6

Compensatory Reasoning in Choice

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> "Every excess causes a defect; every defect an excess. ... For everything you have missed, you have gained something else; and for everything you gain, you lose something."
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> **Ralph Waldo Emerson, Compensation**

The term *compensation* is commonly used in reference to the process of offsetting a deficiency or disadvantage in one area by emphasizing a strength or advantage in another. Despite its use in a wide variety of research, compensation as an inference-making mechanism has received surprisingly little attention in the literature. This chapter fills this void by introducing the notion of compensation to inferential reasoning and investigating its antecedents and consequences.

The discussion of compensatory processes in inferential reasoning is organized as follows. We begin by offering an overview of the existing research on compensation in psychology and decision making, underscoring the common pattern of compensation across different domains. We then examine the role of compensatory reasoning in context of the previously identified means of inferential reasoning. In this section, we define the unique properties of compensatory reasoning, outline its underlying processes, and identify the common scenarios in which compensatory reasoning is most likely to occur. We further identify the key domains of compensatory reasoning and document the role of compensatory inferences in consumer decision making and choice. We conclude by identifying the key boundary conditions of compensatory reasoning.

THE CONCEPT OF COMPENSATION

Based on its focus and underlying processes, we distinguish two types of compensation: self-regulatory, which deals with compensation directed toward the self,

and evaluative, which deals with compensation that is not directly related to self-regulation. These two types of compensation are discussed in more detail in the following sections.

Self-Regulatory Compensation

Self-regulatory compensation includes the psychological and behavioral mechanisms by which an individual attempts to make up for some negative internal or external event by creating a positive change in the self. Self-regulatory compensation processes can be observed in five distinct domains: physiological compensation, cognitive compensation, affective compensation, self-completion compensation, and behavioral compensation.

Physiological Compensation Physiological compensation refers to adaptations individuals make in response to physical handicaps. Researchers have found that individuals tend to overcome sensory handicaps by developing extraordinary sensitivity in a different sensory modality (e.g., Adler, 1924; James, 1918). The prototypical example involves the development of more sensitive hearing by a blind person to compensate for the lack of sight (Witkin, Oltman, Chase, & Freidman, 1971).

Evidence for physiological compensation has also been found within the same sensory modality. Research on neural plasticity in recovery from brain injury includes cases where functionality is restored through a physical "rewiring" of the brain (e.g., Fraser et al., 2002). In this context, the brain of the injured individual compensates for the loss of function caused by the damaged neuronal tissue by blazing new neural pathways through other, undamaged areas of the brain.

Cognitive Compensation Cognitive compensation involves overcoming deficiencies in cognitive abilities, including attention, perception, and memory. To illustrate, research on aging has shown that aging can negatively impact some of the specific skills associated with a task, such as recall and reaction time, without influencing the overall task performance (Charness, 1981; Salthouse, 1984). In this context, it has been argued that older participants can often compensate for the decline in specific abilities by developing new skills such as better global evaluations or more accurate anticipation, which allow them to maintain overall performance levels.

In addition to cognitive compensation caused by the deterioration of cognitive skills, compensation has also been documented in the area of learning disabilities. It has been shown that individuals with a learning disability in a particular domain can develop extraordinary ability on some other dimension. For instance, individuals with a learning disability impeding written and verbal communications might develop the ability for self-expression using such alternative means as painting and music (Schulman, 1986).

Affective Compensation Affective compensation involves the self-regulatory processes that enhance positive emotions in the presence of negative emotions. To illustrate, it has been shown that individuals who have suffered a

life-altering negative event, such as serious physical handicap, incarceration, or the loss of a loved one, tend to recover their well-being remarkably quickly (Frederick & Loewenstein, 1999). This finding has been attributed to the fact that these individuals often compensate for the traumatic negative events by focusing on other, more positive areas of their lives. In this context, research on bereavement has documented that the loss of a spouse is often accompanied by increased interaction with friends and relatives (Wan & Odell, 1983) and the development of new social networks that might include involvement in religious activities or voluntary associations (Ferraro & Barresi, 1982).

Compensation in Symbolic Self-Completion Self-completion compensation reflects an individual's attempt to attenuate a discrepancy between a desired and a perceived self-image by displaying external artifacts associated with this self-image. For example, it has been shown that business students with less experience are more likely to compensate for this shortcoming by wearing business attire (Wicklund & Gollwitzer, 1982).

Self-completion compensation can also be observed during mid-life crisis, a time marked by an increased salience of one's age and mortality (Hermans & Oles, 1999). In this case, individuals compensate for the loss of youthfulness and vigor by acquiring conspicuous outward symbols of youth and vitality—sports cars, cosmetic procedures, and much younger romantic partners.

Self-completion compensation can also result from momentary psychological states. For example, it has been shown that when faced with a threat to their self-image, individuals tend to display stronger preferences for self-expressive brands (Chernev & Gal, 2008a). Similarly, it has been documented that psychological states of powerlessness increase consumers' willingness to pay for status-related objects as a means of restoring their lost sense of power (Rucker and Galinsky, 2008).

Behavioral Compensation Compensation can also involve adjustments to behavior in response to changes in the external environment. To illustrate, it has been shown that individuals respond in compensatory fashion to changes in environmental risk levels (Hedlund, 2000). Thus, people take additional precautions when they perceive their risk to have increased (e.g., walking slower on an icy sidewalk) and engage in riskier behavior when external changes reduce the risk of certain activities (e.g., driving more recklessly in a car known to be equipped with anti-lock brakes).

In addition, individuals have been found to engage in behavioral compensation when faced with choices that involve making a tradeoff between goals. Thus, it has been shown that a decision that favors one goal over another (e.g., ordering a tasty, high-calorie entrée, thereby sacrificing the goal of being healthy in order to satisfy the goal of eating something delicious) is likely to be followed by a decision that restores the goal balance (e.g., opting for a more healthful but less tasty dessert), a behavioral phenomenon referred to as "balancing" (Chernev & Gal, 2008b; Dhar & Simonson, 1999).

Note that behavioral compensation, unlike other types of self-regulatory compensation, can be both positive (compensating for a deficiency) and negative (compensating for an excess). For example, an individual with a certain level of risk tolerance might not only compensate for an excess of risk by engaging in less risky behavior but might also engage in more risky behavior if an activity becomes sufficiently safe. In contrast, other types of self-regulatory compensation tend to be predominantly positive, allowing an individual to overcome a deficiency.

Evaluative Compensation

Research in judgment and decision making has identified other areas of compensation beyond self-regulation. Evaluative compensation involves judgments of external objects or events that are evaluated in a compensatory manner. Two types of evaluative compensation can be identified: compensation in decision processes and compensation in inferential reasoning.

In decision processes, compensation refers to the ability of an option's strength on one attribute to make up for a deficiency on another (Johnson & Meyer, 1984; Payne, Bettman, & Johnson, 1993). Two types of decision strategies can be distinguished: compensatory and noncompensatory. Compensatory strategies, part of most multiattribute utility models (Keeney & Raiffa, 1976), allow an option's strong performance on one attribute to compensate for its poor performance on another. Compensatory processes require explicit tradeoffs among attributes (Bettman, Luce, & Payne, 1998). In contrast, for noncompensatory strategies, such as elimination-by-aspects (Tversky, 1972), a deficiency on a particular attribute eliminates an option from further consideration regardless of its performance on other attributes. Noncompensatory processes allow decision makers to avoid making explicit tradeoffs by simply removing options with poor values from the consideration set.

In inferential reasoning, compensation refers to certain processes used to draw inferences about unavailable or ambiguous information. In this context, the term *compensatory reasoning* refers to a specific inference-making mechanism that is based on individuals' intuition regarding the relative attractiveness of alternatives in a given choice set. The role of compensation in inferential reasoning is discussed in more detail in the following section.

COMPENSATORY PROCESSES IN INFERENTIAL REASONING

This section examines compensation as a specific form of inferential reasoning and outlines the key domains in which compensatory reasoning commonly occurs.

Inferential Reasoning in Individual Decision Making

Building on the existing research on inferential reasoning (Broniarczyk & Alba, 1994; Ford & Smith, 1987; Huber & McCann, 1982), in this section, we focus

on two of the most common types of inferential reasoning: evaluative consistency inferences (or the "halo effect") and inferences based on perceived covariation.

Research in social psychology has shown that individuals rarely think of others in mixed terms; instead they tend to see them as consistent across domains. Thus, it has been shown that the first traits individuals recognize in other people influence the interpretation and perception of later ones (e.g., Kelly, 1955; Schneider, 1973)—a phenomenon also referred to as the "halo effect" (Nisbett & Wilson, 1977; Cooper, 1981; see also Ajzen, 1977). For example, it has been shown that attractive people are often judged as having a more desirable personality and a better skill set than people of average appearance (Asch, 1946).

Consistent with findings in social psychology, research in the area of consumer judgment and choice also has shown that individuals may form overall evaluations for each option on the basis of the available information and use these evaluations to infer the unobservable information (Beckwith & Lehmann, 1975; Dick, Chakravarti, & Biehal, 1990). According to this evaluative consistency strategy, the option that is superior on the observable attributes will be inferred to be superior on unobservable attributes as well.

Covariation-based inferences involve assuming that an option's true value on an unavailable or ambiguous attribute is related to its performance on one of the observable attributes. Consistent with this type of inference, the option that is superior on the believed-to-be-correlated attribute will be inferred to be superior on the unobservable attribute. Typical covariation patterns documented in prior research involve pairs of particular factors such as price and quality (Bettman, John, & Scott, 1986), brand name and quality (Janiszewski & Van Osselaer, 2000), and reliability and warranty (Dick, Chakravarti, & Biehal, 1990). To illustrate, individuals might believe that higher quality products are also more expensive (Lichtenstein & Burton, 1989), that higher priced products are likely to perform better on nonprice attributes (Huber & McCann, 1982), and that more reliable products are likely to offer a longer warranty (Broniarczyk & Alba, 1994).

Both evaluative consistency inferences and inferences based on covariation are derived from the assumption that individuals strive for consistency when evaluating missing or ambiguous information. In contrast, the compensatory reasoning approach implies that inferences do not always need to be consistent with the readily available information and that in certain conditions can lead to directionally opposite outcomes. The rationale for these predictions is outlined in more detail in the following sections.

Compensatory Reasoning as an Inferential Process

Recent evidence suggests that in addition to evaluative consistency and covariation of attributes, individuals may also engage in compensatory reasoning to infer incomplete information. In this case, compensatory reasoning is typically driven by a discrepancy between the expected and observed performance of decision alternatives. In particular, compensatory inferences are drawn in scenarios in which individuals who expect options in a given choice set to be balanced in their overall attractiveness are presented with a set in which one option is significantly less (or

more) attractive. In this context, compensatory reasoning involves processes used to infer unavailable or ambiguous information, such that an option's deficiency on one dimension is compensated for by high values on another, and vice versa.

To illustrate, imagine the sales listings for two similar houses. The listings reveal some information about each house, such as price and size, but also leave out some information. If one of the listings was clearly superior on the available information (e.g., a bigger house at a lower price), an individual using compensatory reasoning might infer that this house would be inferior on some of the unavailable information (e.g., located in a bad neighborhood or in need of repairs).

Conceptually, the discrepancy between the intuitively expected and actually observed dispersion of options' performance can lead to negative or positive compensation. Negative compensation involves a scenario in which individuals who expect the overall performance to be balanced across all options are presented with a set in which one option dominates the others (e.g., three cars of the same make, model and year, but one is priced significantly lower). In contrast, positive compensation involves a scenario in which individuals who expect the overall performance to be balanced across all options are presented with a set in which one option is inferior to the others (e.g., three similar cars, but one is priced significantly higher). Unlike negative compensation, which involves devaluing the ostensibly more attractive option, positive compensation involves enhancing the performance of an ostensibly unattractive option. Note that despite the difference in direction (enhancement vs. devaluation), both negative and positive compensation aim to resolve the discrepancy between the observed and expected information, thus leading to the same outcome, which involves balancing the overall performance of choice options.

Compensatory reasoning can be better understood when contrasted with evaluative consistency and covariation-based inferences. Recall that evaluative consistency inferences are based on the assumption of imbalance, such that an option that is partially good must be all good and an option that is partially bad must be all bad. The evaluative-consistency strategy is, therefore, directionally opposite to compensatory inferences. Thus, unlike an individual who makes evaluative consistency inferences, an individual who employs a compensatory strategy will infer that an option that is dominant on observable attributes is inferior on unobservable attributes.

Compensatory inferences can also be contrasted with inferences based on observed covariation between attributes. Unlike inferences based on perceived covariation, in which an option's performance on a particular attribute is based on previously observed covariation with other attributes, compensatory inferences derive an option's values from the decision context defined by the other alternatives in the set. These context-based compensatory inferences stem from an individual's belief that options in a given choice set are balanced in a way that advantages on one dimension are compensated for by disadvantages on another, even in the absence of prior attribute-specific covariation beliefs. Thus, an option that excels on a particular attribute can be inferred to be inferior on some of the other attributes simply based on the belief that the overall performance of options in the choice set must be balanced.

Compensatory Decision Processes

There are three common contexts in which individuals are likely to draw compensatory inferences: (1) when evaluating ambiguous information, (2) when inferring missing values of readily identified attributes, and (3) when inferring options' values on attributes that are not identified at the time of the decision. These three types of compensatory reasoning strategies are outlined in more detail below.

Compensatory Reasoning in Evaluating Ambiguous Information

Individuals are often presented with decisions in which options are described on attributes that involve a certain level of ambiguity about their relative performance. For example, descriptors like a PanaBlack screen (Panasonic) and Smart Picture (Magnavox) are used to communicate the quality of a television screen, and ingredients such as Fluoristat (Crest) and Triclene (Aquafresh) are used to differentiate competitive brands of toothpaste. Similarly, many products are described in qualitative terms, such as color protection and stain-removal characteristics of a laundry detergent, which makes evaluating the relative performance of these options difficult. When unfamiliar with the precise meaning of product characteristics, individuals are uncertain about whether choice alternatives in fact vary in their performance on these attributes and which option has higher utility. Faced with a discrepancy between the intuitively expected and the actually observed information, individuals tend to strategically use the ambiguity in product descriptions to draw inferences that compensate for the observed discrepancies (Chernev, 2007). Consider a consumer who is evaluating the (ambiguous) claims of color protection made by two equally priced laundry detergents. If one of these detergents also claims to be superior on some other attribute (e.g., stain removal), consumers might draw compensatory inferences and conclude that this detergent's color protection is not as good.

Compensatory Reasoning in Inferring Missing Values of Readily Identified Attributes

Individuals often must make decisions in situations when some of the relevant information is not readily available for all options (Kivetz & Simonson, 2000). To illustrate, an individual choosing a wireless service provider could have a well-defined list of attributes that are important in making a decision. However, values on each of these attributes might not be readily available for all service providers (e.g., information on coverage area might be easily assessable for some providers but not others). In cases when one of the options is clearly inferior (superior) based on the available information, compensatory reasoning is likely to lead to inferences about the missing attribute values in a way that benefits (detracts from) the option inferior (superior) on the observable attributes, thus balancing the overall performance of the options.

Compensatory Reasoning in Inferring Missing Attribute Dimensions

In addition to making inferences about the performance of options on readily available attributes, individuals often make inferences about the presence of attributes on which option performance will vary in a way that resolves the observed discrepancy. To illustrate, when presented with a choice set in which one option clearly

dominates the others, individuals who expect options to be balanced in their overall performance are likely to assume the presence of an unobservable attribute on which this option is deficient (Chernev & Carpenter, 2001). Thus, individuals might resolve the discrepancy between the observed and expected information by making inferences about attributes that are not readily available at the time of the decision. For example, an individual who observes two equally priced wireless service plans, one of which dominates on the observable attributes, may infer the presence of an unobserved attribute—such as customer service, reliability, or nondisclosed fees—on which the apparently dominant plan is inferior.

Domains of Compensatory Reasoning

Individuals rely on compensatory reasoning to make judgments in a variety of domains. Some of the most common scenarios in which compensatory inferences are drawn involve social perception, making probabilistic judgments, and evaluating product performance in consumer choice. These types of inferences are discussed in the following sections.

Compensation in Social Perception

Individuals very often must make inferences about the traits, skills, and abilities of others. Compensation in social inference making is based on the assumption that if a person shows some exceptional skill or ability on one dimension, he or she is likely deficient on some other dimension. These inferences could be based on a naïve capacity theory, which assumes that people have a finite amount of skills, abilities, or talent. The implication is that exceptional ability in one domain must leave less ability to be distributed across other domains. For example, an individual who excels on some easily observable dimension, such as physical attractiveness or athletic prowess, may be assumed to be deficient on some less easily observed dimension, such as intelligence or kindness.

Compensation in social perception is also revealed in inferences based on the inherent belief that the world is ultimately just and fair (Lerner, 1980). As a result of this belief, people are often motivated to infer that observable positive or negative attributes are offset by some counterbalancing factors. Thus, "the poor" may be perceived of as happy and honest, while "the rich" are seen as miserable and dishonest (Kay & Jost, 2003). Likewise, stereotypes that are high in warmth tend to be low in competence, and vice versa (e.g., Fiske, Xu, Cuddy, & Glick, 1999). Other common examples of stereotypes that excel on one dimension while being deficient on another include the "dumb blonde" (high physical attractiveness balanced by low intelligence), the "absent-minded professor" (high intelligence balanced by low common sense or poor memory), and the "shy bookworm" (high intelligence balanced by weak social skills).

Compensation in Probabilistic Judgment

In making judgments about the likelihood of randomly generated events, it is common for people to act as if future outcomes can compensate for past events in the same series. The application of this type of compensatory reasoning to probabilistic judgment can result in

a bias known as the "gambler's fallacy." Gambler's fallacy involves the belief that a random event is more likely to occur because it has not happened for a period of time. An example of this fallacy is the commonly held belief that if a series of spins on a roulette wheel has resulted in a string of reds, then black is "due" and hence, a better bet. In this context, future events are viewed as a self-correcting process in which deviation in one direction leads to deviation in the opposite direction to restore the underlying equilibrium (Tversky & Kahneman, 1974).

Compensatory reasoning in probabilistic judgments can be contrasted with the notion of regression toward the mean, introduced by Galton (1886) to describe the general tendency for multiple draws of a random variable to converge on the mean. Although conceptually similar to compensatory reasoning, regression toward the mean describes a naturally occurring phenomenon rather than a pattern in an individual's reasoning processes. Furthermore, unlike compensatory reasoning, which has been used to account for observed inferences that individuals make, regression toward the mean often has been shown *not* to influence individuals' decision making, even when it should (Tversky & Kahneman, 1974).

In addition to social perception and probabilistic judgment, compensatory reasoning also can be applied to inferences made by consumers in the presence of unavailable or missing information. Compensatory reasoning processes in consumer decision making are discussed in more detail in the following section.

COMPENSATORY REASONING IN CONSUMER DECISION MAKING

The discussion of compensatory reasoning in choice revolves around two main issues: the market-efficiency assumption in compensatory reasoning and compensatory reasoning effects in consumer choice.

The Market Efficiency Assumption in Compensatory Reasoning

Compensatory inferences are typically drawn in the presence of a discrepancy between the observed performance of decision alternatives and an individual's belief that options in the choice set should be balanced in their overall performance. In consumer choice, this assumption of balance is often based on the notion of market efficiency. The market-efficiency assumption reflects an individual's belief that offerings are priced at value parity, such that the benefit-cost tradeoffs are constant across options (Chernev & Carpenter, 2001). Thus, in highly efficient markets, the ratio of benefits and costs is constant, such that all offerings are value-equivalent: Higher priced products are also of better quality, and vice versa. In less efficient markets, individuals expect less value parity and a greater dispersion of total benefits at a given price. When presented with scenarios in which options are not at value parity (e.g., one of the options dominates all others), individuals who expect the market to be efficient are likely to draw inferences that compensate for the observed discrepancy and restore the value parity across options.

From a conceptual standpoint, market-efficiency compensatory reasoning can be thought of as two-stage price–quality inferences. Most of the existing research (Huber & McCann, 1982; Johnson & Levin, 1985) has treated the price–quality relationship as a one-stage process in which individuals infer missing quality information on the basis of the observable price, or vice versa. In contrast, inferences based on market efficiency occur in a scenario in which individuals infer relative performance of options on a given nonprice attribute according to options' performance on the other nonprice attributes. In this case, individuals base their inferences not simply on the price–quality relationship but rather on their expectations of the dispersion of the value offered by the options in the choice set. Thus, in a market perceived to be efficient, individuals faced with a set of equally priced options are likely to make an inference that these options should offer equal benefits. Individuals then use this inferred performance parity to make an inference about the unobservable attribute. When one of the options is superior on the observable attributes, individuals are faced with an inconsistency between the observed and the expected information. In an attempt to restore balance to the perceived value of the alternatives, individuals may infer that the observably superior option is inferior on the unobservable attribute (Chernev & Carpenter, 2001).

Compensatory Reasoning Effects

Building on prior research, we identify three types of compensatory effects: (1) compensatory inferences associated with evaluating a single option on a particular attribute, (2) compensatory inferences in evaluating the relative performance of multiple options, and (3) compensatory inferences associated with evaluating all-in-one and specialized options. These three types of compensatory effects are discussed in more detail in the following sections.

Compensatory Reasoning in Evaluating Attribute Performance of a Single Option

Individuals often have to infer a single option's performance on an unobservable or ambiguous attribute based on the information about this option's performance on another attribute. In this case, compensatory inferences are based on the available information about this option's performance, as well as on individuals' beliefs about the typical dispersion of these attributes in different options in the market. Thus, when faced with an option with an extreme value on one attribute, individuals who expect options to be at value parity might infer that this option is likely to be deficient on at least one of the other attributes. These inferences can lead to both negative compensation (when the option is relatively attractive) and positive compensation (when the option is relatively unattractive).

The belief that consumers are likely to use compensatory reasoning to infer overall performance when faced with an option with extreme values is quite common among managers. Thus, a common marketing strategy involves positioning an option as inferior on a particular (typically irrelevant) attribute. To illustrate, Smuckers argues that its awkward-sounding name is, in fact, an indication of the quality of its products: "With a name like Smuckers, it has to be good." In the same vein, Listerine argues that its unattractive taste is an indication of the effectiveness

of its mouthwash: "If it did not taste so strong it would not be working. Listerine has the taste people hate." The NO-AD brand of sunscreen implies that because it is not advertised it is able to provide a better product/value to consumers. The rationale for this strategy is the compensatory belief that an option's inferiority on a particular (typically irrelevant) attribute must be compensated by superiority on another (typically more important) attribute. The effectiveness of this strategy has been partially supported by prior research, which has demonstrated that adding an unattractive feature can actually increase an option's purchase likelihood (Simonson, Carmon, & O'Curry, 1994). For example, it has been shown that adding a negligible negative feature (e.g., a scratch on the side panel of a television) can increase the offering's overall attractiveness in cases when a product is priced below the market price.

Compensatory Reasoning in Evaluating the Relative Performance of Multiple Options

Individuals are often faced with multiple decision alternatives that share an unobservable or ambiguous attribute. In this case, they draw inferences about the relative performance of options on the unobservable attribute based on the observed dispersion of their performance and already formed expectations about the relationship between products and/or product attributes. Thus, prior research has shown that when given a decision set in which one of the options dominates the others on all observable attributes, individuals drawing a compensatory inference are likely to infer that this alternative is deficient on an attribute whose values are unknown or ambiguous (Chernev & Carpenter, 2001). It has further been documented that individuals can draw such compensatory inferences even in the absence of well-established beliefs about the likely dispersion of options' performance in the market by implicitly learning the dispersion pattern of performance in sets for which it is readily observable.

Compensatory Reasoning in Evaluating the Relative Performance of Specialized and All-in-One Options

The compensatory reasoning paradigm also can be applied to consumer evaluations of specialized and all-in-one options (Chernev, 2007). Here the term *specialized* is used in reference to options described by a single attribute, whereas the term *all-in-one* is used for options that are described by a combination of attributes. Compensatory reasoning effects in evaluating specialized and all-in-one options can be illustrated as follows. Consider a set of three alternatives, each described on two attributes: Specialized option A is differentiated by the first attribute (e.g., cavity-prevention toothpaste), specialized option B is differentiated by the second attribute (e.g., tartar-protection toothpaste), and the all-in-one option C is differentiated by both attributes (e.g., cavity-prevention and tartar-protection toothpaste).

Consistent with the compensatory reasoning theory, it has been shown that individuals are likely to equate the overall attractiveness of these options, devaluing performance on some of the attributes while enhancing performance on others (Chernev, 2007). In particular, the all-in-one option tends to be devalued, such that the perceived performance of the attributes differentiating this option will decrease in the presence of options specialized on these attributes. In addition to discounting the

performance of the all-in-one option, individuals also draw inferences about the specialized options. In particular, the perceived performance of the differentiating attribute of a specialized option (i.e., cavity-prevention functionality of toothpaste A) tends to increase in the presence of an all-in-one option. At the same time, the performance of specialized options on their secondary attributes (i.e., tartar-protection functionality of toothpaste A) tends to be devalued in the presence of an all-in-one option. Thus, compensatory reasoning has been shown to produce two types of effects when evaluating specialized and all-in-one options: compensatory devaluation, which lowers the perceived performance of the all-in-one option, and compensatory polarization, which enhances the perceived performance of the specialized option on the differentiating attribute while detracting from its performance on the secondary attribute(s).

BOUNDARIES OF COMPENSATORY REASONING

So far we have argued that in the presence of a discrepancy between the observed performance of decision alternatives, individuals might draw compensatory inferences that resolve this discrepancy. Not all discrepancies, however, lead to compensatory inferences. Therefore, an important issue involves identifying conditions under which individuals are likely to draw compensatory inferences. In this section we offer a brief overview of four key factors that are likely to influence individuals' reliance on compensatory reasoning in choice.

Assumption of Balance

The key assumption underlying compensatory reasoning is the belief that the overall performance of the objects under consideration is balanced, such that an option's superiority on one attribute is compensated for by inferiority on another. To illustrate, the efficient-market assumption, which implies balance in options' overall attractiveness (i.e., equally priced options should have similar performance) is a common precondition for compensatory inferences to occur in a market setting (Chernev & Carpenter, 2001).

The assumption of balance in compensatory reasoning is referred to as the zero-sum heuristic (Chernev, 2007). The zero-sum heuristic can be related to the zero-sum game assumption in game theory, which implies that the wins and losses in a game will add up to zero for each possible set of strategies (Von Neumann & Morgenstern, 1953). In other words, the zero-sum game assumption implies that one player's winnings should equal the other player's losses. The concept of the zero-sum heuristic is conceptually similar to that of a zero-sum game in that it implies a closed system in which all options are balanced in value, with the relative advantage of each option on one attribute compensated for by a disadvantage on another.

The zero-sum heuristic can also be related to the notion of tradeoff consistency (Simonson & Tversky, 1992). The tradeoff consistency of a given choice set is usually characterized by the rate of exchange between attributes, such that in sets with a constant rate of exchange between attributes the advantages and disadvantages

of each option are balanced. In this context, the zero-sum heuristic posits that when evaluating sets comprising options with varying rates of exchange between attributes, individuals who expect a balanced set of options are likely to interpret ambiguous attribute values in a way that decreases the observed tradeoff contrasts and equates the rate of exchange across attributes.

Availability of Other Bases for Inference

It has been shown that when individuals have established beliefs that some of the product attributes are correlated (e.g., the relationship between size and weight, and between reliability and warranty), this correlation tends to supersede individuals' market efficiency beliefs (Chernev & Carpenter, 2001). Given that compensatory inferences involve a rather complex process that requires individuals to form overall evaluations of choice alternatives and contrast these evaluations with their prior beliefs about the dispersion of the overall performance of options in the choice set, inferences with a simpler structure, such as inferences based on simple attribute correlations, are likely to impede the occurrence of compensatory inferences.

Resource Availability

Because compensatory inferences involve a relatively complex evaluation process and require more effort and cognitive resources on the part of the individuals, they are less likely to occur when individuals have constrained resources (e.g., time pressure, parallel decision tasks, and distractions). Indeed, under constrained resources, individuals are more likely to use simplifying decision strategies and noncompensatory rather than compensatory rules (Payne, Bettman, & Johnson, 1993). Likewise, compensatory inferences are less likely to occur when individuals have constrained cognitive resources.

Information-Processing Strategy

Prior research in the area of decision making has identified two distinct information-processing strategies: alternative-based and attribute-based (Payne, Bettman, & Johnson, 1993). Alternative-based (or holistic) information processing involves first forming overall evaluations of choice alternatives, which are then compared to one another. In contrast, attribute-based (or dimensional) information processing involves evaluating options' performance on each of the available attributes without necessarily forming an initial overall impression of each alternative. Because they imply forming an overall evaluation of the choice options, alternative-based strategies tend to be more effortful and resource demanding compared to attribute-based strategies, which often lead to more selective information processing. Given that compensatory inferences typically require overall option evaluations in order to generate value-based comparisons of the alternatives, it can be argued that compensatory inferences are a function of the information-processing strategy

used in choice, such that compensatory inferences are less likely to occur in the context of attribute-based than alternative-based evaluations.

CONCLUSION

The concept of compensation has been used in psychology, decision making, and inferential reasoning in different contexts. In psychology, the term *compensation* refers to a mechanism by which an individual makes up for some personal deficiency by developing another ability. In decision research, the term *compensation* has been used in reference to the decision processes underlying an individual's choice, particularly the ability of an option's strength on one attribute to make up for a deficiency on another attribute. Although the idea of compensation has informed research in several diverse areas, it has received relatively little attention in the domain of inference making. In this chapter, we focused on compensatory processes in inferential reasoning and offered a theoretical background for understanding compensatory reasoning processes in individual decision making and choice.

From a conceptual standpoint, compensatory reasoning involves decision processes used to draw inferences about options' performance on dimensions that are ambiguous or unknown. In this context, compensatory inferences stem from the assumption of balance, which implies that in a given choice set, overall performance of options tends to be balanced, such that advantages on one dimension are likely to be compensated for by disadvantages on another. Thus, when faced with a scenario in which decision alternatives vary in their overall performance, individuals who expect options' performance to be balanced, are likely to infer that advantages (disadvantages) on one dimension are likely to be compensated for by disadvantages (advantages) on another.

The zero-sum heuristic highlighted in this chapter contributed to the understanding of a variety of compensatory processes in social psychology and decision making. It can be applied to the relationship across attribute performance of a particular option such that high values on one dimension imply low values on another. It can also be applied to the relationship across options in a given set such that options that dominate others in their overall performance are inferred to be inferior on some of the unobserved/ambiguous dimensions. Finally, the zero-sum heuristic can be applied to phenomena that occur across time when random events are expected to be more likely to occur when they have not happened for a period of time.

Understanding the nature of compensatory reasoning also implies identifying its boundary conditions. Indeed, not every decision in which individuals are presented with a discrepancy between the observed and expected performance of choice alternatives leads to compensatory reasoning. We have identified several factors that are likely to moderate the occurrence and strength of compensatory reasoning—such as the assumption of balance, the availability of other bases for drawing inferences, availability of cognitive resources to draw compensatory inferences, and the degree to which the information-processing involves overall evaluations of decision alternatives. Investigating these factors as well as uncovering

new ones offers a promising venue for further research that will shed light on the psychological mechanism underlying compensatory reasoning.

The evidence for compensatory reasoning in consumer choice is just beginning to accumulate. Given the importance of dealing with ambiguous and incomplete information in everyday judgments and evaluations, continued research on compensatory reasoning promises to expand our understanding of the mechanisms by which people make decisions in real-world scenarios.

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