

FAIRNESS OF EARNINGS EXAMPLE

[Accompanying material for: Katrin Auspurg & Thomas Hinz (2015): Factorial Survey Experiments.
Sage Series: Quantitative Applications in the Social Sciences No. 175. Thousand Oaks, CA: Sage]

Most of the accompanying material is based on the fairness of earnings example described in the textbook. In this document we provide additional information on this example, i.e. exact information on all dimensions and levels and their coding, and on the definition of implausible or illogical cases and interaction terms that should be considered. In addition, there is an overview of all the text phrases used for the different level combinations. This information guides the single practical steps like the generation of vignette samples or text vignettes by statistical software (see the material for Chapters 3 and 4), and it might also be used as a codebook for data analyses (Chapter 5). Users of FS methods might prepare a similar overview on the design specification for their own project.

1. Specification of Dimensions and Levels

Table 1-1 gives an overview on the dimensions and levels. Note that for the dimension “children” the level “no children” was oversampled: there are two different levels to indicate this condition, while other numbers of children are represented by only one level. This is the easiest way to oversample categories: to represent them with relatively more levels (note that this is only for sampling; later, in data analyses, one can combine the levels into one joint category). In our example, the resulting number of vignettes in the universe is $2 \times 8 \times 3 \times 6 \times 10 \times 2 \times 2 \times 10 = 115.200$ vignettes.

Table 1-1 Vignette Dimensions and Levels

	Dimension	Levels (Number of levels)
x1	Sex	Male female (2)
x2	Age	25 30 35 40 45 50 55 60 years old (8)
x3	Degree	Without vocational training with vocational training with university degree (3)
x4	Children	0 0 1 2 3 4 (6) [Oversampling of the level “no children” is intentional]
x5	Occupation	Unskilled worker door(wo)man engine driver clerk hairdresser social worker software engineer electrical engineer manager medical doctor (10)
x6	Experience	Short on a lot of (2)
x7	Tenure	Entered recently entered a long time ago (2)
x8	Earnings	500€ 950€ 1,200€ 1,500€ 2,500€ 3,800€ 5,400€ 6,800€ 10,000€ 15,000€ (10)

2. Implausible and Illogical Cases

When combining the levels of all dimensions some combinations that are illogical or implausible result and hence are better excluded from the vignette universe. We decided to exclude the following combinations between job experience and tenure, occupation and degree, and occupation and income (in parentheses: numeric codes as they can be used in statistical syntax files):

- Job experience and tenure:
 - No job experience and long tenure [$x_6 = 1$ & $x_7 = 2$]
- Occupation and degree:
 - Electrical engineers without vocational training [$x_5 = 8$ & $x_3 = 1$]
 - Medical doctors without university degree [$x_5 = 10$ & $x_3 < 3$]
- Occupation and income:
 - Unskilled workers with more than 3,800€ [$x_5 = 1$ & $x_8 > 6$]
 - Door(wo)man or engine drivers with more than 5,400€ [($x_5 = 2$ | $x_5 = 3$) & $x_8 > 7$]
 - Clerks, hairdressers, and social workers with more than 6,800€ [$(x_5 > 3$ & $x_5 < 7)$ & $x_8 > 8$]
 - Electrical engineers with less than 1,200€ [$x_5 = 8$ & $x_8 < 3$]
 - Managers or medical doctors with less than 2,500€ [$x_5 > 8$ & $x_8 < 5$]

3. Interaction Terms

For generating *D*-efficient samples one additionally has to specify interactions between dimensions that can be expected to influence vignette ratings and hence should be identifiable (to estimate their effects and/or avoid a confounding with other effects of interest).

In our example, we expect the following three interactions (that should be orthogonal to each other and to the main effects that are not part of their cross-product when setting up the vignette sample):

- sex X income [$x_1 * x_8$]
- sex X children [$x_1 * x_4$]
- occupation X job experience [$x_5 * x_6$]

4. Vignette Phrases

Finally, one needs a translation of numeric codes into vignette phrases, as shown in Table 1-2.

Table 1-2 Text Phrases

	Dimension	Level	Vignette text
x1	Age		A
		1	30-year-old
		2	40-year-old
		3	50-year-old
		4	60-year-old
x2	Sex	1	man
		2	woman
x3	Education	1	with no vocational training
		2	with vocational training
		3	with a university degree
x4	Children		has
		1	no
		2	no
		3	one
		4	two
		5	three
		6	four children.
x5	Occupation		He/she is working as
		1	an unskilled worker
		2	a doorman/doorwoman
		.	.
		10	a medical doctor
x6	Experience		and has gained
		1	only a little
		2	a lot of job experience.
x7	Tenure		He/she has worked for the company for a
		1	short
		2	long time.
x8	Earnings		His/her monthly gross earnings total
		1	500
		2	950
		.	.
		.	.
		10	15,000 euros (before tax and extra charges).