

Title: An Alternative Approach to Risk with Many Commodities

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Abstract: With choice under uncertainty, an agent's preferences over monetary lotteries can be represented by an expected utility function. Once some state is realized, the consumer gets an amount of money and obtains some utility from this money, and ex ante gets the expected value of this utility. What the agent does with the money is not explicit in the standard model. With choice under certainty, an agent chooses some commodity bundle using her money. Preferences over commodity bundles are represented by a utility function. Stiglitz (1969) connected the two problems by addressing if the maximized utility from spending her money on commodities coincided with the utility used to rank lotteries. Stiglitz allowed for affine transformations of the money utility function, but fixed the commodity utility function. We connect the two problems differently: fixing the money utility function, but allowing for monotonic transformations of the commodity utility function. Stiglitz found, with his approach, the connection commonly required that preferences over commodity bundles be homothetic. Our approach is less restrictive and allows connecting the two problems very generally. We give an example with some common utility functions that demonstrates our approach is more widely applicable for monetary lotteries. Another example shows that if prices are also part of the lotteries, neither approach is appropriate.

Takeaways:

- 1) An agent's utility functions for lotteries and bundles of goods can be made to align.
- 2) Our alignment of utility functions is general, contrary to other methods.
- 3) Our alignment does not require homothetic preferences over goods.
- 4) Our alignment does not require independent preferences over goods.
- 5) Standard assumptions on preferences over lotteries and goods can be maintained.