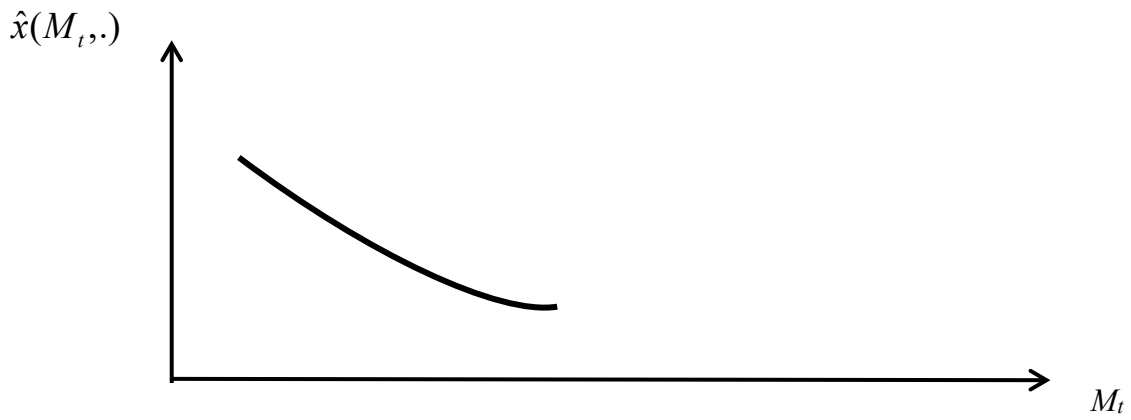

Figure 1(b): Optimal Purchase of Moral Good as Function of Stock of Moral Self-worth

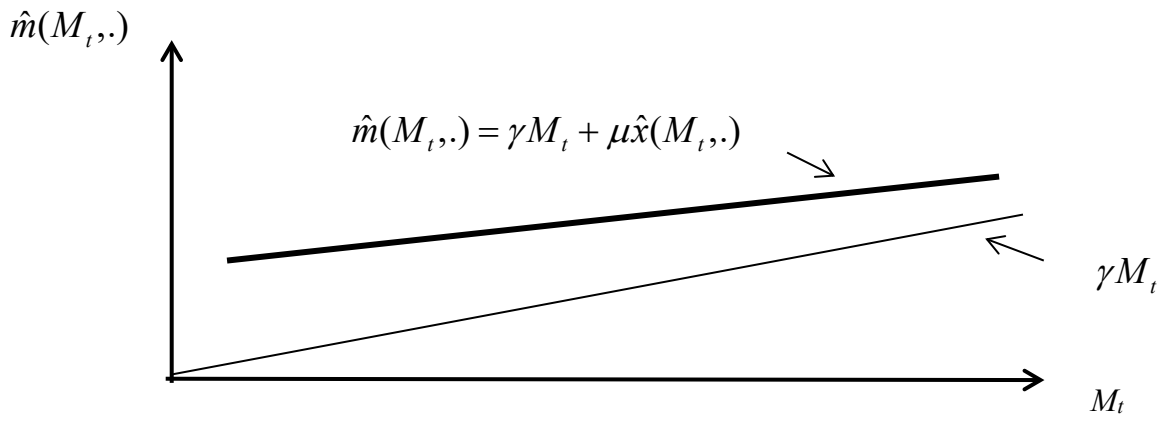

Figure 1(c): Optimal Consumption of Moral Good as Function of Stock of Moral Self-worth

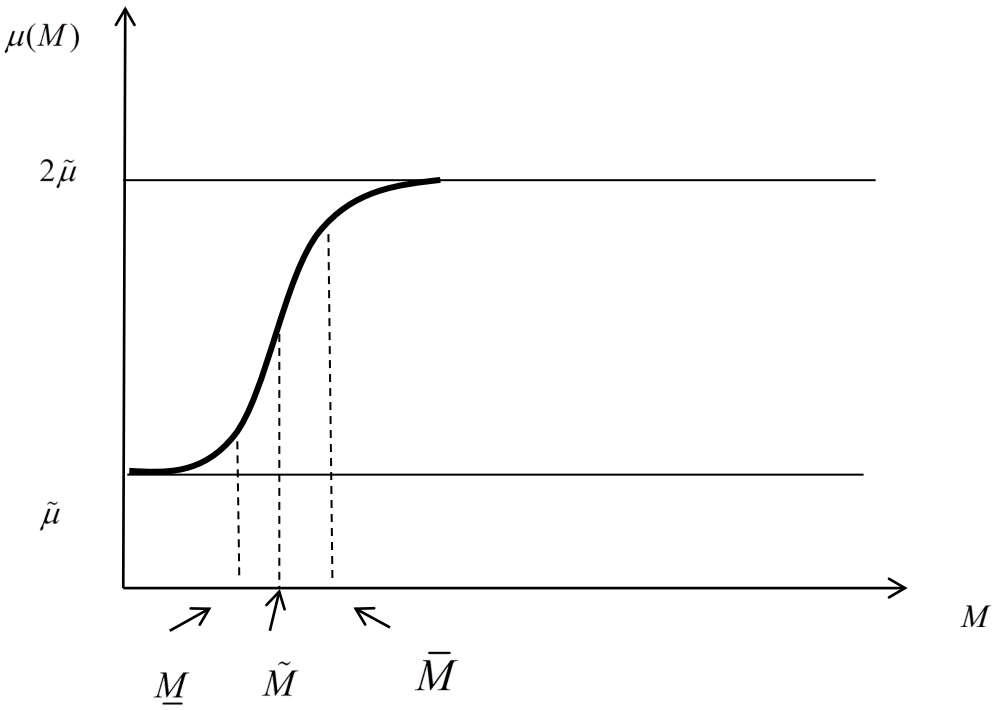

Figure 2: Shape of $\mu(M)$

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