Somewhat Unexpected Negative Consequences of Excessive Optimism: Self-Harm, Harm to Others, and Unnecessary Economic (and Political) Confrontations

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How to measure optimism. In practice, we often have partial information about the consequences of our possible decisions. Frequently, we only know the interval $[\underline{x}, \overline{x}]$ of possible financial results of each alternative. In this situation, decision theory recommends, for some parameter $\alpha \in [0, 1]$, selecting an alternative for which the value $x(\alpha) \stackrel{\text{def}}{=} \alpha \cdot \overline{x} + (1 - \alpha) \cdot \underline{x}$ is the largest. The corresponding parameter α – introduced by Nobelist Leo Hurwicz – is known as optimism-pessimism coefficient. When $\alpha = 1$, the decision maker only takes into account the best-cases scenario – this is extreme optimism.

Is optimism really good? At first glance, it seems that optimism is a healthy approach to life: movies and books are full of charming smiling positive optimistic guys. But is optimism so good in real life?

Extreme optimists are prone to self-harm. An extreme optimist invests his money in risky schemes – and often loses them.

Optimists with $\alpha > 0.5$ can be easily cheated. If we take any event E about whose probability we know nothing, then we can divide a \$1 prize into two parts: in the first part, a person gets 1\$ if E happens, in the second part, a person gets 1\$ if E does not happen. For both parts, all we know about the gain is that it is between 0 and 1, so the optimist is willing to pay $\alpha \cdot 1 + (1 - \alpha) \cdot 0 = \alpha > 0.5$ for each part – thus, by using two such persons, we can get $2\alpha > 1$ out of the original dollar.

Extreme optimists harm others. An extreme optimist inconvenience others by being often late, because when planning his/her trip, he/she assumed the best-case scenario when there will be no traffic delays.

Too much optimism leads to unnecessary confrontations. In many economic situations, several participants $1, \ldots, n$ can jointly reach a situations in which everyone's utility increases from the original value $u_i^{(0)}$ to the new value $u_i > u_i^{(0)}$, so each difference $v_i \stackrel{\text{def}}{=} u_i - u_i^{(0)}$ is positive. Often, there are several such possible alternatives, so a natural question is which of them the participants should select. The Nobelist John Nash showed that under reasonable conditions, the participants should always select the alternative in which the product of utility increases $v_1 \cdot \ldots \cdot v_n$ is the largest possible.

At first glance, Nash's result does not apply to zero-sum situations, when we have two parties with exactly opposite gains $v_2 = -v_1$, gains whose sum is 0. This argument holds when both sides know exactly the expected gain of each situation. If we only know the range $[\underline{v}_i, \overline{v}_i]$ of possible gain values, then, when $\alpha_i > 0.5$, it is possible that both values $v_i(\alpha)$ are positive, so the seeming enemies cooperate.

At first glance, there is nothing wrong with cooperation – this is what should bring the world peace. However, if we proportionally increase all the gains by the same constant c, then each values v_i is multiplied by c, and thus, the product $v_1 \cdot v_2$ is multiplied by c^2. So, if there is a chance to keep a conflict minor or to intensify the conflict (i.e., to proportionally increase all the values $\overline{v}_i$ and $\underline{v}_i$), then Nash's solution always selects the most intense conflict – and such conflict often leads to a disaster.

Conclusion. To avoid all these negative consequences, let us make sure that $\alpha \leq 0.5$ for our α.