

EoS - E-tutorial 02 - WiSe 2022/2023

StatRef.C.4.1.00010 (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 six categories and is sorted in ascending order: Hauptschulabschluss (H), Realschulabschluss (R), Abitur (A), Bachelorabschluss (B), Masterabschluss (M) and Doktorgrad (D). 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 $n=1201$ 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	D	Sum X
I1	9	15	8	26	69	13	140
I2	57	68	69	67	8	36	305
I3	70	61	26	38	3	70	268
I4	29	3	16	66	39	28	NA
I5	NA	56	65	53	19	27	307
Sum Y	252	203	184	250	138	174	1201

il_qst_33295

[il_qst_33295.RData \(223 B\)](#)

a) (10 Points) Please calculate the missing value of the marginal distribution in the table. 181

b) (14 Points) Please calculate the absolute joint frequency n_{jk} for the missing cell in the table at hand. 87

c) (12 Points) For now, we assume independence between the two variables. Please calculate the relative frequency p_{jk}^* with $j = 1$ and $k = 3$ under the assumption of independency. 0.0067

d) (14 Punkte) Please calculate the conditional relative frequency $p_{j|k}$ with $j = 1$ and $k = 4$. 0.1857

e) (10 Points) You are interested in the bivariate empirical distribution function as well. Please calculate the value of $F_n(x, y)$ at $x = I2$ and $y = R$. 0.1241

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 six categories and is sorted in ascending order: Hauptschulabschluss (H), Realschulabschluss (R), Abitur (A), Bachelorabschluss (B), Masterabschluss (M) and Doktorgrad (D). 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 $n=1201$ individuals. The data contained in the contingency table is also available via the following dataset.

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b) (14 Points) Please calculate the absolute joint frequency n_{jk} for the missing cell in the table at hand. 87

c) (12 Points) For now, we assume independence between the two variables. Please calculate the relative frequency p_{jk}^* with $j = 1$ and $k = 3$ under the assumption of independency. 0.0178591113012262

d) (14 Punkte) Please calculate the conditional relative frequency $p_{j|k}$ with $j = 1$ and $k = 4$. 0.104

e) (10 Points) You are interested in the bivariate empirical distribution function as well. Please calculate the value of $F_n(x, y)$ at $x = I2$ and

$$y = R. 0.1240632805995$$

Sie haben 34 von 60 möglichen Punkten erreicht.