

## Competitive versus Destructive Envy: An Insightful Distinction?

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Paper presented at the IAREP-SABE conference, 5-8 July 2006, Paris

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### Abstract

People frequently exhibit envious and spend significant resources on positional concerns. Envious behavior is detected when an agent is willing to reduce the gap between his payoff/situation and the payoffs/situation of the others, through the achievement of a costly effort. This attempt can have two orientations: an agent characterized by a competitive or white envy is willing to pay at time  $t$  in order to have the chance in period  $t+1$  to reach or to keep up with the Joneses' situation. An agent characterized by destructive envy is willing to pay at time  $t$  in order to have the chance in period  $t+1$  to reduce the others absolute payoffs, i.e., to push them downwards. Our empirical strategy is twofold. First, we experimentally investigate competitive and destructive forms of envy in two member teams interacting for two periods in which the states of the world differ by the relative monetary situations of the agents. Second, we use survey data to provide empirical information about envious concerns. Respondents choose between hypothetical worlds depicting contextualized envy behavior. Our empirical analysis shows (1) that people exhibit both competitive and destructive forms of envy and (2) that the competitive and destructive forms of envy vary among domains. The policy and development implications of such envious behaviors are considerable. A major insight from our analysis is that underdevelopment may be partly due to destructive envy, leading envious people to push the others downwards.

**Key words:** Envy; Behavioral economics; Subjective well-being; Positional concerns.

### Introduction

"In the misfortune of our best friends, we always find something that is not displeasing to us." (La Rochefoucauld, 1667)

"Envy is a drive which lives at the core of man's life as a social being, and which occurs as soon as two individuals become capable of mutual comparison". (Schoek, 1966, p.1)

The idea that interpersonal comparisons matter in agents' subjective well-being is so pervasive that the economics literature has recently devoted more attention to related issues such as position goods and envy. Envy is so obvious – the fact that a person is unhappy if someone from his reference group has more than he has – that attempting to define it precisely seems unnecessary. Nevertheless, an envious person may invest efforts in order to reduce the gap between himself and the envied person. Reducing the gap may follow two distinct but non-mutually exclusive paths. First, the envious individual may invest in order to reach the level enjoyed by the envied individual. Second, the envious individual may invest in order to reduce the position of the envied individual, even by incurring a cost. While the

final result may seem similar (gap reduction between the envious and envied people), the implications are significantly different. For example, the first strategy, labeled as *competitive envy* (closely related to the concept of ambition), may boost efforts in order to reach a higher level of the thing envied, e.g., the neighbor's income. Inversely, the second strategy may destroy (*destructive envy*) one's efforts to stand out from the crowd. In more mundane words, envy may generate a race to reach the envied person or a destructive investment to push him downwards. Our paper focuses on these two dimensions of envy. It explores two hypotheses, i.e., competitive and destructive envy matters and their magnitude varies among domains. We contend that the dominant form of envy (a micro-motive, at the individual level) may at least partially explain certain macroeconomic variables, e.g., development (related to innovation).

The remainder of the paper is organized as follows. The next section briefly explores the related literature. The third section provides a conceptual framework to introduce the two dimensions of envious behaviors. The fourth section uses laboratory experiments and

survey data to investigate experimentally competitive and destructive envy. Results are discussed. The last section is devoted to policy implications and conclusive remarks.

## 1. Competitive envy versus destructive envy: Related literature and main concepts

A growing economic literature supports that individuals are motivated at least partly by concerns about their relative position and frequently envy someone else's consumption. A good introduction to the economics literature on envy may be found in Hammond (1989; see also Chaudhuri, 1985; Kolm, 1995). To define the unemotional economists' concept of envy, regardless of one's emotional or psychological state or of the influence of this situation on future behavior – preference to join with or to harm the other (Hammond, 1989, p. 165) –, consider any allocation  $(x_g^i)$  ( $g=1$  to  $n$ ;  $i=1$  to  $m$ ) of  $n$  goods to each of  $m$  individuals. These individuals are supposed to have preferences represented by an ordinal utility function  $U^i(x^i)$  of each individual  $i$ 's own net consumption vector  $x^i$ . Then the individual  $i$  is said to envy  $j$  if  $U^i(x^j) > U^i(x^i)$ , so that  $i$  prefers  $j$ 's allocation to his own. Noteworthy, we do not envy each individual in a given society, but 'we envy those who are near us in time, place, age or reputation' (Rhetoric, 1338a quoted in Ester 1991, p. 52). In other words, we do not envy Bill Gates' fortune but those who are closest to us in the considered domain, such as our neighbors, colleagues, friends or family members. Goel and Thakor (2005) provide a recent and comprehensive literature review. Interestingly, they stress some differences between envy and inequity-aversion literature (e.g., Fehr and Schmidt, 1999) and the 'keeping up with the Joneses' literature<sup>1</sup>. We will not replicate a similar review but rather focus on papers more directly related to our contribution.

We contend that envy may generate *two kinds of behavior that is to say competitive or white envy versus destructive or black envy*. They are not mutually exclusive and frequently co-exist. They have been sparsely considered in the literature. One stream of literature emphasizes the destructive consequences of envy (Schoeck 1966), when an envious person "prefers that others have less, and he

might even sacrifice a little of his own wealth to achieve that end" (Zeckhauser 1991, p. 10). Such behavior has been supported by experimental evidence (Kirchsteiger 1994; Mui, 1995; Zizzo and Oswald, 2001). An envious person increases his utility by destroying some of the others' assets, even if this is costly for him. For instance, Zizzo and Oswald (2001) show that people dislike other individuals' wealth sufficiently that they would be willing to pay some of their own money to reduce it. In Mui (1995), an innovator introduces an innovation and the envious follower may retaliate at a personal cost. The main result is that the threat of retaliation may deter innovation.

A contrasting stream of literature argues that positional concerns may lead to invest more in order to achieve a status similar to the envied person. Marglin (2002, p. 23) describes envy as a 'virtue' that 'serves an economic purpose in motivating individuals to maximum exertion and effort. The desire to improve one's relative status is the engine that drives the economic train (...). Envy [is] functional in promoting hard work, accumulation and economic growth.' Indeed, the desire to get more, or at least the same amount of the envied thing, may motivate people adopting a productive behavior. This form of competitive envy has been considered as a powerful driver of the development of the American society (Matt, 2003) and as the 'drive wheel of our modern world' (Palaver, 2004 and references therein). In this literature stream, a lack of envy or anti envy devices (the so-called 'envy trap'<sup>2</sup>) either formal or informal, may prevent economic development (Tyler, 2004).

## 2. Conceptual framework and hypotheses

Similarly to Hirschman and Rothschild (1973), consider a society composed of two (or groups of) persons labeled  $A$  and  $B$ . Assume that their utilities are interdependent in two distinct ways.  $A$ 's utility depends on his own consumption level  $C_A$ , on his expected consumption level  $E_A$  and on  $B$ 's consumption level,  $C_B$ . Assume also that  $A$ 's expectations  $E_A$  partly depend on  $B$ 's consumption.

$$U_A(t) = V_A(C_A(t), E_A(C_B(t)), C_B(t))$$

It is obvious to assume that  $A$ 's utility increases with his present and future consumption levels, that is to

$$\text{say } \frac{\partial V_A(t)}{\partial C_A(t)} \geq 0 \quad \text{and} \quad \frac{\partial V_A(t)}{\partial E_A(t)} \geq 0.$$

<sup>1</sup> Another interesting paper is the study of Lehman (2001) in which "individuals reported satisfaction with the results of a sales competition between two stores in the same market for various combinations of sales in the current and previous periods. The subjects were more satisfied when the sales were equal but low for both the stores than when their own sales were higher but the sales of the competitor were even greater" (Goel and Thakor, 2005).

<sup>2</sup> Kaplan, B., 2005, *Escaping the Envy Trap*, *Econlog Issues and Insights in Economics*, [http://econlog.econlib.org/archives/2005/09/escaping\\_the\\_en.html](http://econlog.econlib.org/archives/2005/09/escaping_the_en.html)

The effect of  $B$ 's consumption on  $A$ 's utility is more ambiguous.  $A$  evaluates it in two ways –first, according to whether  $B$ 's success (or failure) considered by itself pleases or displeases him and second, depending on what he thinks  $B$ 's fate means for him. Thus,

$$\frac{\partial U_A(t)}{\partial C_B(t)} = \frac{\partial V_A(t)}{\partial C_B(t)} + \frac{\partial V_A(t)}{\partial E_A(t)} \frac{\partial E_A(t)}{\partial C_B(t)}$$

On the right side, the first term is the pure effect of  $C_B$  on  $V$ , which is likely to be negative because  $A$  is supposed to be driven by destructive envy. The

second term  $\frac{\partial V_A(t)}{\partial E_A(t)} \frac{\partial E_A(t)}{\partial C_B(t)}$  reflects  $A$ 's concern

for  $B$ 's consumption as an indicator of his own future consumption level, what corresponds to a competitive

envy. Empirically, the sign of  $\frac{\partial U_A(t)}{\partial C_B(t)}$  may be

interpreted as a test of the relative magnitude of these two effects. A negative sign indicates that destructive envy dominates competitive envy. A positive sign means that the competitive envy dominates the destructive envy. Hirschman and Rothschild (1973) coined the term 'tunnel effect'. In the authors' words, "the tunnel effect operates because advances of others supply information about a more benign external environment; receipt of this information produces gratification; and this gratification overcomes, or at least suspends, envy. Though long noted as the most uninviting of the seven deadly sins because, unlike lust, gluttony, pride, etc., it does not provide any initial fun to its practitioners, envy is nevertheless a powerful human emotion. This is attested to by the writings of anthropologists, sociologists, and economists, who all have proclaimed, in general quite independently of one another, that if you advance in income or status while I remain where I was, I will actually feel worse off than before because my relative position has declined" (Hirschman and Rothschild, 1973, p. 546). In a similar way, a consumption gap, *i.e.*,  $B$  consumes more than  $A$  can be interpreted in two different, but non-mutually exclusive ways and accordingly has two opposite effects on individual well-being. Destructive envy may generate the desire to decrease  $B$ 's consumption because such a decrease will improve  $A$ 's well-being while competitive envy may indicate to  $A$  that  $B$ 's increase may predict an increase in his future consumption.

Exhibiting no envy at all or destructive or competitive envy can lead to different behaviors, according to the extent of personal involvement in the reducing consumption gap action: an agent can be *neutral* to the consumption gap, he may *be willing* to reduce it, or may *undertake an action* to reduce it. The last two possibilities are difficult to distinguish, because the action means the willingness to reduce the gap, but

individuals can be willing to reduce the gap without undertaking observable actions. Actions aiming at reducing the gap may be either competitive, when the envious individual invests in order to reach the level enjoyed by the envied person or destructive, when the envious individual invests in order to decrease the absolute level enjoyed by the envied person. We contend that the gap between the willingness to envy and the envy action is smaller when related to competitive envy than to destructive envy. The main reason of such a contention is the 'moral' cost of involvement in the action that intuitively higher in the destructive alternative.

In the following, we explore three hypotheses related to the two dimensions of envy stressed above:

**H1:** Destructive and competitive envy matters in human decision making. In other words, people compare themselves to others in their reference group and are envious. Their relative position matters and they undertake actions to reduce the gap with others, either competitively, either destructively or both.

**H2:** Envy matters much more for some goods and attributes than it does for others.

**H3:** Envy is stronger in some domains than in others and the magnitude of destructive and competitive envy varies among domains. Similarly to Solnick and Hemenway (1998, 2005), we hypothesize that goods are more envied than bads and that private goods are more envied than public goods.

### 3. Empirical strategy

In our article, we investigate envy behavior using two complementary empirical strategies, *i.e.*, a decontextualized experiment and a survey. First, we designed a decontextualized experiment in which participants play in two member teams (player-opponent) and make choices about uncertain states of the world and are paid according to the achievement of these states and their choices. In order to implement the required social neighbourhood among participants in our experiment, our 212 experimental subjects were recruited among undergraduate students in the universities and schools in Dijon. The experiment was paper-based and was conducted in November 2005.

In our experimental design, each participant is confronted with 2 situations. Each situation is divided into two periods. In each period, a high and a low endowment are distributed between the *player* and his *opponent* (their roles are randomly chosen). The experimenter allocates the initial endowments and the

distribution of the endowments in period 2 is chosen by the *player*: in the first situation, the endowment disparity is in the favour of the player but the opponent is about to get the high endowment too; in the second situation the endowment disparity is in favour of the opponent.

These situations are prevailing in the first period and the player has the possibility to choose the state of the world in period 2. A common knowledge risk is associated with the achievement of the future state of the world. The player has the possibility to accept the initial income distribution (neutral envy), to invest an amount of his initial endowment in order to have access to the possibility to see the opponent's endowment decreasing/remaining to the low level (black or destructive envy), or to invest an amount of his endowment in order to reach/bypass the high endowment himself (white or competitive envy). Following Kovacs et al. (2005), the high endowment equals 10 euros, the low endowment 3 euros, the cost of the competitive envy investment equals 2 euros, the cost of the destructive envy investment equals 1 euro and there are 20% of risk in the realisation of the situations related to non-neutral choices. Participants receive the real endowments in euros at the beginning of the experiment and are paid at the end according to the decisions made by the player. The decontextualized experiment will serve us as a benchmark to detect envy. Figure 1 reports our experimental design. The last 2 options in period 2 have a chance of realisation of 80% (according to the 20% risk).

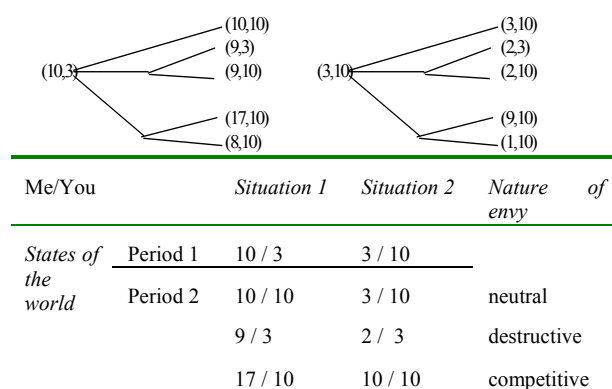


Figure 1. Experimental design

Second, our article uses survey responses to hypothetical questions related to several contextualized situations. In order to ensure social proximity, the survey respondents were also attending undergraduate courses at the University of Burgundy. The survey was administrated in April 2006 and June 2006 to a sample of 200 participants. Despite some criticisms against hypothetical questions as an empirical strategy, several scholars (Thaler, 1987; Camerer and Hogarth, 1999) have expressed confidence in hypothetical surveys. They

acknowledge that there is no significant difference between subjects who respond to hypothetical questions and those who receive some monetary incentives. “Thaler (1987), who after reviewing a number of studies in which the difference between real and hypothetical payments did not yield important differences in results notes that (p. 120): ‘Asking purely hypothetical questions is inexpensive, fast, and convenient. This means that many more experiments can be run with much larger samples than is possible in a monetary-incentives methodology.’”

In our survey, the player is replaced by the responder and the opponent by a reference group. We ask questions about public goods and private goods and about goods and bads. Each question on our survey presents four states of the world. For each state, the question reports the relative positions of the respondent, or the respondent’s reference group, with respect to a certain item distribution. Each initial situation is such as  $x_i^1 < x_j^1$  ( $i$  stands for the responder,  $j$  for the reference group, 1 and 2 for the present and future situation). The responder has the possibility either to make a costly effort in order to reduce the gap between  $x_i$  and  $x_j$ , either to not undertake the costly effort option. Following the previous table, when the agent takes the effort, the future situation can be such as  $x_j^2 < x_i^2 < x_i^1 < x_j^1$  (destructive envy) or such as  $x_i^2 = x_j^2 = x_j^1 > x_i^1$  (competitive envy). When the agent does not take the effort, the future situation is  $x_i^2 = x_i^1 < x_j^1 = x_j^2$ , but this situation can correspond to neutral envy (acceptation) or to a weaker form of envy in which the responder can claim that the result is erroneous or give some fallacious justifications of his position (willingness to destructive envy).

Asking participants questions about themselves can induce their answers (the experimenter bias related to participants giving the answers that they think the experimenter would like to receive from people that he is likely to appreciate). To avoid such a bias, we also ask to similar participants questions about others’ actions. In this case, the initial situation is such as  $x_i^1 > x_j^1$ , with previous notations, and the responder has to choose the situation that he thinks the others would have chosen. Eight questions were asked to participants<sup>3</sup>. An example of one of the question (translated from French, the language in which the original survey has been administrated) is given below:

**Excerpt from the survey about the individual’s behaviour**

*Your actual income is 100 000 euros per year and your colleagues’ income is €150 000 this year. What do you prefer for next year?*

<sup>3</sup> A full version of the questionnaire in French is available from authors upon request.

- A. Change nothing
- B. I earn 90 000 euros and my colleagues earn 80 000 euros.
- C. I make all possible efforts to earn 130 000 euros.
- D. I complain that my performance is equivalent to theirs, so their salary is unjustified.

**Excerpt from the survey about the others' behaviour**

Your actual income is 150 000 euros per year and your colleagues' income is €100 000 this year. What do you think your colleagues prefer for next year?

- A. Change nothing
- B. They earn 90 000 euros and I earn 80 000 euros.
- C. They make all possible efforts to earn 130 000 euros.
- D. They complain that my performance is equivalent to theirs, so my wage is unjustified.

Concretely, option A corresponds to neutral envy, option B corresponds to destructive envy related to an action; option C corresponds to competitive envy and

option D corresponds to the willingness of destructive envy. We contend that destructive envy and positional concerns are more detectable in the second formulation. We therefore formulate an additional hypothesis (**H4**) as follows:

**H4:** Destructive envy is more easily detected as a perception of others' actions rather than as an expression of oneself's actions.

**4. Results and discussion**

*"Studies of peasant societies find that "black" envy is widespread in them that is, if your neighbour has a nicer barn than yours, you'd prefer to burn it down than to exert yourself to build an equally good barn. "White" envy, in contrast, better described as emulation, promotes economic growth."*

(Posner, 2006)

Results are reported in tables 1, 2 and 3. The first result of the decontextualized experiment shows that envy matters (table 1). Moreover, participants exhibit more destructive than competitive envy (**H1**).

	Destructive envy	Status quo	Competitive envy
The endowment disparity is in the favor of the opponent	60%	11%	29%
The endowment disparity is in favor of the player, but the opponent is about to get the high endowment too	50%	18%	32%

**Table 1. The decontextualized experiment**

The two following hypotheses (**H2** and **H3**) are also confirmed that is to say that envy matters much more

for some goods and attributes than it does for others. (table 2).

Me	DEGREE	SCORE	WAGE	POLLUTION	ROADS	AWARD	CLOTHES	WORK
Competitive envy	22,32%	76,99%	65,79%	51,33%	13,39%	56,25%	0,88%	44,64%
Destructive envy (action)	19,64%	1,77%	9,65%	5,31%	18,75%	2,68%	12,39%	41,07%
Destructive envy (willingness)	2,68%	1,77%	2,63%	1,77%	2,68%	1,79%	1,77%	2,68%
Status Quo	55,36%	19,47%	21,93%	41,59%	65,18%	39,29%	84,96%	11,61%

**Table 2. Envy and "me"**

Lastly, when answering questions about themselves, participants exhibit lower levels willingness of destructive envy. In contrast, the percentage of

individuals choosing destructive envy based actions is higher confirming **H4** (table 3).

Others	DEGREE	SCORE	WAGE	POLLUTION	ROADS	AWARD	CLOTHES	WORK
<i>Competitive envy</i>	12,74%	58,82%	42,57%	58,41%	26,47%	69,00%	12,87%	18,81%
<i>Destructive envy (action)</i>	29,41%	14,70%	40,59%	18,81%	43,13%	10,00%	37,62%	66,33%
<i>Destructive envy (willingness)</i>	11,76%	0,98%	3,96%	3,96%	2,94%	7,00%	2,97%	4,95%
<i>Status Quo</i>	46,07%	25,49%	12,87%	18,81%	27,45%	14,00%	46,53%	9,90%

Table 3. Envy and "the others"

Interestingly, from a methodological viewpoint, using hypothetical questions to elicit people preferences may be improved by asking questions related to others' behavior rather than the individual's own behavior.

## 5. Policy considerations and conclusive remarks

We may draw several insights for policymakers. First, envy is intuitively a good candidate for micromotives that has macro-effects. We contend that the literature on transition and innovation-based development has not devoted sufficient attention to the role of moral and psychological factors. Indeed, competitive or emulative envy may be considered as the motor of economic development and growth while destructive envy may prevent such a competition needed to growth. According to the prevailing feeling in a given society, policymakers willing to promote growth cannot use a 'one size fits all' policy. In societies dominated by competitive envy, helping leaders to emerge may emulate others to join them. Inversely, in societies dominated by destructive envy, egalitarian policies are likely to be more effective than policies oriented towards leaders. Such effects may at least partially explain why policies of developed countries failed to promote a similar development path in developing countries characterized by a different dominant envy. An important and intriguing issue relates to the process(es) or path(es) by which destructive envy may be transformed into competitive envy.

Second, in societies dominated by competitive envy, successful people are more likely to publicize their success and fear less being envied by others. Conversely, in destructive envy societies, people may be more likely to hide their success not to be envied by others, except if they feel themselves sufficiently protected against destructive strategies of the others from the reference group. Such effects may explain why incentives may be public information while individual results remain secret to prevent destructive strategy by reference group members (Charness and Kuhn, 2004). Indeed, such destructive strategies and the subsequent protective devices are negative sum game. This fact was well stressed in the definition of envy given by Rawls (1971, p. 532) "We may think

of [destructive] envy as the propensity view with hostility the greater good of others even though their being more fortunate than we are does not detract from our advantages. We envy persons whose situation is superior to ours (estimated by some index of goods . . . and we are willing to deprive them of their greater benefits even if it is necessary to give up something ourselves . . . . The individual who envies another is prepared to do things that make them both worse off if only the discrepancy between them is sufficiently reduced."

Envy is a pervasive feeling that can be found in every society. Envy may be either destructive or competitive or a combination of these two dimensions. The dominant dimension is likely to vary among domains. According to the dominant dimension, the behavior of individuals and their consequences differs significantly. Starting from this basic tenet, incorporating systematically envy into economic analysis can provide a refreshing way to consider conventional issues, such as transition, development but also at a lower level such as human relationships in organizations. A natural extension to our contribution is to test whether envy varies in magnitude and types among countries. Interestingly, a popular story depicting American versus Russian behavior seems to acknowledge such differences as follows: "One American farmer has a neighbor that just got a prize cow. A Russian farmer similarly has a neighbor with a prize cow. The American farmer's dream: to have a better cow than the neighbor. The Russian farmer's dream: that the neighbor's cow dies" (Grey<sup>4</sup>, 2001). We expect that our contribution will open a door to generate among economists the desire (maybe the envy) to go further on these cheeky and challenging issues.

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