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Acceptable Risk

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Perhaps the topic of acceptable risk never had a sexier and more succinct introduction than the one Edward Norton, playing an automobile company executive, gave it in *Fight Club*:

Of course, this dystopic scene also gets to the heart of the issue in another way: Acceptable risk deals with mathematical calculations about the value of life, injury, and emotional wreckage, making calculation a difficult matter ethically, politically, and economically. This entry will explore the history of this idea, focusing on its development, alongside statistics, into a concept of wide importance today.

Acceptable risk deals not just with profit and loss but also with questions of ethics (Is it acceptable to engage in an act knowing that the result will be the death of another?), politics (Who decides who dies?), and justice (Whose risk has priority for remediation?). Acceptable risk is by its very nature a multidisciplinary topic, and students should be prepared to confront a variety of issues in its study. In practice, the variety of issues adhering to acceptable risk tend to be skirted by following popular precedents—most notably the U.S. Food and Drug Administration's 1973 policy ruling that products that cause cancer at a rate of less than 1 in 1,000,000 are "safe." However, setting the limit at 10^{-6} is arbitrary and only shifts the normative burden to the state rather than answering it definitively. Even though *relatively* few people will die at a level of 10^{-6} , some will certainly die. How much loss of life is acceptable? How did we get to that number of acceptable deaths?

Looking at it historically, the concept of acceptable risk only becomes possible after the invention of statistics. If one cannot calculate the probability of risk, then it is impossible to set a level of probability at which the risk becomes acceptable. Most date the invention of modern statistics to 1663, when John Graunt published the book *Natural and Political Observations*. Prior to Graunt, risk was largely considered to be a matter of chance, for in looking at any given individual, it seemed entirely a random event whether that person would get sick and die, commit suicide, or get run down by a horse on the boulevard. Statisticians changed the lens of observation and found that when people were taken as a group, rates of birth, death, and illness were quite regular at the level of the population. In fact, *population* was another invention of statisticians: Individuals form a population by dint of their shared statistical regularities.

The term *statistics* was itself derived from the same root word as *state* and reflects the original usage of statistics as "the science of the state." Alongside the many other changes occurring during the Enlightenment era, politics was changing as well. There was a shift toward a more proactive, statistically driven form of rule. For instance, instead of waiting for disease to strike and calamity to fall, there was an effort to calculate the rates of risk associated with different milieus and an attempt to eliminate the riskiest aspects and spaces of life. This might include cleaning up standing sewage, eliminating overcrowding, dispersing the poor, and so on. A notion of acceptable risk was developed as an adjunct to these changes in rule. More specifically, as a matter of political calculation, it was necessary to quantify the cost of an action versus its likely benefit and decide at what level the risks were acceptable and further expenditure to reduce them was unacceptable. In other words, the question was the cost of the remediation of risk versus the benefits of the reduction in risk. Acceptable risk, therefore, involves weighing harm against cost and attempting to find a

Adam Smith, along with David Hume and Adam Ferguson, also played an important early role in the development of the notion of acceptable risk. Although Smith's *Wealth of Nations* is popularly seen as a treatise defending the right of the individual to free enterprise, a glance at the title should tell one that the emphasis is elsewhere. The wealth of nations is not the wealth of individuals; it is a treatise aimed at the political class detailing the benefits of capitalism for the wealth of the state. At the most general level, the argument is that Smith's recommendations will bring greater wealth to the nation and, thus, higher revenue and opulence to the state.

Central to Smith's argument is the concept of risk and, specifically, who is to judge the level of acceptable risk. The overall theme of Smith's argument about risk is that the state is in a poor position to judge the consequences of the actions of individuals. The state is at a distant remove from the individual, and so options that may be open to the individual because of his or her local knowledge or varying tolerance for risk would be opaque at the level of the state. Smith felt that if the decision about risk was left to the individual rather than the state, it would support greater economic efficiency and innovation.

Smith did not answer many of the difficult economic, ethical, and political questions arising from the notion of acceptable risk, but in relocating the locus of judgment of risk from the state to the individual, he opened the question as to who is the best judge of risk. Twentieth-century economists like Milton Friedman and libertarian philosophers like Robert Nozick have echoed Smith's sentiment: They argue that there is no universal yardstick of acceptable risk, and rather than stifle freedom and economic efficiency with governmental regulation, individuals should be allowed to determine their own levels of acceptable risk. Of course, others contest this assignment of the calculation of risk to the individual. For instance, Phillip Pettit takes on Smith, Friedman, and Nozick and claims that systematic forms of discrimination against the poor, women, children, racial minorities, and so on place many individuals in a place where they are coerced into accepting more risk than they would prefer. For instance, someone hiring a minority person might recognize that the individual has few options and thus abuse that individual's lack of options by requiring extra-risky practices or forgoing remediation. Thus, because of no action on the part of the minority person, her or his risk could be increased relative to the whole of the population because of the prejudice of society. For this reason, Pettit argues that the state should be involved in adjudicating contracts to prevent such kinds of exploitation.

One further important set of questions should be acknowledged as a fundamental aspect of acceptable risk: Namely, whose risk counts? For instance, if raising one area of the town to protect against flood ends in making another relatively lower, and thus more prone to risk from floods, whose risks are to be judged more important? This question is important because it points out both that risks from actions are not evenly distributed and that one person's risk may be another person's benefit. This tension has only gotten stronger with the rise of large and powerful corporations throughout the 20th century. Twentieth-century labor struggles can be read in part as a struggle around differences with regard to acceptable risk to life, health, the environment, the family, and retirement.

In sum, it is clear to all that a calculation of acceptable risk pulls one into some of the

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most enduring and complex questions humanity has to offer. The statistical questions themselves deserve serious attention and are difficult to answer accurately. But even beyond determining the probabilities of different kinds of risk, value-laden philosophical questions are also necessary to answer. How much, if any, death or injury is acceptable? Who should decide what an acceptable level of risk is? Whose risk takes precedence in a society of competing claims?

See also [Occupational Safety and Health Administration \(OSHA\)](#); [Risk Society](#); [Risk Taking](#)

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Further Readings

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