

EoS - E-tutorial 02 - WiSe 2022/2023

StatRef.C.4.1.00018 (60 Punkte)

Sie haben die folgende Antwort gegeben:

The following contingency table contains information regarding the variables *educational background* and *income class*. The variable educational background is split into five categories and is sorted in ascending order: Hauptschulabschluss (H), Realschulabschluss (R), Abitur (A), Bachelorabschluss (B) and Masterabschluss (M). The five income classes are as follows: I1: [0,800), I2: [800,1000), I3:[1000,1400), I4: [1400,2000) and I5: [2000,5000). You are provided with information on a total of $n=1199$ individuals. The data contained in the contingency table is also available via the following dataset.

Hint: The dataset at hand simply serves as a support for solving the problem. You do not need the dataset to solve the problem. Please round your results - if necessary and if not asked otherwise - to **four** decimal places.

	H	R	A	B	M	Sum X
I1	65	65	5	81	74	290
I2	79	5	8	51	62	205
I3	61	43	18	33	73	228
I4	8	75	49	55	54	241
I5	13	65	55	NA	30	235
Sum Y	226	253	135	292	NA	1199

il_qst_33303

il_qst_33303.RData (203 B)

a) (10 Points) Please calculate the missing value of the marginal distribution in the table. 293

b) (14 Points) Please calculate the relative joint frequency p_{jk} for the missing cell in the table at hand. 72

c) (12 Points) For now, we assume independence of the two variables. Please calculate the absolute frequency n_{jk}^* , with $j = 5$ and $k = 2$ under the assumption of independence. 49.5872

d) (14 Punkte) Please calculate the conditional relative frequency $p_{k|j}$ with $j = 4$ and $k = 1$. 0.2766

e) (10 Points) You are interested in the bivariate empirical distribution function as well. Please calculate the value of $F_n(x, y)$ at $x = I3$ and $y = R$. 0.2652

Die bestmögliche Lösung lautet:

The following contingency table contains information regarding the variables *educational background* and *income class*. The variable educational background is split into five categories and is sorted in ascending order: Hauptschulabschluss (H), Realschulabschluss (R), Abitur (A), Bachelorabschluss (B) and Masterabschluss (M). The five income classes are as follows: I1: [0,800), I2: [800,1000), I3:[1000,1400), I4: [1400,2000) and I5: [2000,5000). You are provided with information on a total of $n=1199$ individuals. The data contained in the contingency table is also available via the following dataset.

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il_qst_33303

il_qst_33303.RData (203 B)

a) (10 Points) Please calculate the missing value of the marginal distribution in the table. 293

b) (14 Points) Please calculate the relative joint frequency p_{jk} for the missing cell in the table at hand. 0.0600500417014178

c) (12 Points) For now, we assume independence of the two variables. Please calculate the absolute frequency n_{jk}^* , with $j = 5$ and $k = 2$ under the assumption of independence. 49.5871559633027

d) (14 Punkte) Please calculate the conditional relative frequency $p_{k|j}$ with $j = 4$ and $k = 1$. 0.033195020746888

e) (10 Points) You are interested in the bivariate empirical distribution function as well. Please calculate the value of $F_n(x, y)$ at $x = I3$ and $y = R$. 0.265221017514595

Sie haben 32 von 60 möglichen Punkten erreicht.