

Statistics and the measurement of risk

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Insurance depends on statistics. Over time, Basel developed a tradition of statistical measurement that served its insurers. The canton of Basel-Stadt established a statistical office at the beginning of the twentieth century, which collected data on the population, mortality, health, housing and the economy of the city.¹ The federal statistical office, founded in 1860, collected national data, among them mortality tables based on the federal censuses, which the life insurers used to calculate their premiums.

The calculation of insurance premiums required data on the frequency and severity of losses: how many houses burned each year, how many workers were injured, how many persons of a given age died. The insurers collected their own data on their portfolios and shared them through their associations, which allowed them to build more reliable statistics than any single insurer could. The Swiss Insurance Association, founded in 1900, coordinated this work.²

The University of Basel contributed to the development of actuarial mathematics and statistics. Its mathematicians, heirs of the Bernoulli tradition, taught probability and statistics, some of them also working as advisers to the insurers. The training of actuaries, who combine mathematical knowledge with an understanding of insurance and finance, became a speciality of several Swiss universities, among them Basel, Zurich and Lausanne.

The measurement of risk has become one of the central activities of the modern financial system. Banks measure the credit risk of their borrowers, the market risk of their trading positions and the operational risk of their activities and calculate the capital they must hold against these risks according to the rules of the Basel Committee. Insurers measure the risks of their portfolios according to the Swiss Solvency Test. Asset managers measure the risks of their investments. The mathematics of risk that Jakob Bernoulli founded in Basel, and that the Basel insurers applied in the

nineteenth century, has become the language of financial regulation throughout the world.

1 Notes

1. On the Statistisches Amt des Kantons Basel-Stadt, established at the beginning of the twentieth century (1902), see its publications. Date to be verified. ↩
2. On the Swiss Insurance Association (Schweizerischer Versicherungsverband), founded in 1900, see its publications. Date to be verified. ↩

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