Different Order, Different Results?
Effects of Dimension Order in Factorial Survey Experiments
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Krosnick & Alwin (1987): Cognitive Theory of Response-Order Effects

Answers to survey questions are influenced by the order in which questions or response options are presented.

Possible Mechanism: **Limitations of cognitive memory** (and context effects & satisficing)

First / last alternatives more likely to be remembered / selected
Respondents' **cognitive ability** as moderators of the order effects
(Schwarz & Knäuper 2000, Knäuper et al. 2007)

FSE - Different results for groups with different cognitive ability: Can be caused by **different order effects** or by **different preferences**

Evidence for order effects in general population samples is missing (but see for order effects in student samples: Auspurg/Jäckle 2015)

→ **Is there any evidence for order effects?** (focus on recency effects)
→ **Are people with lower cognitive memory capacity more prone to recency effects?**

Data: Konstanzer Bürgerbefragung 2011 (Wave 4)

- General population sample (N = 910 resp., n = 3590 vign. judgments)
- Survey experiment (as running text) on just allocations of fellowships for university students
- Order experiment: 4 experimental splits with 4 different orders

Figure 1. Example of a vignette (order 1, dimensions underlined)

Anja ist in Biberach geboren und hat eine Abiturnote von 1.3.
Ihre Eltern haben ein mittleres Einkommen und kein weiteres Kind.
Sie hat bereits ein Freiwilliges Soziales Jahr geleistet.
Im Gespräch mit der Auswahlkommission gibt sie an,
später Familie und Berufstätigkeit möglichst gut kombinieren zu wollen.

Methods

- **Joint Wald F-Tests:** Order effects within subgroups?

$$H_0 : \beta_{D_i ord._1} = \beta_{D_i ord._2} = \beta_{D_i ord._3} = \beta_{D_i ord._4}$$

Groups: full sample, subgroups of age (under 59 / over 60 yrs. old), subgroups of education level (high (college degree or higher) / low (lower than college degree))

- **Moderator Tests (Wald F-Tests):** Differences between conditions of subgroups?

- **Wald Chi²-Tests:** Order effects of individual vignette dimensions?

Figure 2. Different orders

Position	Order 1	Order 2	Order 3	Order 4
1/2	Name	Name	Name	Name
3	Place of Birth	High School Grad.	High School Grad.	Place of Birth
4	High School Grad.	Place of Birth	Place of Birth	High School Grad.
5	Income Parents	Income Parents	Experience	Experience
6	Siblings	Siblings	Goals	Income Parents
7	Experience	Goals	Income Parents	Siblings
8	Goals	Experience	Siblings	Goals

Table 1. Joint Wald F-Tests & Moderator Tests

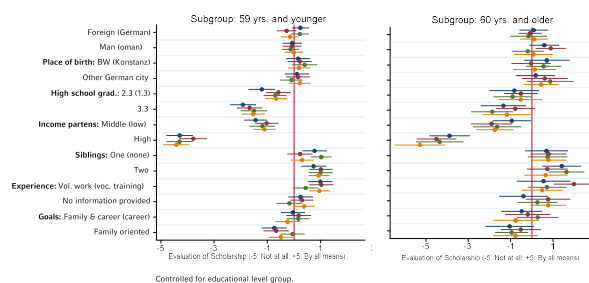|	Estimates for Subgroups			Moderator Test		
	n	F	p	n	F	p
Full sample	3451	1.28	0.136			
59 yrs. and younger	2770	**1.40+**	0.071	3451	0.99	0.493
60 yrs. and older	681	0.96	0.578			
Low education level	1693	1.14	0.279	3451	0.77	0.832
High education level	1758	1.27	0.146			

Results for Full Sample
- **No significant order effect in full sample**
  Joint Wald F-Test not sig. on 10% level (2-way-interactions)

- Tendency: **Recency**
  Wald Chi²-Test for individual interaction terms; 7/66 interactions = 10.6% sig. on 10% level

Table 2. Wald Chi²-Test: Order effects of individual vignette dimensions

Variable	Chi²	p	Orders	Tendendy (Pos.)
x4_2 High school grad.: 2.3	**3.69+**	0.055	1 & 2	Recency (4 > 3)
x5_3 Income parents: high	**4.04***	0.044	2 & 4	Recency (5 < 6)
x6_2 Siblings: one	**6.24***	0.013	2 & 3	**Recency (5 < 8)**
x6_2 Siblings: one	**5.42***	0.020	3 & 4	**Recency (8 > 7)**
x7_2 Exp.: Voluntary work	**5.97***	0.015	2 & 3	**Recency (8 > 5)**
x8_2 Goals: Family & career	**4.16***	0.041	3 & 4	**Recency (7 < 8)**
x8_3 Goals: Family oriented	**4.60***	0.032	1 & 3	**Recency (8 > 6)**

Figure 3. Coefplots of evaluation of scholarship (by order) for subgroups of age

Controlled for educational level group.

Results for Subgroups of Age
- **Surprising order effect** in subgroup *59 yrs. & younger*
- But Moderator Test shows **no sig. difference** in the extent of order effects between age groups
- Tendency in both groups: **Recency**

Figure 4. Coefplot of evaluation of scholarship (by order) for subgroups of education level

Controlled for age group.

Order 1 · Order 2 · Order 3 · Order 4
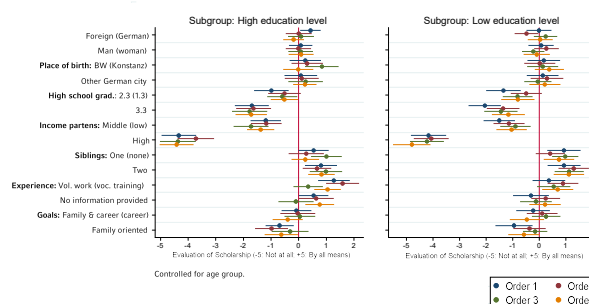
Results for Subgroups of Education Level
- **No sig. order effects** within or between education level groups
- Tendency in both groups: **Recency**

Discussion: No Clear Evidence for Order Effects

Tendency towards **recency effects**
- Can be caused by vignette design; first two dimensions *Name* stay on first position in all orders.

Surprisingly we could not find the expected effects in the subgroups of different cognitive abilities
- Age and education level are only proxies of cognitive ability
- Highly educated sample: 51% of respondents with college degree or higher; 56% of *60yrs and more* with college degree or higher

Recommendation: Randomize dimension order! - But if you don't, it probably doesn't matter that much!

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