A Theory of Happiness-Wealth Relationship with Status-Sensitive Communication

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Personal happiness might not solely depend on the individual’s level of wealth but also on the individual’s level of sincere social capital. This paper argues that if sincere interpersonal communication is sensitive to economic status disparities, the accumulation of personal wealth beyond the community’s average erodes the individual’s sincere social capital. A measure of sincere social capital that is based on such sensitivity is constructed. Its consideration leads to the depiction of the individual’s happiness-wealth relationship as an inverted U-shaped curve that peaks at personal wealth that is greater than the community mean.

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1. Introduction

With the accumulation of human capital and material capital, incomes and living standards have improved. In recent decades, these improvements have not been reflected in people’s responses to happiness surveys (Easterlin, 1974; Diener et al., 1993; Graham and Pettinato, 2001). One attempt to explain this anomaly is based on the notion of changing norms: absolute income levels matter when basic needs are unsatisfied, but above a certain level relative income differences matter more (Easterlin, 1974). Moreover, income may raise aspirations. From a certain level of income the possible positive direct effect of income-gains on happiness might be offset by the negative effect of the rising aspirations (Veenhoven, 1991).

A second explanation can be based on sensitivity to interpersonal economic status differences and rising inequality. This explanation is conceptually compatible with Sen’s (1973) and Yitzhaki’s (1979) aggregate depression and relative deprivation interpretations of the Gini index.1 It is empirically supported by Blau and Blau (1982), Kahn et al. (2000), Fiscella and Franks (2000), Muramatsu (2003) and Graham and Felton (2005).

A third explanation may be given by a decline in social capital, which diminishes interpersonal communication and, in turn, happiness. Offered by Putnam (1995, 2000), this explanation is congruent with Maslow’s (1954) and Schultz’s (1967) argument that people have a need for inclusion and affection and with Berne’s (1964) argument that interpersonal communication acts are attempts to satisfy this need. The need for inclusion and affection had been possibly formed over the millions of years in which human beings lived in cohesive communities of clans and tribes. The relatively recent processes of commercialization, urbanization and industrialization have increased the average wealth, but possibly lowered the intensity and quality of sincere interpersonal communication.

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1 See also Ebert and Moyes (2000) for an axiomatic characterization of Yitzhaki’s index of individual deprivation.
By combining the third explanation’s argument of social capital with the second explanation’s argument of economic status sensitivity, I derive an inverted U-shaped relationship between happiness and wealth. In agreement with Bourdieu’s (1986) definition of social capital and Sobel’s (2002) interpretation, I consider the social capital of the individual member of the community. In particular, I consider a certain type of this capital — sincere social capital. I interpret sincere social capital as representing the ability of the individual to satisfy the need for inclusion and affection through communication with members of the community. I consider strategic social capital as representing the individual’s ability to secure market-return-generating benefits through communication and being a component of the individual’s human capital. I consider the individual’s human capital and material capital as constituting the individual’s wealth and the individual’s wealth as determining the individual’s economic status.

My analysis of the effect of sincere social capital on the relationship between happiness and wealth is based on Maslow’s (1954) and Schultz’s (1967) argument that human beings have a need for inclusion and affection. The gratification of this need contributes to their sense of happiness. This need is satisfied through sincere interpersonal communication. My analysis is also based on the assumption that sensitivity to differences in economic status affects interpersonal communication. In particular, I assume that sincere interpersonal communication is eroded by feelings of superiority, or inferiority, accompanying wealth disparities. Hence, the accumulation of wealth by a poor person increases not only his market returns, but also his non-market aggregate returns from social communication. In contrast, while increasing market returns, the further accumulation of wealth by a rich person deepens the economic status gap between himself and the majority of the members of his community and, in turn, diminishes his non-market aggregate returns from social communication. I measure sincere social capital in a manner that facilitates the exposition of this possible indirect effect of wealth, thus the full effect of wealth, on the individual’s level of happiness.

In section 2 I outline the effect of wealth on its owner’s sincere social capital in a greater detail. In section 3 I construct an index that relates the individual’s level of sincere social capital to the individual’s wealth and also, as necessitated, to community size. This index of sincere social capital is included in section 4 alongside wealth in the individual’s portfolio of happiness-generating assets. I show that, if sincere interpersonal communication is sensitive to economic status disparities, the inclusion of this type of capital in people’s portfolios of happiness-generating assets leads not only to diminishing marginal happiness in wealth, but also to an inverted U-shaped relationship between happiness and wealth. In section 5 I indicate the possible contribution of the inverted U-shaped happiness-wealth hypothesis to the explanation of phenomena such as wealthy-people’s depression, segregation by wealth, publicized philanthropy and non-optimality of wealth-equality.

2. Economic status sensitivity, community size and sincere social capital

My formulation of the relationship between wealth and sincere social capital is based on the assumption that the quality and intensity of the individual’s sincere interpersonal communication is adversely affected by the economic status differences.
between him and his community members. This assumption of economic status sensitivity is more broadly articulated as having the following components:

i. wealth is visible and its distribution within the community is known;

ii. the distribution of wealth within the community determines members’ economic status;

iii. each community member feels inferior (superior) in the company of a community member with a higher (lower) economic status—the larger the economic status gap, the stronger these feelings;

iv. the level (quality and intensity) of sincere communication between any two community members is adversely affected by each one’s feelings of inferiority, or superiority, toward the other; and

v. community members with similar economic status are likely to have mutual respect, similar lifestyle and common social circle that facilitate the development of a mutually sincere communication.

Consider a community of \( i = 1, 2, 3, \ldots, N \) members where, for computational simplicity, the distribution of the share of wealth (the combined human and material capital) is normal. In this case, economic status sensitivity implies that the greater the difference between a member’s wealth-share (\( w_i \)) and the average wealth-share (\( 1/N \)), the weaker the member’s overall level of sincere social communication with the rest of the members of the community. Along the positive spectrum of the economic status disparity (\( w_i - 1/N > 0 \)) people are subjected to envy, strategic manipulation, deceitful behaviour and media intrusion. They are also subjected to resentment as their high-income-driven demand inflates the prices of normal goods disproportionately to their population share and makes these goods less affordable for lower income earners. The greater the individual’s wealth-share deviation from the equal share, the more he encounters these adverse reactions and, in turn, the less his aggregate non-market-return-generating benefits from interpersonal communication. Along the negative spectrum of the economic status disparity (\( w_i - 1/N < 0 \)) people suffer from shame (cf. Kawachi and Kennedy, 1999; Muramatsu, 2003) and are subjected to stigma and marginalization. The greater the individual’s relative poverty, the greater his shame, stigmatization and marginalization.

For completeness, an individual sincere social capital index should encompass the case of absolutely unequal distribution of wealth. In this case, the \( N-1 \) members of the community who hold no wealth have sincere social capital as long as \( N > 2 \). Recalling the economic status sensitivity assumption, common economic misery facilitates their sincere interpersonal communication and social inclusion. In contrast, the sole wealth owner is unable to enjoy sincere social interaction with the community members (his vassals). A sincere social capital index should therefore reflect that in the case of absolute concentration of wealth, the level of sincere social capital of the sole wealth owner is the smallest in any community of more than two people.

An indirect effect of the community size is already introduced through the equal wealth-share term (\( 1/N \)). To represent the full effect of the community size on the individual’s sincere social communication it is necessary to take into account a possible direct effect. I assume that, in addition to being adversely affected by wealth disparity, the individual’s ability to communicate sincerely is influenced by the number of people with whom he is bound to interact actively or passively. Up to an individually critical number, \( \tilde{N}_i \), a positive social agglomeration effect is dominant. Beyond \( \tilde{N}_i \), crowding and congestion take over, and impersonalization (diminishing
overall intimacy and trust) depreciates the individual’s ability to communicate sincerely. This individually optimal (and desired) community size $\tilde{N}_i$ may be larger (in small rural communities), or smaller (in cities), than the actual community size $N$.

3. Sincere social capital index

A sincere social capital index ($SSCI$) that reflects the aforementioned effects of deviations from the hypothetical equal status and the desired community size on the individual’s sincere social communication is one that satisfies the following conditions.

i. Interpersonal communication does not exist in isolation: $SSCI(N=1) = 0$.

ii. Solitude is not desired: $\tilde{N}_i > 1$ for every $i = 1, 2, 3, ..., N$.

iii. The $SSCI$ of an average wealth owner $i$ who lives in a community of his desired size is maximal:

$$SSCI_i(w_i = 1/N, N = \tilde{N}_i) > SSCI_i(w_i = 1/N, N \neq \tilde{N}_i) > SSCI_i(w_i = 1/N, N \neq \tilde{N}_i).$$

iv. The $SSCI$ of person $i$ monotonically and (for simplicity) symmetrically decreases with the deviation of his wealth-share from the equal share: $[\partial SSCI_i / \partial (w_i - 1/N)^2] < 0$.

v. The $SSCI$ of person $i$ monotonically and (for simplicity) symmetrically decreases with the difference between his actual community size and his desired community size: $[\partial SSCI_i / \partial (N - \tilde{N}_i)^2] < 0$.

vi. In the case of a community with absolute concentration of wealth, the $SSCI$ of person $i$ had he been the sole wealth owner (SWO) is smaller than that had he possessed no wealth in any community with $N > 2$:

$$SSCI_i^{SWO} = SSCI_i(w_i = 1; N, \tilde{N}_i) < SSCI_i(w_i = 0; N, \tilde{N}_i).$$

**Proposition 1.** A sincere social capital index is:

$$SSCI_i = 1 - \left[ 1 - SSCI_i^{SWO} - \frac{(N - \tilde{N}_i)}{(1 - \tilde{N}_i)^2} \right] \left[ \frac{w_i - 1/N}{1 - 1/N} \right]^2 \left[ \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right]^2. \quad (1)$$

**Proof** (by construction). Let $\delta_i$ and $\mu_i$ be positive scalars. Then,

$$y_i = 1 - \delta_i(w_i - 1/N)^2 - \mu_i(N - \tilde{N}_i)^2 \quad (2)$$

is a specification that satisfies conditions iii (with maximum value equal to 1), iv and v. The positive scalars $\delta_i$ and $\mu_i$ indicate the marginal depreciations of $y$ caused by the deviation of the wealth-share of person $i$ from the equal share and the deviation of the community-size from his desired size $\tilde{N}_i$, respectively. The values of these marginal depreciations can be found by using condition i and by considering the sincere social capital of the sole wealth owner in the case of absolute concentration of wealth. Consider the special case of $N=1$ and recall that, by condition i, $SSCI_i(N=1) = 0$. In this case, equation (2) should reflect that:

$$0 = 1 - \delta_i(1-1)^2 - \mu_i(1-\tilde{N}_i)^2. \quad (3)$$

In turn,
\[
\mu_i = \frac{1}{(1 - \tilde{N}_i)^2}.
\]  
(4)

By obeying condition ii \((\tilde{N}_i > 1)\), the right-hand side of (4) is defined and positive. Its substitution into (2) for \(\mu_i\) implies:

\[
y_i = 1 - \delta_i (w_i - 1/N)^2 - \frac{1}{(1 - \tilde{N}_i)^2} (N - \tilde{N}_i)^2.
\]  
(5)

To cover the case of absolute concentration of wealth, equation (5) must reflect that for the sole wealth owner:

\[
SSCI_i^{SWO} = 1 - \delta_i (1 - 1/N)^2 - \frac{1}{(1 - \tilde{N}_i)^2} (N - \tilde{N}_i)^2.
\]  
(6)

Consequently,

\[
\delta_i = \frac{1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right)^2}{(1 - 1/N)^2}
\]  
(7)

which is defined as long as \(N > 1\). To ensure that \(\delta_i\) is positive,

\[
SSCI_i^{SWO} < 1 - \left( \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right)^2
\]  
(8)

for every combination of \(N\) and \(\tilde{N} > 1\) or, equivalently,

\[
\tilde{N}_i < \frac{N}{\sqrt{1 - SSCI_i^{SWO}}} - 1.
\]  
(9)

In view of (4) and (9), the community size desired by person \(i\) should satisfy the following inequality:

\[
1 < \tilde{N}_i < \frac{N}{\sqrt{1 - SSCI_i^{SWO}}} - 1. 3
\]  
(10)

By substituting the right-hand sides of (4) and (7) into (2) for \(\delta_i\) and \(\mu_i\):

\[
y_i = 1 - \frac{1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right)^2}{(1 - 1/N)^2} (w_i - 1/N)^2 - \frac{1}{(1 - \tilde{N}_i)^2} (N - \tilde{N}_i)^2.
\]  
(11)

By reorganising terms:

\[
y_i = 1 - \left[1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right)^2 \right] [w_i - 1/N]^2 - \left( \frac{N - \tilde{N}_i}{1 - \tilde{N}_i} \right)^2.
\]  
(12)

As implied by the construction, the right-hand side of (12) satisfies conditions i to v. It also satisfies condition vi:

3 That is, person \(i\) neither remains in seclusion nor stays in a community whose size is larger than \(\sqrt{1 - SSCI_i^{SWO}} + \left[1 - \sqrt{1 - SSCI_i^{SWO}}\right] \tilde{N}_i\).
\[
y_i(w_i = 0) - y_i(w_i = 1) = \left[ 1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - N_i} \right)^2 \right] \frac{(1-1/N)^2 - (1/N)^2}{[1-1/N]^2} > 0 \quad (13)
\]
since \(1 - SSCI_i^{SWO} - [(N - \tilde{N}_i)/(1 - \tilde{N}_i)]^2 > 0\) [as indicated by (8)] and \((1-1/N)^2 - (1/N)^2 > 0\) for \(N > 2\). Hence, the right-hand side of (12) is an \(SSCI_i\).

4. Inverted U-shaped relationship between happiness and wealth

For the purpose of this section, let \(W_i\) denote the absolute level of the wealth owned by person \(i\) and \(\bar{W}\) the average wealth in his community. Then \((w_i - 1/N)/(1-1/N) = [(N-1)\bar{W}]^{-1}(W_i - \bar{W})\) and the proposed \(SSCI_i\) can be equivalently rewritten as:

\[
SSCI_i = 1 - \left(1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - N_i} \right)^2 \right) \frac{(W_i - \bar{W})^2 - \left( \frac{N - \tilde{N}_i}{1 - N_i} \right)^2}{[(N-1)\bar{W}]^2} \quad (14)
\]

While utility indicates satisfaction from consumption of goods, happiness further reflects the satisfaction from the non-pecuniary returns on sincere social capital. I postulate that personal happiness is derived from the return on the personal portfolio of wealth and sincere social capital. The return on wealth indicates the individual’s consumption and saving possibilities. The return on the individual’s sincere social capital is equal to the individual’s monetary appreciation of the non-market-return-generating benefits from the aggregate messages and acts of inclusion and affection received from his community.

Let the positive scalars \(r_w\) and \(r_s_i\) denote the rates of return on material wealth and sincere social capital, respectively. Since the maximal ability of person \(i\) to attain social benefits is restricted (by construction) to be one \((SSCI_i \leq 1)\), \(r_s_i\) can be further interpreted as the maximal non-market-return-generating benefits from interacting with the rest of the members of his community. Correspondingly, \(SSCI_i\) is the realized portion of these maximal benefits. While \(r_w\) is determined by market forces, \(r_s_i\) is individualistic and reflects the effects of personal and community characteristics.

As expressed by the following second-order polynomial, the return on person \(i\)'s portfolio of wealth and sincere social capital [where the latter is given by (14)] can be concentrated on wealth:

\[
R_i = r_w W_i + r_s_i SSCI_i = r_s_i \left( 1 - \phi_i \bar{W}^2 \right) + (r_w + 2r_s_i \phi_i \bar{W}) W_i - r_s_i \phi_i W_i^2 - r_s_i \left( \frac{N - \tilde{N}_i}{1 - N_i} \right)^2 \quad (15)
\]

where,

\[
\phi_i = \frac{1 - SSCI_i^{SWO} - \left( \frac{N - \tilde{N}_i}{1 - N_i} \right)^2}{[(N-1)\bar{W}]^2} \quad (16)
\]
**Proposition 2.** If person $i$’s level of happiness increases with the return on his portfolio of wealth and sincere social capital, there exists an inverted U-shaped relationship between his happiness and his wealth.

**Proof.** $\phi_i$ is defined for $N > 1$ and by virtue of (8) is positive. Hence, the second order polynomial (2) in $W_i$ is concave.$\Box$

As displayed by Figure 1, an inverted U-shaped relationship implies that wealth accumulation does not always lead to greater happiness. Up to $W_i = \bar{W}$, the sincere social capital of person $i$ increases and complements his wealth in generating happiness. Beyond a certain level of wealth, $W_i^*$ (greater than $\bar{W}$), the negative indirect marginal effect of wealth on happiness (through the erosion of sincere social capital) exceeds its positive direct marginal effect. This happiness-maximizing level of wealth for person $i$ is given by:$$W_i^* = \bar{W} + \frac{r_w}{2r_s} \{(N-1)^2 \bar{W}^2 / \{1 - SSCI_i^{SWO} - [(N - \tilde{N}_i)/(1 - \tilde{N}_i)]^2\} \} \cdot (17)$$

**Proposition 3.** Person $i$’s happiness-maximizing wealth exceeds the average wealth in his community proportionally to the ratio of the rates of return on his wealth and sincere social capital.

**Proof.** Recalling inequality (8) and that community can only exist where $N > 1$, $(N - 1)^2 \bar{W}^2 / \{1 - SSCI_i^{SWO} - [(N - \tilde{N}_i)/(1 - \tilde{N}_i)]^2\} > 0$ and hence $(W_i^* - \bar{W}) \propto \frac{r_w}{2r_s} \cdot \Box$

![Figure 1. The inverted U-shaped happiness curve](image)

5. **Concluding remarks**

By focusing on the role of wealth and assuming that sincere social communication between any two individuals is adversely affected by their economic status disparity, an index of individual sincere social capital was constructed. By considering the sum of the returns on wealth and individual sincere social capital, an inverted U-shaped

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$^4 R'_i(W_i^*) = 0.$
relationship between happiness and wealth was proposed for people with economic status sensitivity. Namely, as material affluence exceeds a critical level, deprivation of an adequate level of sincere social communication (which is necessary for gratifying needs for inclusion and affection) becomes paramount and happiness is diminished. This inverted U-shaped relationship may provide explanation to four phenomena and may imply several testable hypotheses.

A notable phenomenon is a prevalent, neither accidentally nor genetically caused, depression within the group of wealthy people. It is possible that when the individual’s happiness level is persistently lower than a mentally accommodating threshold (say $H_o$ in Figure 1) the individual is depressed. In the case of wealthy people, in particular, a persistently low level of happiness might be due to a strong deprivation (low quality and intensity) of sincere social communication. As indicated by the inverted U-shaped curve, people located in the lower and upper tails of the wealth-spectrum are vulnerable to depression. The closer they are to the extremities of the poverty-affluence spectrum, the greater their deprivation of sincere social communication with the majority of the community members and, in turn, the likelihood and depth of their depression. An implied testable hypothesis is that depression is not only more prevalent in the lower tail of the wealth distribution than in the medium range, but also in the upper tail. A related phenomenon is the formation of exclusive clubs and neighbourhoods, which may improve wealthy people’s opportunities to develop sincere social communication and reduce their exposure, and increase their resilience, to adverse reactions.

Another phenomenon is heavily publicized donations to social projects and establishment of philanthropic foundations. An inverted U-shaped relationship between happiness and wealth implies that a rich person $i$ with wealth $W_i > W_i^*$ can increase his happiness by restructuring his portfolio of material and sincere social assets. Recalling the individual sincere social capital index, a non-anonymous donation is the wealthy person’s investment in sincere social capital, whose expected returns are greater levels of inclusion and affection by the community. The optimal donation is the excessive material wealth: $W_i - W_i^*$. In this respect, the happiness-maximizing wealth equation suggests the following testable hypotheses: the size of the donation decreases with the ratio of the rates of return on wealth and sincere social capital.

An ego complex of being above the average is also a notable phenomenon. Although the individual’s sincere social capital is eroded by wealth-disparities, the inverted U-shaped relationship reveals that wealth-equality is not desired by happiness-maximizing people. Yet, the lower the ratio of the rate of return on wealth to the rate of return on sincere social capital, the smaller the gap between the happiness-maximizing wealth, $W_i^*$, and the equal, sincere social-capital-maximizing wealth, $\bar{W}$.

References


