High status for all?
Cheating the zero-sum mechanism of happiness.

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Abstract

We state the following hypotheses: 1) Happiness depends on social rank – a term from primatology meaning the place in group hierarchy which determines mating chances, number of offspring and food share; this dependence explains the correlation between relative income and subjective well-being in humans. 2) There are mechanisms of cheating the ranks, which boost happiness of all. 3) Intelligence is a happiness-boosting tool, which should be more developed by low-rank individuals.
We report the results of a series of queries, which support hypotheses 1) and 2) and leave 3) unclear.

THEORY

Happiness and rank

A number of studies of well-being revealed a correlation of income and happiness. It is not yet clear if happiness rises with income in long term, but it is apparent that happiness depends on the *relative* income – that is our income compared to income of the others (Clark & Oswald 1996, Oswald 2003). It is also known, that modern economies produce so-called "position goods" (Hirsch 1976, Frank 1985, Frank 1999), which are made expensive so as to mark the owner as more successful than other people. Modern economic theory has not yet tried to explain these phenomena and just stated the finding as a fact that should be put into the model of economic man. The finding suggests that happiness must be, to a certain extend, a zero-sum game, and it is not possible to make everyone happy at the same time. This paper argues that it *is* possible to make everyone happy even when status is a zero-sum game and provides a few suggestions for future research in the field.

We will start by asking a simple question: *why* is happiness dependent on relative income? In our mind, it is not the word *income*, that should be emphasized, but the word *relative*. So the question should actually be put in the way "Why does superiority to others lead to higher happiness?" Such question takes a broader approach to human behavior, concentrating not only on income, but also on prestige goods and other signs of success. It will also lead us to the theory of social rank in animal societies. Rank is important for an animal, because it determines the mating chances. Eagerness of individuals to pass their genes to the next generation makes them strive for higher rank. We will not make a big mistake, if we say, that human behavior has much in common with behavior of animals (especially primates) in case of emotions and feelings, as well as the mating strategies (and here we will follow ethologists).

Relation of rank and happiness should have an easy explanation. The individual must be motivated to strive for higher rank, so he must feel happier if he finally acquires it. If all individuals strive for rank, only those with highest fitness succeed, and the species gets the best genes in the next generation (this is close to the ideas of Dawkin's *Selfish gene* 1976). In human societies rank is partially exposed in form of income, so those individuals with higher relative income are happier.

The biggest problem in this natural mechanism is that it serves only the interests of the species as a whole and leaves the majority of the individuals with average and lower rank virtually unhappy. It is typical for a third-world country, that a handful of rich and powerful enjoys their lives and has dozens of children, while the rest of the population is on the edge of starvation and never has a chance to succeed. So, economists and sociologist would end up with a gloomy conclusion, that no matter how rich the society is, there will always be someone who is first, and someone who is second, one reporting to be "very happy" and another "pretty happy" at best. Increasing life standards, political stability, health care, production of high-quality goods won't help.

Cheating for happiness boost

There are at least three mechanisms in modern society that effectively solve the problem of zero-sum nature of ranks:

smart choice of ranking criteria – Humans have extremely diversified behavioral repertoire and developed culture, which provides many ways for comparison of individuals. Although the "natural" criterion of success is social rank, individual can fool himself and see his success in other things: sports, games, art and science, collecting things etc. A very successful collector of beer bottles can theoretically become as happy as a most successful businessman, whose high income and rank allow feeding thousands of children. A successful female writer can respect herself for being highly developed in terms of ethics, morals and understanding of human nature, just like a mother of 10 children would be naturally proud for being successful among men.

equalization of ranks – Christianity and principles of democracy and human rights generally defend the interests of the weaker members of the society and limit the power of the stronger ones. This leads to less inequality and general increase of happiness: the strongest still feel themselves the best, and the weakest do not observe a large gap between themselves and the high-rank people. Instead of the I-am-much-lower feeling they have an I-am-nearly-as-high feeling. Many modern institutions serve for equalization of ranks. Marriage and institution of nuclear family provide a stable sexual partner for low-rank people and limit the mating chances of high-rank people. Religion comes up with an idea of paradise and God equally kind to those sexually attractive and unattractive, weak and strong. The government redistributes resources

from the rich to the poor. Children are taught in school to respect the younger and weaker and so on. There is a clear trend of ranks to equalize with increasing productivity of western societies: the idea of equality of everyone before the God first appeared with Christ, developing further in humanistic philosophy of Renaissance, ideas of Enlightenment, and now becoming the basis for any western legislature in form of human rights. Modern ethics in western cultures censures as "impolite" any behavior that reveals the ranking marking any rank-related information as "private life". For instance, if you ask someone about his income, penis length and number of sexual partners in life, you will most surely be considered as impolite, because that person might have low income, short penis and no sexual partners. By bringing this information to publicity, you reveal the rank and increase happiness gap. In its highest form equality was modeled in the socialistic society (equalized wages, limited sexual life, insufficient rewarding of initiative), with many shortcomings, however failing to neutralize the ranks completely. Equalization may expand from cultural to physiological level with development of cloning technologies. Cloning and reprogenetics will make it possible to "edit" the traits of children, which will in a high-competitive environment lead to perfection of intelligence, sexual attractiveness, health and other characteristics, which means decrease of diversity (see Gilles 2002). Cloning may also generally decrease the role of rank, because mechanism of ranks is working only when reproduction is sexual.

diversification of ranks – With technological development new areas of human activity appear and allow those entering first to have high rank. This is beneficial for the economy, since after the niche gets crowded, many specialists will be interested in creating new technologies and fields, which boosts their happiness and accelerates progress. Diversification will continue increasing with development of virtual worlds and economies (See Castonova 2002 for review of the virtual economies). Development of virtuality, led by desire to boost the player's happiness, can eventually build systems "one man-one world", where worlds only partially intersect, everyone feels himself to be the first, and all the needs of the player are effectively satisfied.

Notably, all these mechanisms work more efficiently, if an individual has high intelligence and level of cultural development. This leads to the conclusion that development of culture, intelligence and progress of the society is done mostly by low-rank individuals, because they gain more from participating and fostering this development than high-rank ones. Actually, high-rank individuals should not have any motive to support progress, because they already have highest happiness at any given time. Low-rank individuals, at least some of them, should be much more interested in culture and progress. Intelligence and culture are awesome happiness-boosters. All of this can be formalized in the following model.

Model

Variables:
N – number of individuals in the group (as known by the individual)
M – total number of possible criteria to rank individuals currently known in the group.
R_i – rank of the individual in the criterion i (R_1 is social rank in its biological sense). [1; N]
c – coefficient of rank smoothing (level of development of democracy, equality, respect of human rights). [0; 1]
U_R – rank-dependent component of happiness. [0; 1]

Assumptions:
Ranks of individuals in different criteria are not inter-correlated.
If several individuals are absolutely equal in some criterion, they get the same rank, so if all of them are equal, everyone considers himself to have rank =1.

Function:

$$U_R = \sum_{i=1}^{M} a_i \left(1 - \log_N R_i^{1-c}\right);$$

$$\sum_{i=1}^{M} a_i = 1;$$

The individual can set a_i on the interval *[0; 1]* so as to maximize U_R.

Predictions of the model:
- Rational individual will find *j* so that R_j = max (R_i) and set a_j =1 and a_i = 0 for all i≠j. In other words, *individual will tend to evaluate himself in the criterion where he has the highest chances.*
- If *M* increases there will ceteris paribus be a higher chance for each individual to find a better criterion, so happiness of all will increase. That means *in countries with more developed and complex culture happiness must be higher.* (Evidence: Veenhoven 1997, exhibit 4)
- If *c* increases, all individuals become happier. *Happiness should be higher in societies with less inequality.* (Evidence: Blanchflower & Oswald 2003 report negative correlation of inequality and happiness, Veenhoven 1997 reports no correlation, Frey & Stutzer 2002 suggest inequality decreases happiness in Europe, but not in the US).
- Higher intelligence of an individual will increase *M* and lead to higher happiness. *Taken rank constant, intelligence should boost happiness.*
- Low-rank individuals will be more interested in increasing *M* and *c*, so intelligence and culture will develop more by low-rank individuals. *Low rank individuals should more often have higher intelligence.*

EMPIRICAL TEST

Hypotheses

General hypotheses:
Happiness is higher by individuals with high social rank
Individuals with high social rank have higher income

Special hypotheses:
People position themselves in those criteria where they are best
Taken rank constant, intelligence should boost happiness
Low rank individuals more often have higher intelligence

Methods

We ran a series of queries in Moscow among students of 12 higher education institutions. The sample included 606 males and 287 females of age 18-25[2]. The paper-based questionnaire included about 50 questions, which are grouped in the following table:

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[2] Selection of this age group was based on the suggestion that happiness should depend more on rank in the age of highest sexual activity and procreation chances, which is 18-25 years.

Variable measured	Questions used[3] (answer format)
Happiness	How happy are you? (7 verbal choices) How much do you like your life? (7 verbal choices) In what mood were you on average in the last 2 weeks? (7 verbal choices)
Income	How much did you spend[4] in October? In September? In August? (blank field) If one divides the society into 5 income groups, what would your family fall into (5 verbal choices)
Leadership	How often do you become leader? (5 verbal choices) There is usually a hierarchy in school classes. If we consider the informal leader as 1 and the least respected child as 10, what number would be you when you were in school? In the group in university?
Social rank	How many sexual partners (women) did you have in your life[5]? In the last 12 months? How many orgasms did you have in the last week, in all circumstances? (interval choices) How many of them were due to a female? (interval choices) Do you have a long-term sexual partner now? (4 verbal choices: "yes, many", "yes, one", "hard to say", "no") How many females offered you sex in the last 12 months, not for money or favors? (interval choices) How many children do you have[6]? Job status[7].
Physical fitness	Your physical fitness is: (5 verbal choices) How many times can you pull yourself on a horizontal bar? If you were to participate in a tournament in arm-wrestling right now, how many people of your age would you beat? (%) Do you do sports? (yes/no)
Intelligence	What was your grade in math in your college transcript? In native language, foreign language, physics, biology, chemistry, literature, history? (grades from 2 to 5 according to Russian grading system, 2 lowest, 5 highest) What is your IQ?
Adjustment of criteria of respect to one's favor	1. What traits do you most respect in people? (3 blank fields *or* a list of 20 most commonly mentioned traits) 2. What positive traits do you have? (the same) 3. What negative traits do you have? (the same) *Adjustment = (Matches in 1 and 2 – Matches in 1 and 3) /(Number of traits in 1)*
Feeling of respect	Do you agree that your current social status is what you really deserve? (7 verbal choices) Do you like your social status? (7 verbal choices) Do you have a feeling that the society, your friends or relatives respect you less, than you deserve? (5 verbal choices)
Stability	Do you have a feeling of stability? (7 verbal choices)

[3] Original questions were formulated in Russian, so there might be some discrepancies due to linguistic nuances.

[4] Putting the question in form of „spending" instead of "earning" was essential, since Russians generally distrust queries and avoid reporting their income. Also a usual situation is that the major share of income is acquired not on the main job and is not taxed, so income according to official statistics would be 2-3 times lower than real income.

[5] Since women usually dislike this question and significantly reduce the reported number of sex partners, we extended the question with the phrase: "Now multiply this number with 2 and divide by 10. What do you have?" This effectively increased the response rate and also the average reported number. We can also recommend this technique for further research.

[6] This question gave very little variation in the age group, so it had to be omitted.

[7] Job status was determined as expert estimation, how much respected the profession in the society is. This variable did not show significant correlations with rank and income (probably due to untypical respect to jobs in transition economy), so it was omitted.

Results

Tested hypothesis	Result
Individuals with high rank have higher income	True for males *and females*
Happiness is higher by individuals with high rank	True
Individuals increase their happiness by ranking themselves in those criteria at which they are best	True for males
Taken rank constant, intelligence should boost happiness	False (?)
Low rank individuals more often have higher intelligence	False (?)

Result 1: Rank-income relation – one can see in the tables below, that both for males and females all variables measured as indicators of rank tend to increase with income. The relation by females is of special interest, because it means, that female sexual success depends on her income (or probably income depends on sexual success?). Some female respondents offered a simple explanation to this tendency: income is key to good perfume and cosmetics, which is vital for sexual attractiveness. Although this may play a significant role, we believe, that expensive cosmetics does not explain the whole amount of variation, and rank still has influence, leading both to higher income and higher sexual success. The variation in sexual success in females seems to be *equally* high as in males. This undermines the theories suggesting that competition is stronger among men because of relatively lower costs of sperm production compared to production of eggs (Bateman 1948).

Compared means (males)

	Spending ($/month)					ANOVA Sig.
	<100	100-200	200-500	500-1000	>1000	
Sex partners (life)	7,37	7,78	13,50	18,62	23,53	,002
Orgasms due to female	1,88	2,44	2,56	5,39	5,19	,065
Sex partners (last 12 months)	1,69	2,29	3,00	4,51	5,86	,000
Females offered sex last 12 months	4,57	4,15	6,15	6,00	10,80	,055
Has sex partner	,547	,500	,737	,636	1,000	,011

(females)

	Spending ($/month)					ANOVA Sig.
	<100	100-200	200-500	500-1000	>1000	
Has sex partner	,333	,614	,690	,707	,940	,018
Sex partners (whole life)	4,67	5,67	6,65	9,24	15,41	,001
Orgasms due to man	,21	,92	1,98	5,84	3,27	,027
Men offered sex last 12 months	14,35	15,55	39,04	43,74	34,58	,235

We also found a relation between self-reported leadership and sexual success:

Compared means (males)

	Leadership				
	low	lower average	higher average	high	Sig.
Sex partners (life)	6,18	10,20	14,29	18,64	,059
Orgasms due to female	,82	2,38	3,20	3,72	,335
Sex partners (last 12 months)	2,03	2,47	3,06	4,91	,001
Females offered sex (last 12 months)	1,58	5,57	5,20	7,44	,122
Has sex partner	,147	,566	,632	,947	,000

(females)

	Leadership				
	low	lower average	higher average	high	Sig.
Has sex partner	,447	,637	,691	,735	,200
Sex partners (whole life)	4,69	7,16	9,62	6,04	,149
Orgasms due to man	,00	2,63	3,75	2,74	,580
Males offered sex (last 12 months)	12,42	26,51	36,69	58,74	,021

Result 2: Rank-happiness relation – We summed up all of the variables from the group "sexual success", "leadership" and income in single variable using factor analysis. The resulting variable ("rank") is normally distributed, has the mean=0, and is significantly correlated with income, leadership and sexual success (correlations 0,6-0,8). Rank seems to be significantly correlated with happiness, but correlation is not strong (r=0,341 by males, r=0,3 by females). If we divide all respondents into 4 groups: those with highest rank, upper average, lower average and lowest – we see that mean happiness is about 1,8 points (on 10-grade scale) higher by persons with highest ranks than by persons with lowest rank. The same is with feeling of stability and feeling of respect.

	Rank				
Means (males)	low	lower average	higher average	high	ANOVA Sig.
Happiness	6,3487	7,1054	7,5174	8,1711	,000
Stability	5,85	6,02	6,25	7,07	,005
Respect	6,0658	6,5450	7,1928	7,6053	,000
School performance (GPA)	4,1783	4,2110	4,2606	4,3634	,197

Correlations with rank (males)

	Happiness	Stability	Respect	School performance (GPA)
Pearson Correlation	,341(**)	,180(**)	,235(**)	,121(**)
Sig. (2-tailed)	,000	,000	,000	,009
N	498	373	498	466

** Correlation is significant at the 0.01 level (2-tailed).

Result 3: Intelligence doesn't influence happiness and is unrelated to rank (?) – we found a small *positive* correlation of grade-point-average (GPA) with rank and no correlation with happiness. This undermines our theory of "smart" rank-cheaters, however, the measurement of intelligence through GPA might also be to blame, because school performance is dependant not only on intelligence, but also on the ability to adapt, social skills and leadership. A better variable for intelligence could be IQ, but in our study the response rate to the question "what is your IQ?" was very low (<10%), since IQ tests are not widely known in Russia. Of those who reported IQ-score only 10% had IQ<100, which suggests, that IQ test is popular only among smart youths who seek formal evidence of their superiority and take the test. The same is with rank-intelligence relation. We suggest that this relation should be tested through a query in the US, were IQ tests are more popular, or in a special lab experiment.

Result 4: Positioning in best criteria increases happiness (in males). From the chart below one can see that adjustment of ranking criteria increases happiness by about 1 point (on 10-grade scale). We considered as "having self-biased respect" those persons who ticked the same traits in the columns "my traits" and "most important positive traits". Nicely, about 1/3 of the respondents think that they have at least half of most important positive traits (the gray line), and 1/3 report completely separate traits as "their own" and "most important" (black line).
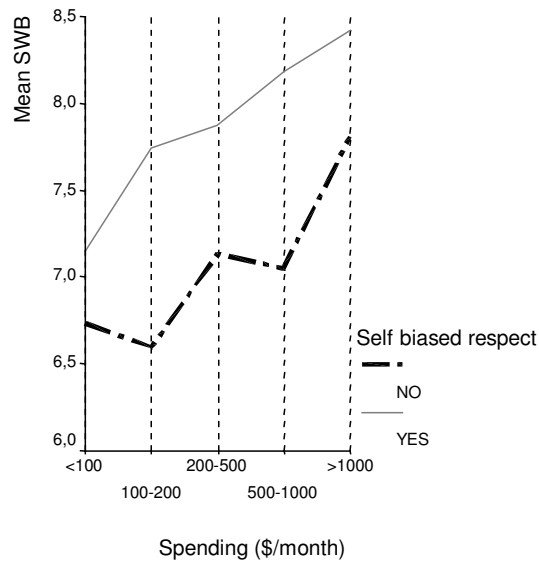
Ideas for further tests

Intelligence-rank relation
Measure the number of children of most prominent scientists, writers, thinkers in history: it should be lower than average, and that is lower rank.
Correlate IQ score with rank by the senior college students, university students or in the army in the country were IQ test are widely used (variables for sexual success may the same as used in this study).

Rank-cheating
Run the happiness query in MMORPG (multiplayer online games): people, who spend much time in virtual worlds, should have lower rank, but higher happiness than average person in the population with the same rank.

Happiness-rank relation
Measure testosterone, endorphins and probably some other hormones in the lab and correlate the results with subjective well-being and sexual success of the subjects (the same questions as used in this study).

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