

3.2 The Paradox of Right-Wing Women's Activism

Given the social conservative woman's adherence to traditional gender roles in which men are breadwinners and protectors, and women are helpmates and caretakers, some analysts point to a seeming contradiction between these beliefs and her very role as a political activist. However, social conservative women do not see a tension between their political involvement and the traditional female role. Female activism is defined within the bounds of traditional gender ideology as women altruistically working for the benefit of a larger cause, acting as moral gatekeepers to bring purity to a world filled with sin. Nor is there any apparent paradox to *laissez-faire* women's activism. Because they do not see women as bound to traditional roles, there is no seeming contradiction between their beliefs and their own role as public leaders. They do not conceive of themselves as the caretakers of society, altruistically at work for the benefit of all. Instead, they see themselves as no different from men, self-interested actors working for a political cause.

Despite the prevalent assumption that anti-feminist women are 'brainwashed' or 'lackeys' of men, the actual paradox of right-wing women is that those women who are furthest from feminists in their beliefs actually do act in their own interests as women, while *laissez-faire* women, who actually share a portion of the feminist vision, do not act in their collective gender interest. Far from suffering from false consciousness, social conservative women are well aware of their interests and act to defend their status as women. To borrow a phrase from Marx, social conservative women act as women for themselves, while *laissez-faire* conservative women remain women in themselves. Gender identity is central to the political involvement of social conservative women; recognizing their commonality with other traditional women, they seek to protect women's place as a group. *Laissez-faire* women are not motivated out of concern regarding gender; they do not act in the collective interest of women and therefore remain women in themselves. They act as members of the marketplace, not as members of their gender group, in organizing to return America to strength and freedom.

See also: Civil Rights Movement, The; Ethnic and Racial Social Movements; Feminist Movements; Fundamentalism (New Christian Right); Gay/Lesbian Movements; Historiography and Historical Thought: Southeast Asia; Identity Movements; Labor Markets, Labor Movements, and Gender in Developing Nations; Labor Movements and Gender; Labor Movements, History of; Nation-states, Nationalism, and Gender; Peace Movements, History of; Social Movements, History of: General; Social Protests, History of; Youth Movements, History of

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Risk: Empirical Studies on Decision and Choice

Even though most people have an intuitive understanding of what is meant by *risk*, risk is a concept that defies precise definition. Ordinary citizens as well as scientific experts differentiate between choice options or courses of actions in terms of their riskiness, and such explicit or implicit judgments of perceived riskiness often affect their decisions. Some uncertainty about the outcome of a decision or action seems to be necessary to make it appear risky. This article describes three paradigms that define risk in different ways and that identify different types of variables that have been shown to affect people's perception of risk.

1. Risk Perception

The democratization of decision making and increased availability of information provide people with more choices than ever before. Economic globalization and faster social and technological change have, at the same time, introduced more uncertainty and unpredictability. Decisions under risk and uncertainty are abundant, and perceptions of risk affect those decisions. People pull their money out of financial ventures when they judge the risks to be too high or start a lawsuit when the risks of inaction outweigh the risks of litigation. The risk perceptions of individuals as citizens and consumers also affect decisions made by government agencies and corporations. Public perception that silicone breast implants put users at

risk of autoimmune disease, for example, resulted in bankruptcy for the manufacturer, despite clear scientific evidence of no silicone-related illnesses. Controversies about the licensing of technologies such as genetic engineering or the siting of facilities such as landfills or nuclear power stations tend to be fueled primarily by disagreements about posed levels of risk, rather than by disagreements about the acceptability of specific risk levels. While business or government experts have clear quantitative evaluations and definitions of the risks that products or technologies pose, based on objective data or models, members of the general public often seem to evaluate the same options very differently. Much of the early research on psychological risk dimensions (described in Sect. 2.2) was funded by the Nuclear Regulatory Commission to understand why and how public perception of the riskiness of nuclear technology could differ so dramatically from the estimates provided by nuclear engineers.

2. Measures of Perceived Risk

Risk perception has been studied empirically within three theoretical paradigms. Studies within the axiomatic measurement paradigm have focused on the way in which people combine objective risk information, that is, possible consequences of risky choice options such as mortality rates or financial losses and their likelihood of occurrence. Research within the psychometric paradigm has identified people's emotional reactions to risky situations that affect judgments of the riskiness of physical, environmental, and material risks in ways that go beyond their objective consequences. Studies within the sociocultural paradigm have examined the effect of group- and culture-level variables on risk perception.

Risk as an explicit or implicit variable in theories of risk preference is discussed elsewhere (see *Risk: Theories of Decision and Choice; Personality and Risk Taking*; Weber 1997).

2.1 Axiomatic Measurement Studies

The axiomatic measurement approach models perceived risk as a function of attributes of risky options that are described as probability distributions over possible outcomes. Much of this work derives from the definition of risk as variance in traditional models of risky choice (see *Risk: Theories of Decision and Choice*). Under this definition sure options carry no risk, since there is no variance around the guaranteed, single, known outcome. The wider the distribution of possible outcomes, the greater an option's riskiness becomes. Yet, studies that assessed people's judgments of the riskiness of financial gambles (see *Risk: Theories of Decision and Choice*) have shown that downside

variability of outcomes affects the perception of an option's riskiness much more than upside variability, an asymmetry that is not captured by variance measures.

As a result, other axiomatic measures of perceived risk were developed that differ in the assumptions they impose on judgments of riskiness (see *Risk: Theories of Decision and Choice*). These models capture both similarities in people's risk judgments (with a common functional form by which probability and outcome information about risky options are combined) and individual and group differences (with the help of model parameters that capture differences in the relative weight given to different model components).

Weber and Bottom (1989, 1990) submitted the behavioral axioms on which these models are based to empirical tests and found support for the assumption that risk judgments are transitive (if option B is judged more risky than option A, and C more risky than B, then C will also be judged more risky than A) and monotonic (if option B is judged more risky than A, then any combination of obtaining B with probability p and X otherwise should also be more risky than the combination of obtaining A with probability p and X otherwise). Some violations of the expectation principle for risk judgments in the gain domain (Keller et al. 1986) were shown to be the result of nonnormative probability accounting, similar to that observed for preferences. People, for example, do not think that a two-stage lottery carries the same risk as a mathematically equivalent single-stage lottery, even if the final outcomes of the two lotteries and their probabilities are identical. Weber and Bottom's (1989) results supported the additive combination of gain and loss components hypothesized by the conjoint expected risk (CER) model (Luce and Weber 1986; see *Risk: Theories of Decision and Choice*) and ruled out, at least as descriptive models of perceived risk, other risk functions that assume that losses and gains impact risk judgments multiplicatively. The CER model has been described as the most viable model to describe single-dimensional risk appraisal (Yates and Stone 1992) and is probably the most widely applied axiomatic model of risk, but other, similar models exist (see *Risk: Theories of Decision and Choice*).

Bontempo et al. (1997) fit the CER model to judgments of the riskiness of monetary lotteries made by business students and security analysts in Hong Kong, Taiwan, the Netherlands, and the US. Cross-national differences in risk judgments followed a Chinese-Western division, with respondents from the two culturally Chinese countries having model parameters that were similar to each other but different from those of the two Western countries. The probability of a loss had a larger effect on perceived risk for Western respondents, while the magnitude of losses had a larger effect on the risk perceptions of Chinese respondents. Cross-cultural differences in risk perception were greater than differences due to occu-

pation (students vs. security analysts), suggesting that cultural upbringing and environment seem to play a larger role in shaping the perception of financial risks than professional training or expertise.

2.2 Psychometric Studies

The psychometric measurement approach treats risk perception as a multidimensional construct and uses multidimensional scaling, clustering, and factor analysis to identify its underlying psychological dimensions (Slovic et al. 1986). Research within this paradigm has found that the perceptions of the risks of hazardous technologies or activities by members of the lay public have often little to do with possible outcomes and their probabilities. Compared to technical experts, ordinary citizens overweight risk associated with infrequent, catastrophic, and involuntary events, and underweight the risk associated with frequent, familiar, and voluntary events. The psychological risk dimensions identified by the psychometric paradigm fall into two categories. The first one, *dread*, is defined by a perceived lack of control, feelings of dread, and perceived catastrophic potential. The second one, *risk of the unknown*, is defined as the extent to which the hazard is judged to be unobservable, unknown, new, or delayed in producing harmful impacts. Cross-national comparisons show that risk perceptions in a wide range of countries are affected by the *dread* and the *risk of the unknown* factor. Risk perceptions between countries differ in where respondents place particular hazards (e.g., nuclear power) within this factor space, usually in ways consistent with national differences in exposures and socioeconomic development.

2.3 Sociocultural Studies

In Douglas and Wildavsky's (1982) cultural theory, risk perception is viewed as a collective phenomenon by which members of different cultures selectively attend to different categories of danger. Each culture selects some risks for attention and chooses to ignore others. Cultural differences in risk perceptions are explained in terms of their contribution to maintaining a particular way of life. The theory identifies five distinct cultures (labeled hierarchical, individualist, egalitarian, fatalist, and hermitic, respectively) that differ in their patterns of interpersonal relationships and argues that members of these cultures therefore differ in their perceptions of risk. Hierarchically arranged groups, for example, tend to perceive industrial and technological risks as opportunities, whereas more egalitarian groups tend to perceive them as threats to their social structure. The significance of this approach to understanding risk perception is that it provides a way of accounting for the effect of group-

and culture-level variables on the behavior of individuals. It suggests that culture teaches individuals where their interests lie and what variables and events pose risks to those interests and ways of life.

Implicit in this cultural theory of risk perception is the hypothesis that cultural differences in trust in institutions drive differences in perceived risk. Slovic (1997) summarizes empirical evidence for this hypothesis, for example; the fact that minority status (e.g., due to race) is associated with reduced trust in social institutions. The relationship between trust and risk perception seems to be mediated by an emotional pathway, with reduced trust resulting in stronger negative affective responses to potential hazards and increased perceptions of risk.

Weber and Hsee (1999) provide another culture-level explanation of cross-national differences in risk perception, based on differences in collectivism-individualism. Comparison of the perception of financial and other material risks by Chinese vs. American respondents supports their assumption (coined the cushion hypothesis) that social collectivism serves as mutual insurance against catastrophic losses, making the risks faced by members of the collective, in fact, smaller.

3. Relationships between Measures of Risk Perception and Applications

The axiomatic risk measures of Sect. 2.1 were developed to describe the perception of financial risks, whereas the psychometric risk measures of Sect. 2.2 were developed to describe the perception of health and safety risks. Holtgrave and Weber (1993) investigated how well either type of measure (a simplified version of the CER model and the psychometric model) would predict risk judgments for both types of risk. Respondents, who were MBA students, provided holistic risk judgments for a range of financial and health and safety risks. They also evaluated each risk on the variables used as predictors by the two types of models (probability of a loss or gain, and expected loss or gain for the CER model; dread, control, catastrophic potential, voluntariness, novelty, and equity for the psychometric model).

Regression results showed the CER model to be a better predictor of perceived risk than the psychometric model for both financial risks and health/safety risks. The predictor variables of the CER model seem to come closer to the way people evaluate risk in both domains. The psychometric model may need a dimension reflecting the probability of harm to provide a better fit, since this dimension is highly correlated with risk ratings. Another reason might be that people consider both the pros and cons of activities when judging their risks. The CER model assumes that the impact of positive outcomes can offset the impact of negative outcomes. The psychometric model, on the

other hand, focuses exclusively on the impact of the downside of activities.

The best predictor of risk perceptions for both financial and health/safety risks, however, was a hybrid model that added the dread variable of the psychometric model to the probability and outcome-based variables of the CER model. This suggests that the perception of both financial and health/safety risks has an emotional component that is not completely described by the 'objective' components of axiomatic models (see Loewenstein et al. 2000 for a summary of the role of affect in risk perception and risk taking).

Palmer and Sainfort (1993) applied the CER model in the context of genetic counseling to model the judgments made by members of a clinical population of dwarfs about the riskiness of different procreative alternatives available to them. Faulting the genetic counseling literature for equating the perceived riskiness of an adverse event (e.g., the birth of a child with a genetic disorder) with the perceived probability of the event's occurrence, Palmer showed that the perceived risk of different reproductive alternatives also reflects the severity of consequences. Therefore, measures of risk that combine both probability and outcome information (such as the CER model) are a better predictor of risk perception.

The CER model has also been used to test the prediction of Douglas and Wildavsky's (1982) socio-cultural theory that individuals with different world-views differ in predictable ways in their perceptions of risk. Palmer (1996) elicited risk judgments for financial and health/safety risks from respondents who came from either a hierarchical, individualist, or egalitarian subculture in Southern California. Hierarchists who are comfortable with determining acceptable levels of risk for technologies (Thompson et al. 1990), a process that explicitly considers and weighs gains and losses, provided risk judgments that reflected all predictor variables of the CER model (gains as well as losses, outcome levels as well as probabilities). Egalitarians, on the other hand, who are suspicious of technologies and view nature as fragile and in need of protection, suggesting that they should see risk in terms of possible harm, provided risk judgments that reflected only the loss predictor variables of the CER model. Individualists, who view risk as opportunity, given their tendency to see benefits from most activities as long as they do not interfere with market mechanisms (Thompson et al. 1990), were the group that provided the lowest risk judgments for almost all of the risky investments and activities.

4. Conclusions and Future Directions

The empirical studies of risk perception reviewed in this article show that risk perceptions are shaped by three classes of variables: the negative and positive

outcomes of choice options and their likelihood; affective reactions such as dread or fear of the unknown; and social and cultural variables that influence the perception and interpretation of the consequences of risky choice options. These variables have mostly been studied in isolation. Future research should examine possible interactions. There is also need for further examination of the accuracy or appropriateness of people's perception of risk.

The fact that ordinary citizens perceive the risk of many activities and technologies in ways that fundamentally diverge from the way they are perceived by scientists moves the choice of a measure of risk onto which to base policy decisions into the political arena. Fischhoff et al. (1984) argue that such choice should not be the exclusive province of scientists, who have no special insight into what society should value.

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Risk Screening, Testing, and Diagnosis: Ethical Aspects

The Human Genome Organization project has increased enormously the possibilities to predict disability or disease either for an individual or for his or her offspring. Information obtained from genetic testing raises ethical and legal issues that have been debated for several decades. New issues are emerging due to rapid advances in molecular genetics.

From an ethical point of view, risk screening, genetic testing, and diagnosis belong to the most controversial and contested areas in contemporary medicine. The new genetics will have a profound impact on our self-images and on our understanding of the relations between environment and heritage. Conceptual, normative, and empirical issues are here intertwined in a complex way. To begin with, a preliminary clarification of the key concepts will be necessary.

The expression 'risk' will here be taken to refer to an adverse or negative future event that is probable but not certain. Any risk can then be analyzed in two components: the probability of occurrence of an event and the magnitude of its negativity according to certain explicitly stated norms and values (including kind, degree, duration, and timing). Risk assessment accordingly analyzes these two components, while risk management proposes strategies for handling the risk in ways that minimize the negativity and probability.

However, risks involving probabilities are not the only sort of risks that are relevant in this context. The expression 'epistemic risk' has been coined to refer to risks due to ignorance, and in particular due to ignorance of what we are ignorant about (e.g., Sahlin and Persson 1994). This notion is particularly relevant to many clinical applications of molecular genetics, involving unknown factors. The ways in which these risks are communicated will then be important from an ethical point of view.

Testing should be distinguished from screening.

Harper has proposed the following definition: 'Genetic testing is the analysis of a specific gene, its product of function, or other DNA and chromosome analysis, to detect or exclude an alteration likely to be associated with a genetic disorder' (Harper and Clarke 1997). Testing refers to procedures performed at the request of individuals or families, and should always be voluntary. This holds also for genetic testing of members of families known to be at high risk, such as the siblings of persons with cystic fibrosis (Wertz and Fletcher 1989).

'Screening,' however, implies application to large population groups, to entire populations or subsets of populations (e.g., pregnant women, newborns, or job applicants). Screening is not performed at the request of individuals or families but rather based on policy or public health decisions. It may be mandatory or voluntary.

Both the expressions 'genetic information' and 'genetic disorder' are vague and ambiguous concepts (Zimmern 1999). The same holds for the key concepts of health, disease, and illness. The advances in molecular and clinical genetics may profoundly change our understanding of the latter concepts. They may have an impact on health care policy, on the patient-physician relationship as well as the way in which access to care is allocated (Murray et al. 1996).

Genetic information differs from other private information in that it reveals information not only about a particular individual but also about that individual's blood relatives. Genetic test results may also provide information about population groups. Moreover, genetic information can be obtained from any cell in a person's body, not just by examining, for example, particular malfunctioning organs or tissues.

The concept of genetic information is difficult to define and delimit in a clear and uncontroversial way. Just by asking for the age of a person's parents and grandparents, genetic information in a certain sense can be obtained. The necessary and sufficient conditions for a disease or disorder to be 'genetic' are far from clear. If these expressions 'genetic information' and 'genetic disorder' are to appear in legislative texts, they have to be made precise.

There are many kinds of genetic disorders, including (1) chromosome changes, like trisomy 21 or Down's syndrome, (2) monogenetic disorders which depend on a mutation in one gene, like Huntington's chorea, and (3) polygenetic disorders like diabetes which are due to mutations in several genes in combination with environmental factors.

These distinctions are important for several reasons. What holds for monogenetic diseases concerning genetic determinism cannot be generalized to genetic disorders of other kinds. Thus, presymptomatic testing can be done for disorders in group (2) but rarely and with much less certainty, if at all, for those in group (3).