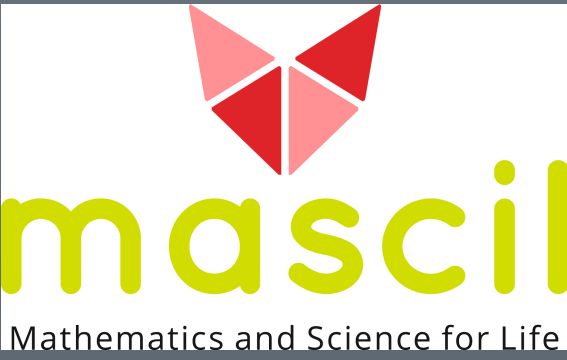


Bicycle Insurance – Data, Functions, Simulation

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Task: Bicycle Insurance

Bicycle Insurance

Every now and then a bicycle is stolen. Therefore, it can be convenient to have bicycle insurance. Some friends of yours want to start a small bicycle insurance company, and they come to you for some advices regarding the following issues:

- What can be a convenient (and fair) way to calculate the yearly payment for bicycle insurance?
- What can be a convenient (and fair) way to calculate the compensation for a stolen bicycle?



Your friends assume that the company will have approximately 1000 customers.

Your advices should come in form of a document where you explain the calculations that need to be done, and where you also explain how you came to make these decisions.

Variety of Solutions

Assumptions

- bicycles per household
- average price of a bicycle
- salary

Calculations

- bicycle thefts per day
- percentage of stolen bicycles in Tyrol

Austrian students

- static assumptions
- deterministic calculations
- few scenarios (one or two)
- one result per group

Functions

- P ... insurance premium
- I ... indemnification
- S ... salary

$$\text{capital} = P - I - S$$

Simulation

asdf

Student's Prerequisites

- ▷ 9th graders, Technical Secondary College
- ▷ function, graph

Preparation for Exchange

asdf

Data Collection

- ▷ population, private housholds, stolen bicylces

Name	pop-2011	pop-2012	pop-2013	ph-2011	ph-2012	ph-2013	sb-2011	sb-2012	sb-2013	bicycles
Österreich	8388534	8426311	8477230	3652795	3685530	3722162	23227	24755	26652	2801002.8
Wien	1708614	1727330	1753597	840624	849747	861386	7768	8922	9386	645807.72
Niederösterreich	1611885	1616161	1621469	679149	684598	689904	3453	3520	3577	520294.48
Oberösterreich	1412305	1416387	1421939	590161	594931	600799	2819	2670	3580	452147.56
Steiermark	1207202	1209466	1212502	512906	516950	520231	2639	2975	3525	392882
Tirol	708429	712849	718379	296713	300042	303950	1818	1864	1778	228031.92
Kärnten	556398	555751	555589	240797	241853	243474	1513	1582	1381	183808.28
Salzburg	528599	530527	532902	223811	225936	228247	1732	1785	1917	171711.36
Vorarlberg	370096	371697	373870	151748	153754	155537	1224	1112	1130	116853.04
Burgenland	285006	286143	286983	116886	117719	118635	261	325	378	89466.44