

Social Categories and Decision Making: How Much Differentiation Do We Need?

Myron Rothbart and Robert Mauro

Individuals and organizations base their decisions, to a greater or lesser extent, on variables believed to correlate with criteria they wish to predict. The problem is that we do not seem to be particularly good at either isolating the correct predictors or knowing how much weight to place on those predictors (see Brehmer 1980). In the absence of certainty about relevant predictors, individuals and organizations alike fall back on the use of stereotypes, with all the attending shortcomings of that approach. The use of race as a predictor in decision making is particularly vexing, because it raises basic questions about the validity of our perceptions, the meaningfulness of race as a causal variable, and the long-term effects on our society of using race (as opposed to more differentiated variables) as a predictor.

The goal of this chapter is to explore the issue of accuracy in our perception of groups, with particular reference to the use of race as a predictor of behavior. Since the emphasis in this book is on the implications of such behavior for business ethics, our focus will be on organizational decisions, rather than on the less formal and more casual uses of race by individuals, although the two are not unrelated. We begin our discussion with an examination of Walter Lippmann's ideas about the relation of stereotypes to public policy and end with an examination of the institutional use of race as a predictor in drug searches and parole decisions. Lippmann examined the triangular relations among reality, perception, and behavior and noted that how we structure our perception of reality affects our behavior, which in turn can affect the realistic basis of our perceptions. That any of the three points of the triangle can influence, and be influenced by, any of the others could be taken as the motif of this chapter.

This research was supported in part by the National Institute of Mental Health Grant MH40662 to the first author.

REALITY AND ITS REPRESENTATION

Walter Lippmann, in his seminal work *Public Opinion*, addressed what he called the "triangular relationship" of the "scene of action," the "human picture," and the "human response to that picture working itself out upon the scene of action" (Lippmann 1922). To restate this concept less eloquently, Lippmann was interested in (1) the relation between social reality and our interpretation of that reality, (2) the nature of our behavioral decisions based on those interpretations, and (3) the effect of those decisions on social reality itself. Lippmann had a keen interest in psychology and his book posed some important questions. One of the most significant issues he raised is the correspondence between reality and the representation of reality.

For the real environment is altogether too big, too complex, and too fleeting for direct acquaintance. We are not equipped to deal with so much subtlety, so much variety, so many permutations and combinations. And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage with it. To traverse the world men must have maps of the world. Their persistent difficulty is to secure maps on which their own need, or someone else's need, has not sketched in the coast of Bohemia. (p. 4)

In this passage one can recognize a number of ideas that were to become pervasive in psychology half a century later. Probably most important is the idea of information reduction and its relation to action (see Simon 1989). As Lippmann noted, the goals of the observer are inextricably linked to the complexity of the representation. Our internal representation is a simplified map of external reality, with just enough complexity to allow us to "traverse the world." In short, our simplified view of the external world is "good enough" to enable us to get where we want to go. Although we are allowed to sacrifice fidelity for simplification, there is a danger in allowing too much discrepancy between image and reality, as in a map that includes the coastline of a landlocked country. It is unlikely that simplification would result in this error of commission, but it is highly likely that simplification would result in significant errors of omission, failing to include landmarks that "ought" to be included by some criteria of fidelity.

We think of Lippmann's view as pragmatic, because he judged the adequacy of a mental representation by the quality of outcomes resulting from decisions based on the representation, rather than by the degree of match between representation and reality. Lippmann's view appeals to us, for a number of reasons. First, it recognizes the important simplifying function of stereotypes (among other forms of representation). Second, and perhaps most important, it ties motivational and cognitive processes together by linking the representational level of complexity to the observer's goals. To take the map metaphor further, the level of detail needed in a map to guide one

by auto from Eugene, Oregon, to San Francisco, California (a distance of 550 miles), would be minimal; one would need probably just the freeway exits for Interstate 5 and the location of rest stops and gas stations. For a 15-mile backpacking trip through the Three Sisters Wilderness Area in the mountains of Oregon, however, one would require a detailed topographic map showing such features as streams and rock outcroppings to determine a route that avoided steep and difficult terrain.

Lippmann's pragmatic view of stereotypes is compelling but ultimately unsatisfying. Mental representations may be "good enough to get us what we want," but the simplification that results from stereotyping, particularly of out-groups, may result in outcomes that are unnecessarily impoverished, both for the observer and for the object of stereotyping. Taking a simple view of others, one that lacks "subtlety" and "variety," may have severe disadvantages or costs that may be fully as consequential as sketching in the coastline of Bohemia. How much discrepancy is tolerable between social reality and our representation of that reality? Lippmann's answer, we assume, would be that as long as we can "traverse the world" to our satisfaction, the discrepancies are inconsequential. The problem, of course, is that we might be considerably more satisfied with the consequences if we acted on the basis of a more complex (and veridical) image of the world; conflicts that we might view as inevitable might have been avoided with a different view of our adversary. One wonders, for example, to what degree our involvement in the Vietnam conflict was guided by a simple classification system that placed countries in a free world-communist world dichotomy, leaving little room for the subtlety and variety of a Vietnamese movement that was primarily nationalistic and secondarily communist in character (see, for example, Karnow 1983).

THE ACCURACY OF STEREOTYPES

Although some of the earliest experimental psychologists defined their task as identifying the mathematical relation between physical reality and psychological response, more modern psychologists have been chary of using reality as a criterion, particularly when that reality concerns social objects. We can measure the physical intensity of illumination in foot-candles, but what is the comparable unit of measurement for assessing the "reality" of extraversion in college fraternities? Despite the reluctance to use social reality as the criterion for assessing the accuracy of social perception, recent research on the accuracy of social stereotypes (Judd and Park 1993; Judd, Ryan, and Park 1991), as well as on the basic mechanisms of stereotype formation and change (Rothbart and Lewis 1994), suggests that stereotypes constitute a domain of social perception in which the mental representation is far less complex than the social reality being represented.

Before attempting to identify sources of inaccuracy in our impressions of groups, however, we offer a caveat. We are not attempting to consider all possible sources of influence on the stereotyping process. Our focus will be on cognitive processes, in which the motivation to disparage out-group members is apparently absent. Clearly, there is no shortage of theories describing the "irrational" components of intergroup hatred (for a recent interesting example, see Deutsch 1990), but that is not the focus of our example. We are making the benign assumption that even when malevolent intention is absent, it is often difficult to form accurate impressions of human groups.

There are at least four areas in which it is possible to identify important discrepancies between perception and reality. The first three pertain to stereotypes in general, and the fourth is more specific to stereotypes associated with racial or ethnic groups.

Exaggeration or "Idealization" of the Group Impression

Rather than representing the group by an average, there is a tendency to give disproportionate weight to the extreme examples of the category (Rothbart and others 1978).

Indeed, stereotypes can be thought of as caricatures, in which distinctive features are exaggerated. Individuals appear to remember caricatures better than the faces upon which the caricatures were based and even to misremember faces as caricatures. In a recent study on facial caricature (Mauro and Kubovy 1992), individuals were shown faces having distinctive features, such as a long nose or narrow eyes. Later, subjects were again presented with versions of these faces in which the distinctive features were either unchanged, exaggerated, or minimized and they were asked to identify which faces were previously shown. Subjects were more likely to identify the exaggerated face than the unchanged face as having been originally presented.

Scott Lewis (1990) found a parallel result in the domain of physical stereotypes. Lewis presented subjects with computer-drawn faces in a concept formation task, in which subjects had to learn to place each face into an "A" or a "B" category. For any given subject, the faces differed on a particular feature (for example, width of nose) but did not differ on other features. After the category-learning phase, subjects were asked to reconstruct on the computer screen a "typical" face from each category. Subjects were allowed to adjust all the facial features until the face "looked right," and it was possible to compare subjects' constructions of the critical and noncritical features with the actual mean of the presented features. Lewis consistently found that subjects' representations of the "typical" face were displaced in the extreme direction. That is, for the group that was characterized by a wide nose, the face constructed by the subject included a nose wider than the average of the

noses presented for that group. The Lewis data on aggregated judgments directly parallel those of Mauro and Kubovy (1992) on single faces.

The research cited above, conducted in experimental settings, allows us to compare the stimuli actually presented to the subject with the subject's mental representation of those stimuli. Assessing accuracy is more difficult when we compare subjects' judgments about a target group with the "reality" of the target group—usually the target group's judgments about itself. For example, during the Vietnam War, Dawes, Singer, and Lemons (1972) advertised in a campus newspaper for self-described hawks and doves and asked each subject to write attitude statements that accurately described the positions of hawks and doves. These statements were then given to the appropriate groups (attitude items written to describe hawks were given to hawks, and items written to describe doves were given to doves), and subjects were asked to indicate whether the item was "accurate," "too mild," or "too extreme." In general, statements written to describe either group (hawks or doves) were rated as too extreme. That is, there was a tendency to see both groups as more extreme than they really were. However, the tendency to polarize the attitudes of a group was much greater when the attitude statements were written by out-group members (hawks describing doves, and doves describing hawks) rather than by in-group members. Using self-ratings as the criterion for accuracy, then, there was a pervasive tendency to perceive the attitudes of groups as unrealistically extreme, and the degree of polarization was greatest when judging the attitudes of out-groups.

One criticism of this study is that the self-described hawks and doves who answered an ad in the campus newspaper may actually have been less extreme than the hawks and doves in the general population. Recall that the research subjects were not judging other subjects in the experiment but hawks and doves in general. Improving on this paradigm, Judd and his colleagues (1991) asked engineering majors and business majors on the Boulder campus to make a number of judgments about each group on both trait and attitude items and also asked the subjects to indicate their own positions on the same items. These subjects, were not volunteers but were systematically chosen to be representative of the two campus populations. Although the results were somewhat complex, they generally paralleled earlier findings; there was a tendency to overestimate the extremity of all groups, and this tendency was particularly pronounced in judgments of the out-group. Other research (for example, Judd and Park 1993) on the accuracy of perceptions of Democrats and Republicans also generally support this pattern of findings.

Perceptions of Variability Within the Group

The research described in the previous section focuses on the accuracy of judgments about the central tendency of a group. It indicates that people's

judgments are systematically displaced in the direction of idealization or extremity. That is, images of a group are more extreme than are warranted by the attributes of the members that make up the group. Another issue concerns the accuracy of judgments of intra-group variability, the amount of perceived variation around the central tendency. A number of studies have confirmed the finding that greater estimates of group variability are made by those who are members of the category than by judges outside the category (for example, Park and Judd 1990; Park and Rothbart 1982). Differences between in-group and out-group may be irrelevant to issues of accuracy, however, since in principle in-group judges may perceive more variability than actually exists or out-group judges could perceive less variability than exists. The only study we know of that examines the accuracy of variability judgments is Judd et al. (1991), which shows again that all judges underestimate variability (on one of the measures), and that the degree of underestimation is greater for out-group than for in-group judges. Thus we now have evidence that the idealization process both displaces the central tendency and underestimates the variability that exists within the category.

Perceptions of Group Membership: "Goodness of Fit"

A third source of inaccuracy is somewhat more speculative but is related to the previous two sources of inaccuracy. There is reason to believe that people's stereotypic beliefs, once established, become insensitive to disconfirming information. The rationale for this prediction is related to the finding described earlier that our images of groups are more extreme than is warranted by the characteristics of the members who make up these groups. Over time one would expect image and reality to converge, so that as people accrue more and more experience with group members, the perception becomes more accurate, but this does not occur.

Several studies (Rothbart and John 1985; Rothbart and Lewis 1988) have argued that a critical issue in stereotype change concerns the dynamic relation between the group and the members who make up the group. Although an experience with a group member whose attributes strongly disconfirm the stereotype should in principle generalize to and alter the image of the group, this frequently does not happen. Instead, atypical members are often not perceived to be group members, and their attributes fail to generalize to the group as a whole. The same attributes of group members that make them disconfirming of the stereotype also make them a poor fit to the category and unlikely to be thought of as group members (Rothbart, Sriram, and Davis-Stitt 1996).

In short, the same arguments that led Eleanor Rosch (1973, 1978) to think of group membership as graded with respect to "natural kind" categories apply as well to social categories. Psychological membership in a category is not "all-or-none," but is graded in terms of "goodness-of-fit" between the

attributes of the category and the attributes of the category member. A logical member of the category who is a poor fit to the category may not be thought of as a category member at all. Thus, those group members who most disconfirm the category are more likely to be dismissed as nonmembers, exceptions, or "special cases" than to be integrated into the stereotype (see Hewstone and others, in press; Johnston and Hewstone 1992; Kunda and Oleson 1994). The implication of this argument is that disconfirming exemplars are functionally isolated from the stereotype, allowing the stereotype to remain insulated from disconfirming information. Ironically, then, the more discrepant the stereotype is from the exemplars that constitute the category, the more likely the exemplars are to be dismissed as atypical deviations from the category.

One of the clearest predictions from this research is that stereotypes should be more stable over time than is warranted by the evidence available to the perceiver. We know of no study that allows such a comparison, but a longitudinal study (Rothbart and John 1993) showed an extremely high level of test-retest reliability of social stereotypes in college students over a four-year period, from freshman to senior year. Averaging over fourteen different target groups, the test-retest reliability, computed across over forty traits per group and a four-year period, was .92, compared with .96 for a one-week test-retest period with an independent sample. Given that the four-year college experience is, for many subjects, the first time that they are exposed to ethnic minorities, gays, and lesbians (some of the target groups included in the study), this level of stability seems extremely high.

The theoretical underpinnings of Rothbart and John's argument have also found support in the laboratory. In a series of experiments by Rothbart and his colleagues, subjects judging the attributes of a category gave greater weight to exemplars with good fit to the category than to those with poor fit, even when they were judging geometric shapes (Rothbart and Lewis 1988); subjects were more likely to generalize from an individual to a group in proportion to the goodness of fit between the individual and the stereotype of the group (Rothbart and Lewis 1988). As subjects acquired new information about a category member, the strength of the association between the category and the exemplar increased when the information tended to confirm the stereotype but decreased when the information disconfirmed the stereotype (Rothbart, Sriram, and Davis-Stitt 1996). Subjects also had more difficulty retrieving information about atypical than about typical exemplars of a category (Rothbart, Sriram, and Davis-Stitt 1996). Thus, the longitudinal data, as well as the laboratory research, lends support to the idea that stereotypic beliefs are insufficiently sensitive to disconfirming information.

The Special Case of Racial Attribution

A fourth source of error concerns attributional processes more specific to racial stereotypes. Although stereotypes are formed on almost every conceiv-

able basis, there may be reason to believe that racial stereotypes have special status. We make this argument not on the basis of the physical attributes of race (the Nazis treated Jewishness as a racial attribute but acknowledged substantial overlap in physical attributes of Jews and Aryans), nor on any scientific meaning that might be ascribed to racial concepts, but on the social concept of race. Indeed, there is little scientific basis for a concept of race; there are no clear distinctions between race and ethnicity, and physical differences may or may not be a marker of race. Yet the concept is ubiquitously used by individuals, by governmental agencies, and in scientific research.

The notion of race, we suspect, is related to the concept of *essentialism*—the belief that members of a race have some fundamental property or properties in common with one another that make them different from all others (see Allport 1954). Race has two important properties of an essentialist concept: (1) it is unalterable—individuals who are members of a racial category are thought of as always being in the category—and (2) it has “rich inductive potential”—that is, knowledge of category membership is *perceived* to be predictive of a broad array of attributes and behavior (see Rothbart and Taylor 1992). It is worth noting that racial concepts are likely to be viewed as “natural kinds,” meaning that even though physical appearance is thought to reflect some deep, underlying essence, the absence of physical differences does not negate “racial” qualities (consider the Nazi’s view that a Jew who looks Aryan is still a Jew).

In our view, racial concepts may serve as a magnet for the attribution process in several ways. First, attributions to race may occur when there is no correlation between race and behavior—illusory correlation. A considerable amount of research has been done on illusory correlation in stereotyping by David Hamilton and his colleagues (Hamilton and Sherman 1989). This research shows that the co-occurrence of distinctive behaviors (for example, antisocial behaviors) with distinctive individuals (for example, members of racial minorities) lead them to be perceived as “going together,” even though there is statistical independence between behaviors and group members.

There is also a second type of illusory correlation that may occur with racial minorities. Individuals are more likely to learn and use differentiating information about a person when that person is an in-group rather than an out-group member (Park and Rothbart 1982). For example, a white observer who reads a story about a white person engaged in child abuse is likely to search for (and find) differentiating information about the perpetrator that may “explain” his or her behavior—the abuser was unemployed or an alcoholic. If the white observer reads the identical story but with a black rather than a white perpetrator, the reader is unlikely to seek out or remember differentiating information about the abuser. Thus people are likely to make differentiated, individualistic attributions for in-group members’ behavior but group-level attributions for out-group members’ behavior. It may be difficult to say which is the correct or incorrect attribution, but it is quite possi-

ble that behaviors more appropriately attributed to an individual are erroneously attributed to the entire out-group.

A second kind of attributional error occurs because a behavior is attributed to race that would more appropriately be attributed to correlates of race, such as poverty or minority status (see Zadowski 1948). This distinction may appear to be a subtle one, but the implications are often not subtle. There is a major difference between attributing behavior to an unalterable, “essential” quality of the self and viewing the behavior as a product of, or an adaptation to, a powerful environment. Some behaviors may be more appropriately attributed to minority status, where they represent adaptations to powerlessness; other behaviors may be more specific to a particular cultural history or educational and employment opportunities; and still other behaviors may reflect the rewards and punishments associated with peer group members.

INDIVIDUAL AND ORGANIZATIONAL USE OF RACIAL STEREOTYPES

Despite the many potential sources of error in people’s perceptions of groups’ stereotypes (including racial stereotypes) clearly influence the judgment and decisions of both individuals and organizations (see, for example, Lewin and Grabbe 1945; Sagar and Schofield 1980). The question remains whether these stereotypic images, with all their inaccuracy, are nonetheless “good enough” to allow us to “traverse the world.” Although one can ask this question for both individuals and organizations, the answers may be different for the two parties.

In private life, the apparent costs of relying on an inaccurate stereotype are quite small—an ashen look, a few embarrassing moments in conversation. The costs in lost opportunities may be objectively large, but these costs are often obscure. If one rarely interacts with members of an ethnic group because they are mistakenly believed to share noxious tastes in art, food, music, or lifestyle, one may be denied many of the experiences that could enrich one’s life, but it is difficult to appreciate the costs of not doing what is not done.

Compared with the costs incurred by individuals in their private lives, the real and apparent costs of relying on inaccurate stereotypes in making professional decisions are much greater. For example, employers who do not hire members of an ethnic group because they mistakenly believe that members of that group are unreliable or dishonest deny the organization the benefit of potentially good employees and deny the group the benefits of economic gain.

The set of factors relevant to making professional decisions also differs from and is much smaller than the set of factors relevant to making private choices. Individuals choose their friends on the basis of a host of idiosyn-

cratic factors, and observers are hard pressed to question the rationality of those choices in all but the most abusive relationships. Businesses, however, are expected to base decisions on a more restricted set of criteria. Ultimately, the rational business person must justify all decisions in terms of the benefits that are expected to accrue to the firm.

Since 1964, discrimination by race in most employment contexts has been illegal in the United States. Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972 and the Civil Rights Act of 1991) prohibits employment discrimination against individuals on grounds of race, color, religion, sex, or national origin, by state and local governments and private employers with more than fourteen employees, and it prohibits discrimination by labor unions, employment agencies, and all agencies of the executive branch of the federal government. The large number of lawsuits for alleged racial discrimination in employment and hiring that continue to be brought each year, however, suggests that many employers continue to rely on race or factors associated with race in making business decisions. The goal of this chapter is not to analyze the legal or ethical issues raised by racial discrimination in the workplace but to explore the rationality of considering race in making professional decisions.

When is it rational to consider race in making decisions? The answer to this question depends on several factors: first, the costs of making different types of errors; second, the strength of the relations between race and the criterion, between relevant factors (other than race) and the criterion, and between race and these other relevant factors; and finally, the time frame and scope of the decision maker. We will consider each of these issues in turn.

The Costs of Making Errors

Any employer hiring new workers will inevitably make mistakes, and the results of this selection process can be displayed in a two-way table (see table 7.1).

The rational decision maker attempts to maximize the number of good employees hired (true positives, in the vernacular of the statistician) and poor employees not hired (true negatives) relative to the number of good employees that are not hired (false negatives) and poor employees that are hired (false positives). However, the costs of making poor decisions and the

Table 7.1 / Outcomes Associated with Hiring Decisions

Decision	Reality	
	Good employee	Poor employee
Hire	Hit (true positive)	Miss (false positive)
Don't hire	Miss (false negative)	Hit (true negative)

benefits of making correct decisions will vary, depending on the situation. In some situations (for example, entry-level assembly-line work) rejecting potentially good employees may incur few costs to the organization. When there is a large supply of satisfactory potential workers, missing a few good candidates may be a relatively minor loss. However, when the supply of potential employees is small (for example, when a firm is searching for someone to fill a high-level technical or managerial position), the costs associated with failing to hire a good employee are more substantial. Other factors in addition to the supply of workers affect the costs of making the different types of errors. For example, the search process itself may be quite costly; if a firm is searching to fill a given number of positions, the more candidates who are screened and incorrectly rejected, the greater the costs to the firm.

The relative costs of making the different errors (false positives and false negatives) and the benefits of making the different types of correct decisions (true positives and true negatives) will determine the decision rule. A rational employer with a large supply of potential employees may reject all minority applicants if there is even a weak association between ethnicity and job performance because it may seem preferable to reject a large number of well-qualified applicants than to do anything that would increase the risk of hiring a bad employee. Another employer facing the same weak association between ethnicity and job performance but having a more limited applicant pool might attach less weight to an applicant's race—or even ignore race—rather than incur the costs of making many incorrect rejections.

The Strength of Relations Between Variables

No matter what the decision rule, a rational employer will strive to make the best possible prediction of job performance at the lowest possible cost. Because gathering information may be costly in time and resources, the real-world decision maker will probably limit the search. In this case, the most efficient types of variables to consider are those that are highly predictive of job performance, relatively uncorrelated, and cheap to measure. The predictor variables need not be causally related to the criterion; they need only predict the criterion.

As we have noted, there are many psychological mechanisms that encourage people to believe that race is an important predictor when it is not. Without access to carefully conducted research, determining the true effect of race in any situation is quite difficult. Rational decision makers may be tempted to consider race in making decisions even when the association between race and the criterion is weak because race is often easy and inexpensive to measure. Compared with the other measures of an applicant that an employer could gather, such as academic preparation, previous experience, and recommendations, race is inexpensive to determine (in most cases), hard to distort, and very reliable. Ease and reliability of measurement cannot

compensate for lack of predictive power, however, and the predictive power of race is often overestimated.

Even when statistical information is available, it is frequently difficult to determine the true effects of race. On the surface it would appear that determining whether race is related to job performance would be a simple matter. Assuming that one had experience with both white and minority workers, one could simply compare the job performance of both groups. Yet workers are not selected at random. Observed differences between groups of workers could be a function of the selection process rather than of racial differences (in statistical terms, a sample selection bias). For example, a sales manager may note that white sales representatives outperform African American sales representatives and conclude that whites are superior sellers. However, the sales representatives may have been hired by a personnel manager who did not select at random from the pool of applicants. For example, the personnel manager might have interpreted assertiveness in blacks as hostility and avoided hiring assertive blacks, while assertiveness in whites might have been viewed positively as showing signs of drive and commitment. Because assertiveness is important in making sales, the bias in selecting assertive whites and nonassertive blacks could create an apparent racial disparity.¹

In addition to difficulties in assessing the unconfounded relation between race and a criterion, decision makers must confront an additional problem. They must determine not the simple correlation between race and performance, but rather the effect of race on performance when the effects of other factors are taken into account.² Without access to carefully crafted research, this is an exceedingly difficult task. For example, in many parts of the country, race and performance in school are substantially correlated. Academic performance is frequently related to job performance. In these circumstances, race may be related to job performance because it is correlated with academic performance; but, knowing that race is related to job performance and that academic performance is related to job performance, an employer might decide that a minority applicant with a poor scholastic record is a doubly poor risk. This in effect doubles the negative weight assigned to poor academic performance when predicting the job performance of minority applicants. Once the applicant's academic performance is known, however, knowledge of the applicant's race adds little or no predictive power. Indeed, in cases like this, minority status may be a positive factor. That is, a white with a poor scholastic record may be a worse bet as a worker than a minority-group member with a similar record. The minority applicant may have had to work harder against greater obstacles to achieve the same record as the white. In terms of correlations, although there may be a negative simple correlation between minority status and job performance, when the effects of other factors are taken into account, the effect of minority status may be positive. To estimate the effect of race correctly in situations like this requires considerable statistical sophistication and access to information not normally

available to the business decision maker. In principle, a more accurate prediction could be made by ignoring race than by estimating its true effect from the zero-order correlation.

THE DRUG COURIER PROFILE. The case of the drug courier profile provides an interesting example. Since 1974, law enforcement agencies in the United States have utilized a behavioral and circumstantial profile of a drug courier to aid them in determining who should be scrutinized for possible involvement in the transportation of illicit drugs. Originally devised by a single Drug Enforcement Agency agent in Detroit for screening passengers on commercial aircraft, the profile has been modified for use by highway patrols in screening motorists. In this context, police officers compare the characteristics of motorists stopped for traffic violations with the characteristics of drug traffickers as indicated by the profile. When the officers believe the match is sufficiently strong, they attempt to search the vehicle for drugs. Legally, a match to the drug courier profile is not considered sufficient "probable cause" to allow the police to search a vehicle without consent, so the officers must obtain the motorist's consent to search the vehicle. This is rarely an issue, since virtually all motorists give consent.

In the only study to date to evaluate the drug courier profile, Mauro (1994) observed that the race of the motorist appeared to affect the search decisions of (some) police officers in Oregon. Of the vehicles for which consent to search was requested, 48 percent were occupied by Hispanics, whereas 27 percent were occupied by whites. Of the vehicles for which consent to search was not requested, only 14 percent were occupied by Hispanics; white motorists occupied 49 percent. These statistics in themselves do not demonstrate racial bias. It is possible that Hispanics could be more than three times likely to be transporting illegal drugs than whites. However, searches of Hispanics were successful in only 20 percent of the cases; searches of whites were successful in 30 percent of the cases. Furthermore, statistical models of these data indicate that being Hispanic *does not* increase the likelihood that a motorist is transporting drugs once other profile characteristics are taken into account.³

Why, then, do at least some officers apparently overestimate the strength of the relation between race and drug trafficking? A clue can be found in the content of the profile. The items constituting the profile can be divided into four groups: suspicious behaviors (such as traveling under an alias, being extremely nervous), suspicious travel (such as going to or coming from a source or distribution area for narcotics), suspicious possessions (such as carrying a concealed weapon or large quantities of cash in small denominations), and suspicious personal history (such as having a criminal record). In the study area, many of these items—such as traveling to or from a source area for illicit drugs (such as Los Angeles or Mexico) and being extremely nervous when contacted by the police—are correlated with being Hispanic. Although these items are predictive of trafficking in illicit drugs, once they

are taken into account, Hispanics are no more likely to be carrying drugs than other motorists. The officers who acted as if race was predictive of drug trafficking (in this study only a few did) treated "Hispanic" as if it were an additional profile item. This caused them to spend hours engaged in fruitless searches. In fact, had the officers ignored race and relied solely on the factors in the drug courier profile (and used a moderately conservative decision rule), they could have made hundreds more successful searches.

This is not to say that race should never be considered in making any professional decision. For example, if race is predictive of job performance and that information is properly integrated with other available factors, then our decision maker should consider the applicant's race. Not considering an individual's race under these circumstances would result in predictions that are not as accurate as they could be. The federal parole guidelines provide a case in point.

FEDERAL PAROLE GUIDELINES. For decades, parole decisions were made on a strictly qualitative, case-by-case basis. The prison record of each inmate eligible for parole was reviewed and the inmate interviewed. As might be expected, this process led to large discrepancies in the way similar cases were handled. In 1972, the federal parole system began a large-scale project designed to address this problem. Federal parole boards now use an actuarial system that sets the appropriate ranges of time to be served by different classes of inmates. Parole boards may depart from the ranges provided, but it is rare. In one follow-up study, researchers observed that 84 percent of the parole boards' decisions followed the guidelines (Hoffman and Stone-Meierhofer 1977).

The range of time an inmate must serve is determined by the inmate's score on two scales (see table 7.2): one measures the seriousness of the

Table 7.2 / Guidelines for Parole Decision Making: Customary Total Time Served Before Release (in months)

Offense Characteristics: Severity of Offense	Offender Characteristics: Parole Prognosis (Salient Factor Score)			
	Very Good (9-11)	Good (5-8)	Fair (4-5)	Poor (0-3)
Low (such as minor theft)	6-10	8-12	10-14	12-18
Low moderate (such as possession of small quantities of drugs)	8-12	12-16	16-20	20-28
Moderate (such as possession of moderate quantities of drugs with intent to sell)	12-16	16-20	20-24	24-32
High (such as organized vehicle theft)	16-20	20-26	26-34	34-44
Very high (such as robbery)	26-36	36-48	48-60	60-72
Greatest (such as kidnapping)	40-55	55-70	70-85	85-110

offense and the other the likelihood of success on parole. The latter scale is a composite based on nine variables. Inmates gain points on this scale for not having prior convictions, for not having been previously incarcerated, for not having previously violated parole, for not having stolen a car in the current crime, for not having engaged in forgeries (one point each), for having reached the age of 18 (one point) or 26 (two points) before their first crime, for not having a prior history of opiate or heroin abuse (one point), and for having a history of employment or school attendance for at least six months out of the last two years prior to conviction (one point) (see Gottfredson, Wilkins, and Hoffman 1978).

These factors were selected in a quasi-empirical fashion. First, all of the data routinely available about inmates were assembled. Then, several of the variables that the oversight board determined were unethical to consider—such as age and race—were eliminated. The variables used to form the "salient factor score" were selected from the remaining variables. After a preliminary set of guidelines was created, some variables (namely, education and family ties) found to be predictive of success on parole were eliminated and others (car theft, forgeries) were added. The result is a scale designed not to produce the best possible prediction but only to produce the best possible prediction given the permissible variables. In other studies (for example, Petersilia and others 1985), age and race have been found to be significant predictors of success on parole and probation, even when the effects of numerous other predictors are taken into account. Thus, the present federal parole guidelines may be criticized for being demonstrably unfair. That is, there are inmates who in all likelihood would be good parole risks who serve longer sentences because the federal parole board uses a predictive system known to be less accurate than it need be.⁴ The officers deciding whom to search for illicit drugs made more efficient decisions when they ignored race and relied on more individualized information (such as the behavioral profile indicators). For the parole board, the situation may be different. There may not be additional variables that once taken into account would make reliance on race unnecessary or counterproductive.

However, even in cases like these it may be unwise to base decisions on race. Once the long-term consequences of a decision are considered, there may be both pragmatic and ethical reasons not to rely on race.

Time Frame and Scope of the Decision

When evaluating the consequences of decisions, it is important to consider Lippmann's "triangular relation" between reality, interpretation, and behavior. A decision may have consequences far beyond its immediate context and may substantially affect the larger social environment. Thus far, we have assumed that the business decisions being made have no effect beyond the firm and the individuals involved. This is probably a good approximation of

the effect of the decisions made by small businesses acting in isolation. However, decisions of large corporations or of many small businesses acting in concert may substantially affect their environment. In this case, it is important for decision makers to consider the impact of their decisions on that environment.

For example, it may be in the best interest of every firm and every member of the society to live in a society where social and economic inequality is not based on race. Making decisions based on race, even when they reflect racial differences existing at the moment, may serve to perpetuate those differences and carry racial divisions into the future. On this basis, the federal parole board could argue that its decision not to base parole on race is not only ethical but rational because it supports the long-term goal of building a society in which minorities are not more likely to be bad parole risks. In business, this tension between short- and long-run goals may create a social dilemma. In the short run, each decision maker may be better off considering race in making business decisions, but if all decision makers do so, the differences between the races are continued and the result is an environment that is less beneficial for society (and presumably business) than it could have been. It may be better to be "unfair" and to tolerate inefficiencies in the short run in exchange for a fairer and more efficient future.

Unfortunately, the prognosis for solving such social dilemmas through voluntary action is not good (cf. Messick and Brewer 1983). When there are real racial differences, a business may not be able to incur the short-run costs of ignoring race. Executive officers may find it necessary to ignore the long-run benefits to survive in the short run. To solve this type of social dilemma, we may need to rely on "mutual coercion, mutually agreed upon." Equal opportunity laws may be necessary to compel us to do what is in our own best interests.

CONCLUSIONS

In sum, the tendency to simplify our impressions of groups is not limited to individuals but is common to organizations as well. By using race as a categorical predictor, we may be giving race too much weight, either because the true relation between race and the criterion is smaller than the perceived relation, or because race has in effect already been included by the use of correlated variables.

Three hundred years of slavery and discrimination in America are not without their effects, and there are cases where race, as a categorical predictor, does predict a criterion of importance. In some cases there may be causally relevant, individuating predictors that may be used instead of race to increase our predictive efficiency without perpetuating existing inequalities. Even when these predictors do not exist it may be unwise to base deci-

sions on racial differences. Although, in the short run, ignoring race may lead to less accurate predictions and increased costs, the cost of perpetuating or magnifying existing racial inequalities may be even higher.

ENDNOTES

1. In some cases, better performance by a minority group may be indicative of discrimination against this group at an earlier stage in the selection process. For example, it may be that black workers outperform white workers because, to be hired at all, the blacks had to display qualifications greatly in excess of those possessed by the whites.
2. In statistics, this is the problem of multicollinearity. The task of predicting performance may be viewed as a problem in estimating the effects on performance of several highly correlated predictor variables. When the predictors are highly correlated it is impossible to isolate the effect of a single variable. One can only estimate the effect of the predictor in a model in which the other variables are taken into account.
3. We do not know what is the real association between race and drug trafficking on the highways patrolled by these officers, nor can it be easily determined. To properly determine the characteristics of highway drug couriers, a random sample of motorists would need to be stopped and searched. However, motorists cannot legally be stopped at random and the police cannot afford the time to search every vehicle stopped for a traffic violation. We can only examine the product of the decisions to stop for a traffic violation and to seek consent to search. It is possible that Hispanics are disproportionately involved in drug trafficking.
4. In reality, the parole guidelines are not as inaccurate as they might have been. Some of the variables added belatedly (such as the car theft factor) are correlated with the excluded factors. Of course, this may have produced the worst of all possible situations: a prediction system that is demonstrably less accurate than it could be (because important predictors are missing) and that is unethical (because it is based on a scale that includes proxies for variables that the designers believe should not be considered).

References

- Allport, G. W. (1954). The historical background of modern social psychology. In G. Lindley (Ed.), *Handbook of social psychology (Vol. 1)*. Reading, MA: Addison-Wesley.
- Brehmer, B. (1980). In one word: Not from experience. *Acta Psychologica*, *45*, 223-241.
- Dawes, R. M., Singer, D., & Lemons, F. (1972). An experimental analysis of the contrast effect and its implications for intergroup communication and the indirect assessment of attitude. *Journal of Personality and Social Psychology* *21*(3), 281-295.
- Deutsch, M. (1990). Psychological roots of moral exclusion. *Journal of Social Issues*, *46*, 21-25.
- Gottfredson, D., Wilkins, L., & Hoffman, P. (1978). *Guidelines for parole and sentencing*. Lexington, MA: Lexington Books.
- Hamilton, D. L., & Sherman, S. J. (1989). Illusory correlations: Implications for stereotype theory and research. In D. Bar-Tal, C. F. Graumann, A. W. Kruglanski, & W. Stroebe (Eds.), *Stereotypes and prejudice: Changing conceptions* (pp. 59-82). NY: Springer-Verlag.
- Hewstone, M., Macrae, C. N., Griffiths, R., Milne, A. B., & Brown, R. (in press). Cognitive models of stereotype change: (5) Measurement, development and consequences of subtyping. *Journal of Experimental Social Psychology*.
- Hoffman, P. & Stone-Meierhofer, B. (1977). Application of guidelines to sentencing. *Law & Psychology Review*, *3*, 53-60.
- Johnston, L., & Hewstone, M. (1992). Cognitive models of stereotype change. 3. Subtyping and the perceived typicality of disconfirming group members. *Journal of Experimental Social Psychology*, *28*, 360-386.
- Judd, C. M., & Park, B. (1993). Definition and assessment of accuracy in social stereotypes. *Psychological Review* *100*, 109-128.
- Judd, C. M., Ryan, C. S., & Park, B. (1991). Accuracy in the judgment of in-group and out-group variability. *Journal of Personality and Social Psychology* *61*, 366-379.
- Karnow, S. (1983). *Vietnam: A history*. New York: Viking.
- Kunda, Z., & Oleson, K. C. (1994). *Maintaining stereotypes in the face of disconfirmation: Constructing grounds for subtyping deviants*. Unpublished manuscript.
- Lewin, K., & Grabbe, P. (1945). Conduct, knowledge, and acceptance of new values. *Journal of Social Issues*, 53-64.
- Lewis, S. B. (1990). *Ideals as prototypes: The role of representational complexity*. Doctoral dissertation. University of Oregon, Eugene.
- Lippmann, W. (1961/1922). *Public opinion*. New York: MacMillan.
- Mauro, R. (1994). *An evaluation of the drug courier profile and its use in drug interdiction searches*. Report, Institute of Cognitive & Decision Sciences, University of Oregon.
- Mauro, R., & Kubovy, M. (1992). Caricature and face recognition. *Memory and Cognition*, *20*, 433-440.
- Messick, D. & Brewer, M. (1983). Solving social dilemmas: A review. In L. Wheeler & P. Shaver (Eds.), *Review of Personality and Social Psychology*, *4* (pp. 11-44). Newbury Park, CA: Sage.
- Park, B., & Judd, C. M. (1990). Measures and models of perceived group variability. *Journal of Personality and Social Psychology* *59*, 173-191.
- Park, B. M., & Rothbart, M. (1982). Perception of out-group homogeneity and levels of social categorization: Memory for the subordinate attributes of in-group and out-group members. *Journal of Personality and Social Psychology*, *42*, 1051-1068.
- Petersilia, J., Turner, S., Kahan, J., & Peterson, J. (1985). *Granting felons probation: Public risks and alternatives*. Santa Monica, CA: Rand.
- Rosch, E. (1973). On the internal structure of perceptual and semantic categories. In T. E. Moore (Ed.), *Cognitive development and the acquisition of language* (pp. 111-144). New York: Academic Press.
- Rosch, E. (1978). Principles of categorization. In E. Rosch & B. B. Lloyd (Eds.), *Cognition and categorization*. Hillsdale, NJ: Erlbaum.
- Rothbart, M., Fulero, S., Jensen, C., Howard, J., & Birrell, P. (1978). From individual to group impressions: Availability heuristics in stereotype formation. *Journal of Experimental Social Psychology*, *14*, 237-255.
- Rothbart, M., & John, O. (1985). Social categorization and behavioral episodes: A cognitive analysis of the effects of intergroup contact. *Journal of Social Issues*, *41*, 81-104.
- Rothbart, M., & John, O. (1993). Intergroup relations and stereotype change: A social-cognitive analysis and some longitudinal findings. In P. M. Sniderman, P. E. Tetlock, & E. G. Carmines (Eds.), *Prejudice, politics, and race in America* (pp. 32-59 & 307-332). Stanford: Stanford University Press.
- Rothbart, M., & Lewis, S. (1988). Inferring category attributes from exemplar attributes: Geometric shapes and social categories. *Journal of Personality and Social Psychology*, *55*, 861-872.
- Rothbart, M., & Lewis, S. (1994). Cognitive processes and intergroup relations: A historical perspective. In P. Devine, D. Hamilton, & T. Ostrom (Eds.), *Social cognition: Impact on social psychology* (pp. 347-382). New York: Academic Press.
- Rothbart, M., Sriram, N., & Davis-Stitt, C. (under review). Social categories and the fate of atypical group members. *Journal of Personality and Social Psychology*.
- Rothbart, M., & Taylor, M. (1992). Category labels and social reality: Do we view social categories as natural kinds? In G. R. Semin & K. Fiedler (Eds.), *Language, interaction and social cognition* (pp. 11-36). London: Sage.
- Sagar, H. A., & Schofield, J. W. (1980). Racial and behavioral cues in black and white children's perceptions of ambiguously aggressive acts. *Journal of Personality and Social Psychology*, *39*, 590-598.
- Simon, H. A. (1989). *The sciences of the artificial (2nd ed)*. Cambridge: MIT Press.
- Zawadzki, B. (1948). Limitations of the scapegoat theory of prejudice. *Journal of Abnormal and Social Psychology* *43*, 127-141.