Measuring Preferred Family Size

First Results from a Dutch Survey

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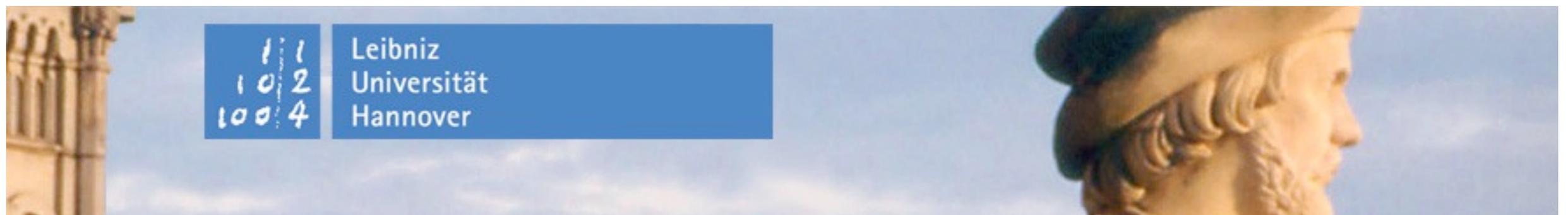Anne Gauthier — NIDI, The Hague, and University of Calgary
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Structure

- Reproductive preferences: theoretical evidence and empirical gaps
- Measuring reproductive desires
  - Traditional approaches and their shortcomings
  - Alternative approaches
    - Coombs Scale
    - Pair-wise comparison
- LISS-Panel and test design
- Comparative Analysis of the Coombs-Scale and pairwise comparison
- Conclusion and outlook

Reproductive preferences: theoretical evidence

- Reproductive preferences:
  - Desires or preferences according to the number of children, children's gender composition, timing of births

- Reproductive desires are at the core of theories on fertility. They …
  - … determine the 'Demand for Children' (EASTERLIN 1978)
  - … are the outcome of values attributed to children (HOFFMANN & HOFFMANN 1978, NAUCK 2005)
  - … determine contraceptive use (VAN DE WALLE 1992)
  - … are part of reproductive decision-making (MILLER 1994)
  - … build an essential input for population forecasts (LEE 1981)

- Reproductive desires also justify …
  - … family planning programs (KOENIG ET AL. 2006)
  - … family-related welfare systems, pronatalist policy

Reproductive preferences: empirical gaps

- However, there is only poor empirical knowledge on reproductive preferences

- Reasons:
  - Insufficient integration in micro-theories of fertility
  - No operationalizations from theory to empirical instruments
  - Dominance of 'Best Practice'-instruments
  - Hardly any published tests on reliability and validity of instruments
  - No systematic discussion about the pros and cons of particular instruments

Approaches to measure reproductive preferences

- Desired family size as a fixed target
  - ‣ Pure benefit:

    „And for you personally what would be the ideal number of children you would like to have?" (Eurobarometer, TESTA 2006: 10)

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    „If you realistically think about having (more) children of your own: How many (additional) children will you have?" (PAIRFAM, TNS INFRATEST SOZIALFORSCHUNG 2009: 65)

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  - ‣ Net benefit:

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  - ‣ Normative expectations:

    „What do you think is the ideal number of children for a family to have?"
    (GSS, DAVIS ET AL. 2009: 217)

Approaches to measure reproductive preferences

- Major shortcomings of the fixed-target approach:
  - No uncertain or unclear reproductive goals
  - Preferences are not fixed (moving target) $\Rightarrow$ bad predictive ability

- Reproductive preferences as a range of desired goals
  - Normative expectations:

> "What do you consider is the ideal size of a family – a husband, a wife, and how many children?"
> "According to your personal tastes and preferences, what size family do you think is too large; a husband, wife, and how many children?"
> "According to your personal tastes and preferences, what size family do you think is too small?"
> (BLAKE 1974: 32 and 34)

Approaches to measure reproductive preferences

- Major shortcoming of the range approach
  - Upper and lower boarders are treated equally

- Reproductive preferences as a hierarchical order of desired goals
  - Coombs Scale (GOLDBERG & COOMBS 1963, COOMBS 1974)
  - Pair-wise comparison (TERHUNE & KAUFMAN 1973)

Coombs Scale

- Introductory question:

  "For you personally, what would be the ideal number of children you would like to have? These children could be born to you or adopted"

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- Subsequent questions:

  "Suppose you couldn't have that number, but had to choose between *[one child below]* and *[one child above]*. Which would you choose?" "

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  "Suppose you couldn't have that number, but had to choose between *[one child below]* and *[one child above]*. Which would you choose?" "

  "If you couldn't have that, would you choose … or … children?"
  (BÜHLER ET AL. 2009)

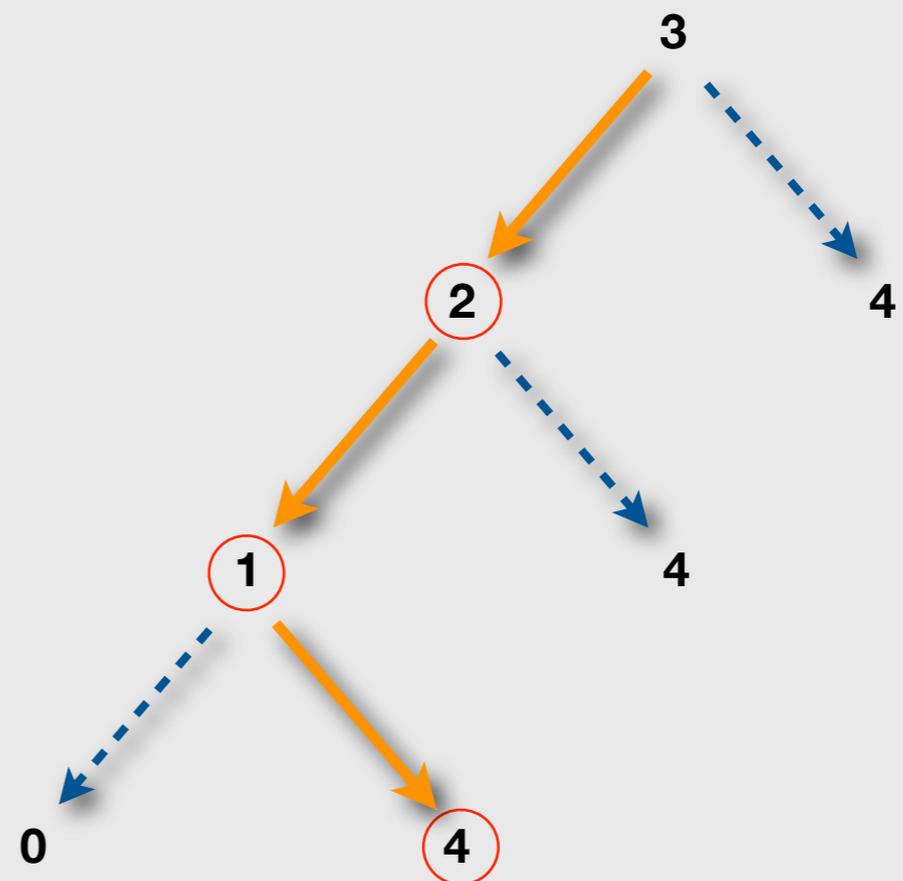# Coombs Scale

- An example

Questions	Answers

"For you personally, what would be the ideal number of children you would like to have? These children could be born to you or adopted"

"Suppose you couldn't have that number, but had to choose between *2 children* and *4 children*. Which would you choose?"

"If you couldn't have that, would you choose *1 child* or *4 children*?"

"If you couldn't have that, would you choose *no child* or *4 children*?"

8

Coombs Scale

- Advantages
  - Information about latent desires about having a smaller or larger family ⇒ assumption of a consistent preference order
  - Information about upper an lower limits of desirable family size
  - Good predictive ability
  - Small number of questions needed
  - Ordinal information
- Problems
  - Forced decision about mostly preferred family size ⇒ risk of social desirability
  - Exclusion of uncertainty (no circular preferences, no ties of ranks)
  - Mix of answers according to ideal family size and realistic family size
  - No replication in European low fertility contexts

Pair-wise Comparison

- First question:

If the respondent has children:
"Imagine once more that you could start your reproductive life over again. Let's suppose you could have children when you wanted them, they could be born to you or adopted, and the mixture of boys and girls was just right."

If the respondent doesn't have children:
"Let's suppose you could have children when you wanted them, they could be born to you or adopted, and the mixture of boys and girls was just right."

"Suppose you had to choose between having either *[random number between 0 and 4]* children or *[random number between 0 and 4]* children. Which would you choose?"

Pair-wise Comparison

- First question:

> *If the respondent has children:*
> "Imagine once more that you could start your reproductive life over again. Let's suppose you could have children when you wanted them, they could be born to you or adopted, and the mixture of boys and girls was just right."
>
> *If the respondent doesn't have children:*
> "Let's suppose you could have children when you wanted them, they could be born to you or adopted, and the mixture of boys and girls was just right."
>
> "Suppose you had to choose between having either *[random number between 0 and 4]* children or *[random number between 0 and 4]* children. Which would you choose?"

- Afterwards all remaining combinations between 0 and 4 children are asked.
- Mostly desired family size and 2nd and 3rd preferences are computet.

Pair-wise Comparison

- Advantages
  - Avoids most of the methodological problems of the Coombs Scale
  - No forced decision-making $\Rightarrow$ lower risk of social desirability
  - Information about uncertainty
  - Complete ordinal information

- Problems:
  - Large number of similar questions
  - Only indirect information about alternative family sizes
  - Hardly any replication, no replication in European low fertility contexts

General methodological research questions

- Do both instruments work in European low fertility contexts?
- Do both instruments provide meaningful information about latent desires?
- To what degree do both instruments produce the same information?
- How reliable and valid are both instruments?

LISS Panel

- Longitudinal Internet Studies for the Social Sciences (LISS)
  - Probability sample of households in the Netherlands
  - Start in October 2007
  - Population in February 2008:
    - 5,176 households with 8,026 participating persons
  - Monthly surveys (20 to 30 minutes)
    - 50% interview time for LISS Core Study
    - 50% interview time for specific topics
- Population considered in the survey:
  - Men aged 16 to 50, women aged 16 to 45
  - Target population in August 2010: 4,018 persons
    - Response in August 2010: 2,591 persons (64.5%)
    - Response in September 2010: 2,173 persons (54.1%)

Experimental design

Distribution of the
mostly preferred number of children, wave 1

Distribution of the mostly preferred number of children, wave 1
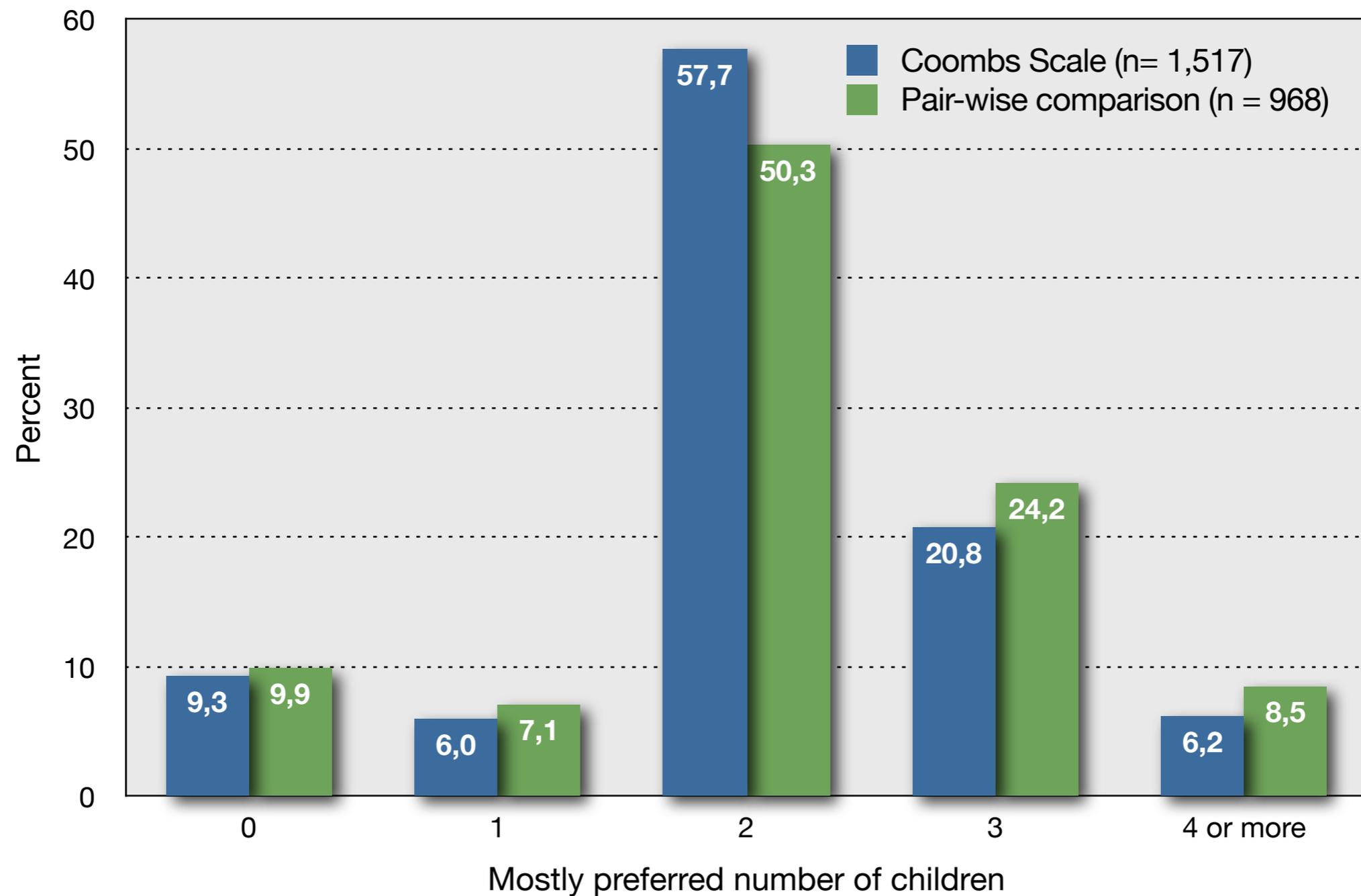
Chart: Percent (y-axis) vs. Mostly preferred number of children (x-axis)

Legend:
- Coombs Scale (n= 1,517) — blue
- Pair-wise comparison (n = 968) — green

Mostly preferred number of children	Coombs Scale	Pair-wise comparison
0	9,3	9,9
1	6,0	7,1
2	57,7	50,3
3	20,8	24,2
4 or more	6,2	8,5

Effect of question design
on the preferred number of children, wave 1

- Multinominal Regression
  - Dependent variable:
    - Preferred number of children: 1, 2, 3, 4 or more (reference group: 0)
  - Major explanatory variable:
    - Question design: 1= pair-wise comparison, 0 = Coombs Scale

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    - – Question design: 1= pair-wise comparison, 0 = Coombs Scale

	Preferred number of children			
	1	2	3	4 or more
pair-wise comp.	1.11	0.71**	1.03	1.22
N		2,351		

Levels of significance: *** ≤ 0.01, ** ≤ 0.05, * ≤ 0.1.

Control variables: gender, age, age squared, presence of partner, number of children in the household, population density, net income.

Distribution of the mostly preferred number of children, wave 2

Chart: Percent (y-axis) by Mostly preferred number of children (x-axis)

Legend:
- 1. Coombs, 2. Coombs (n=416)
- 1. Coombs, 2. modified Coombs (n=405)

Mostly preferred number of children	1. Coombs, 2. Coombs	1. Coombs, 2. modified Coombs
0	11,1	7,7
1	5,8	7,9
2	59,1	58,5
3	18,3	18,0
4 or more	5,8	7,9

Distribution of the
mostly preferred number of children, wave 2

Chart — Mostly desired number of children (Percent)

Legend:
- 1. Coombs, 2. Coombs (n=416)
- 1. Coombs, 2. modified Coombs (n=405)
- 1. pair-wise, 2. Coombs (n=433)

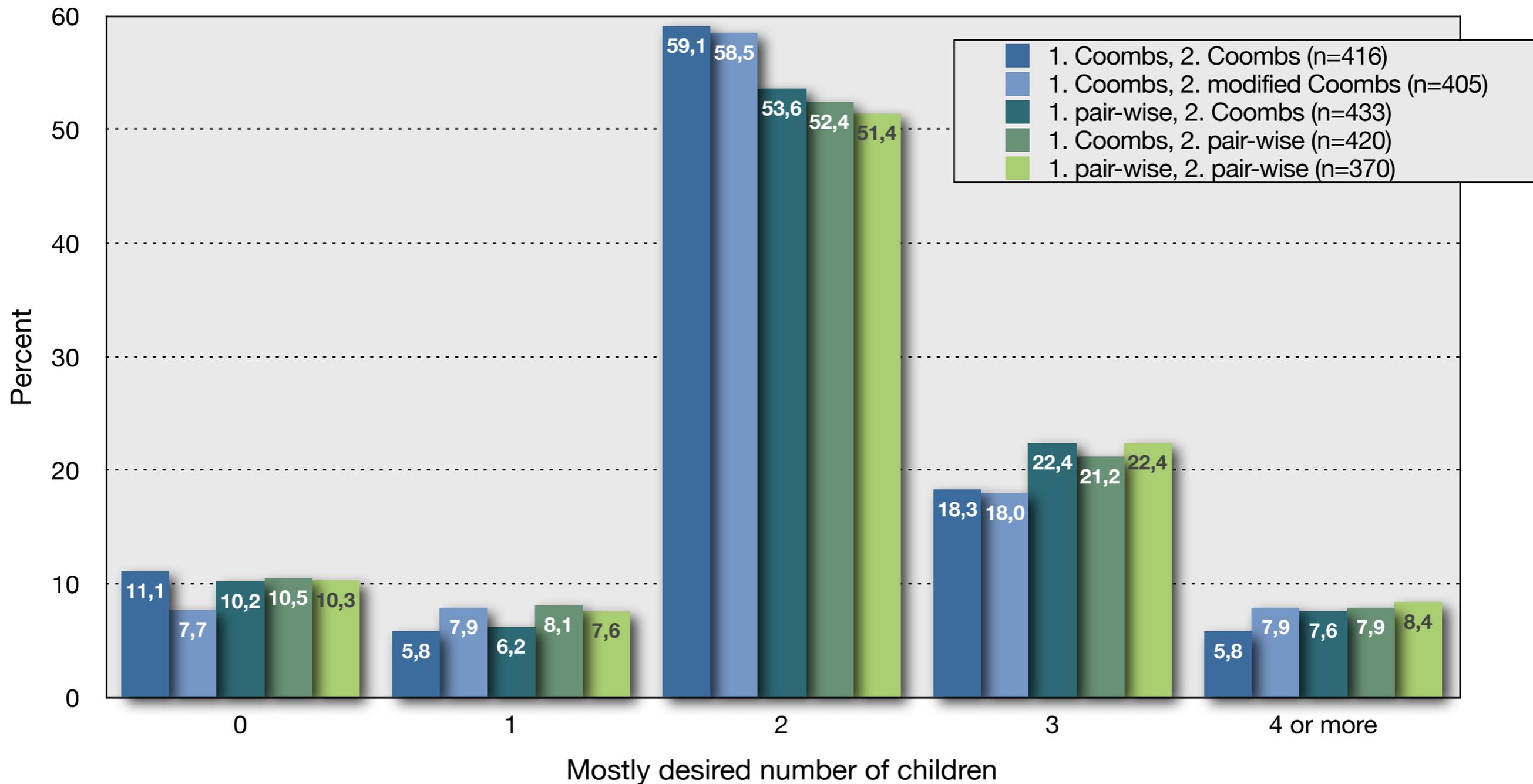| Mostly desired number of children	1. Coombs, 2. Coombs	1. Coombs, 2. modified Coombs	1. pair-wise, 2. Coombs
0	11,1	7,7	10,2
1	5,8	7,9	6,2
2	59,1	58,5	53,6
3	18,3	18,0	22,4
4 or more	5,8	7,9	7,6

Distribution of the mostly preferred number of children, wave 2

Distribution of the mostly preferred number of children, wave 2
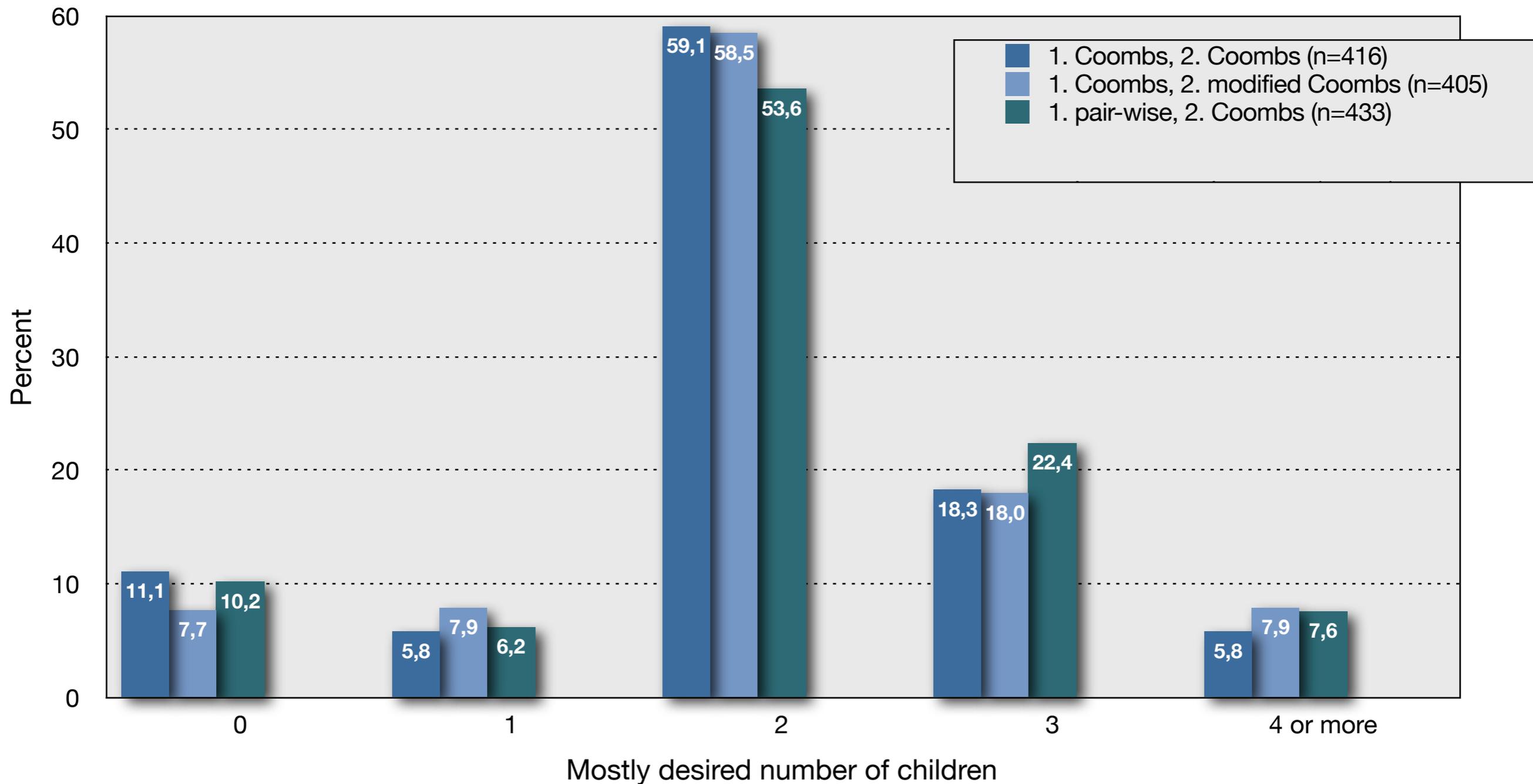
Legend:
- 1. Coombs, 2. Coombs (n=416)
- 1. Coombs, 2. modified Coombs (n=405)
- 1. pair-wise, 2. Coombs (n=433)
- 1. Coombs, 2. pair-wise (n=420)
- 1. pair-wise, 2. pair-wise (n=370)

Percent (y-axis), Mostly desired number of children (x-axis)

Mostly desired number of children	Coombs/Coombs	Coombs/mod. Coombs	pair-wise/Coombs	Coombs/pair-wise	pair-wise/pair-wise
0	11,1	7,7	10,2	10,5	10,3
1	5,8	7,9	6,2	8,1	7,6
2	59,1	58,5	53,6	52,4	51,4
3	18,3	18,0	22,4	21,2	22,4
4 or more	5,8	7,9	7,6	7,9	8,4

Effect of question design
on the preferred number of children, wave 2

- Multinominal Regression

	Preferred number of children			
	1	2	3	4 or more
Question design:				
1. pair-wise, 2. pair-wise	0.87	0.65*	0.92	0.93
1. Coombs, 2. pair-wise	0.99	0.69	0.97	0.93
1. pair-wise, 2. Coombs	0.77	0.78	1.02	0.95
1. Coombs, 2. Coombs or modified Coombs	1	1	1	1
N	1,933			

Levels of significance: *** ≤ 0.01, ** ≤ 0.05, * ≤ 0.1.

Control variables: gender, age, age squared, presence of partner, number of children in the household, population density, net income.
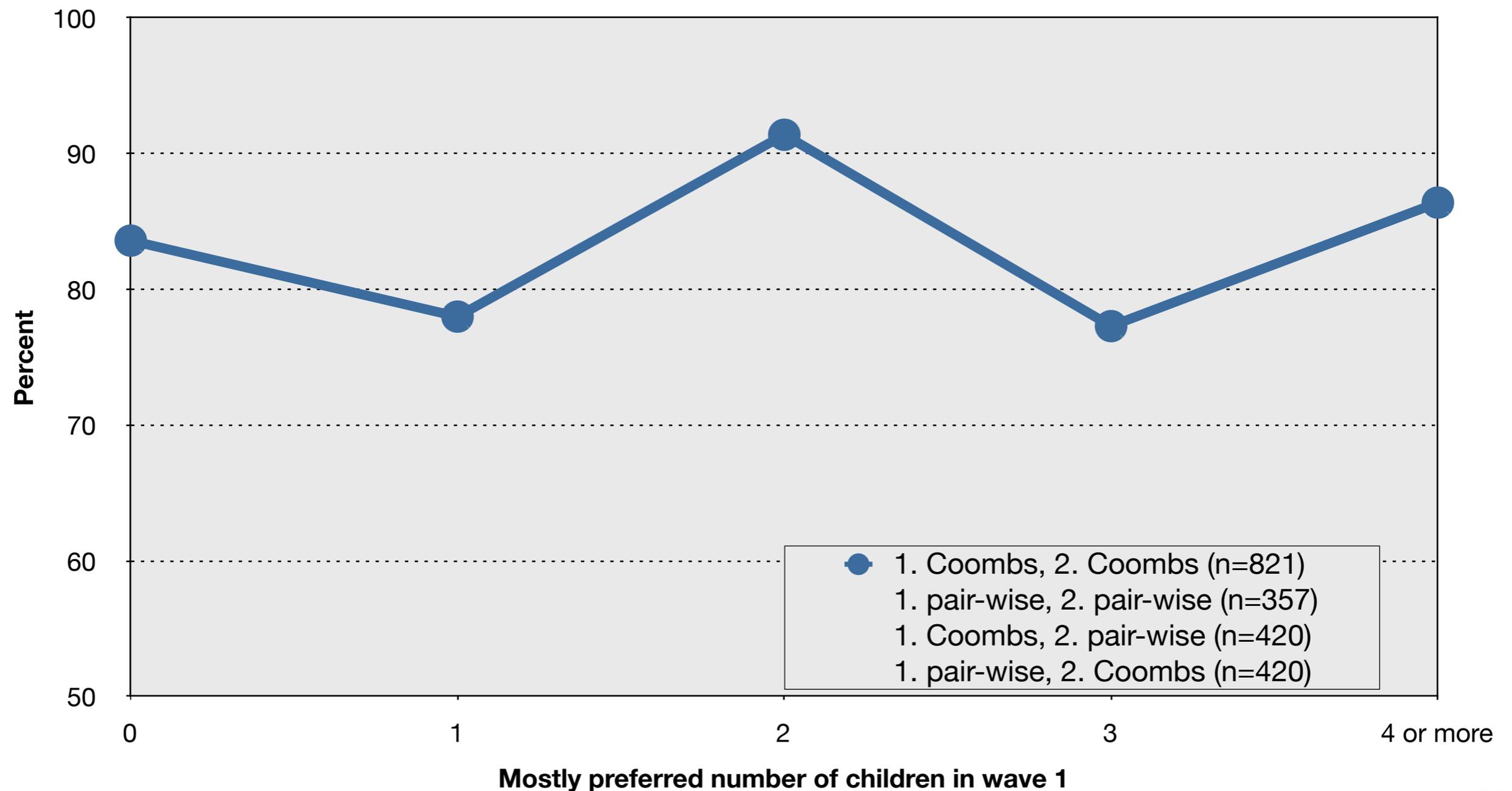
# Reliability of question design

- Kappa Statistics

	κ	n
Question design:		
1. Coombs, 2. Coombs or modified Coombs	0.778***	808
1. pair-wise, 2. pair-wise	0.746***	357
1. Coombs, 2. pair-wise	0.656***	411
1. pair-wise, 2. Coombs	0.701***	420

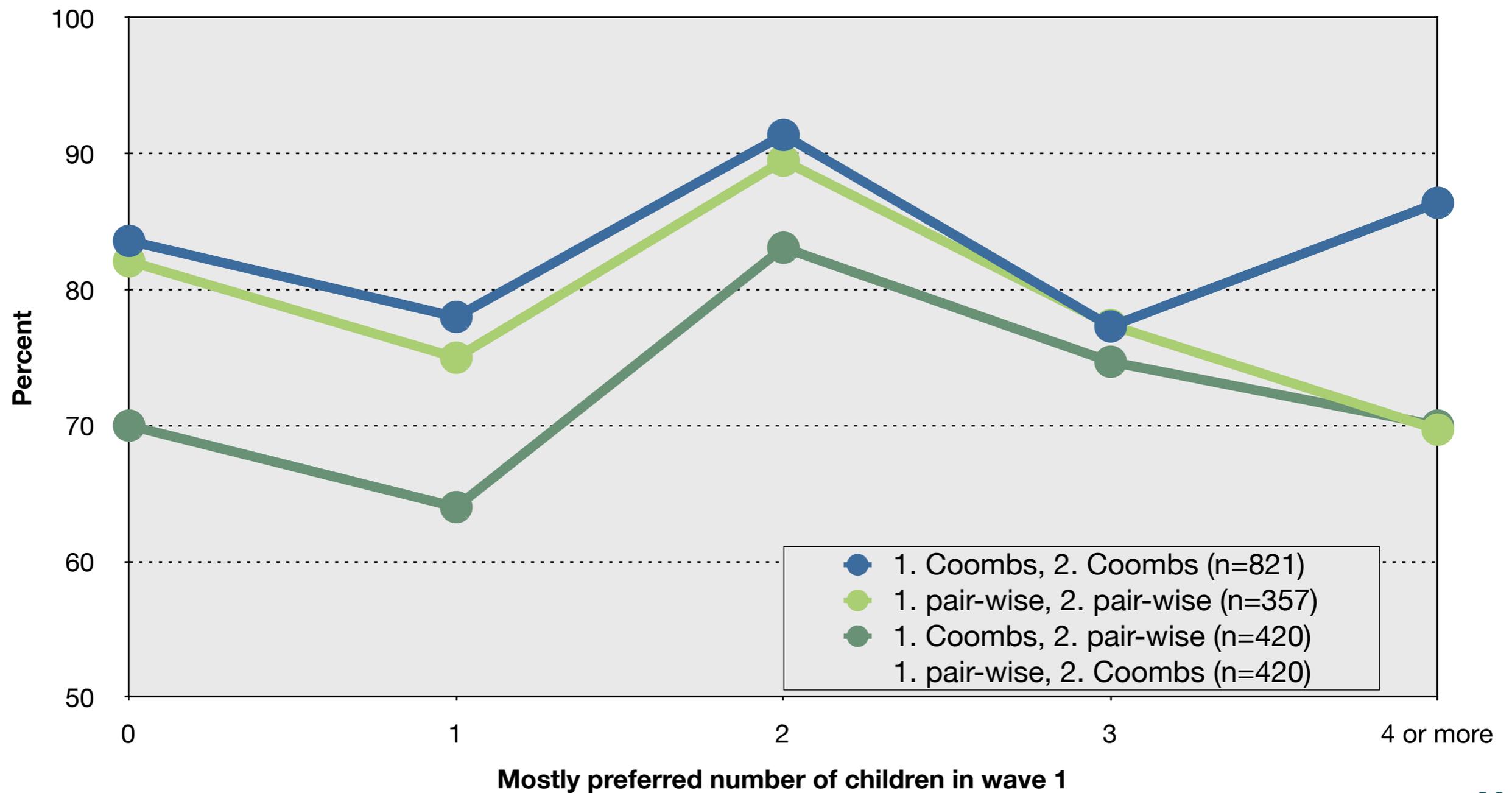Levels of significance: *** ≤ 0.01, ** ≤ 0.05, * ≤ 0.1.

Shares of consistent answers
on preferred family size in wave 1 and wave 2

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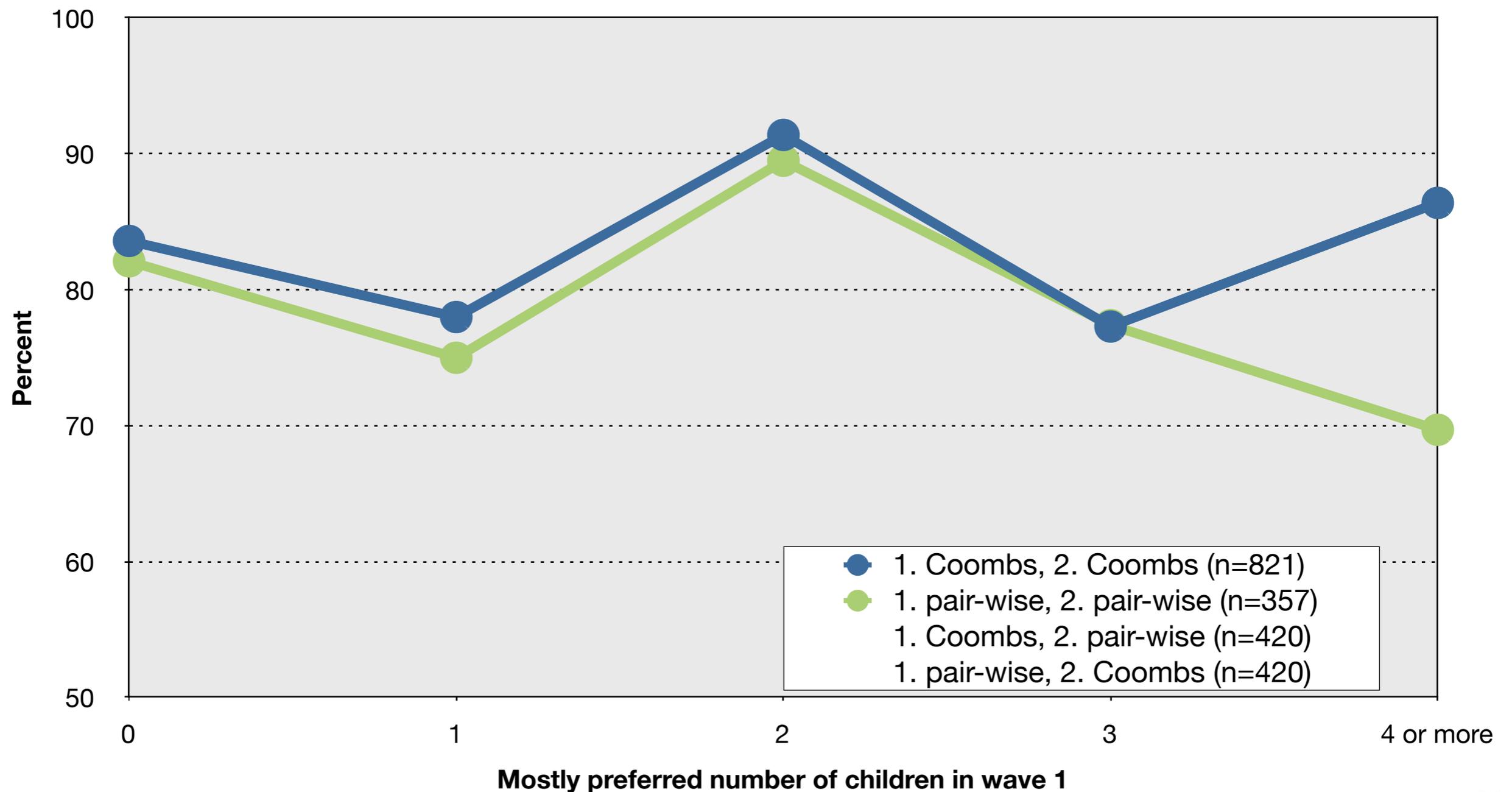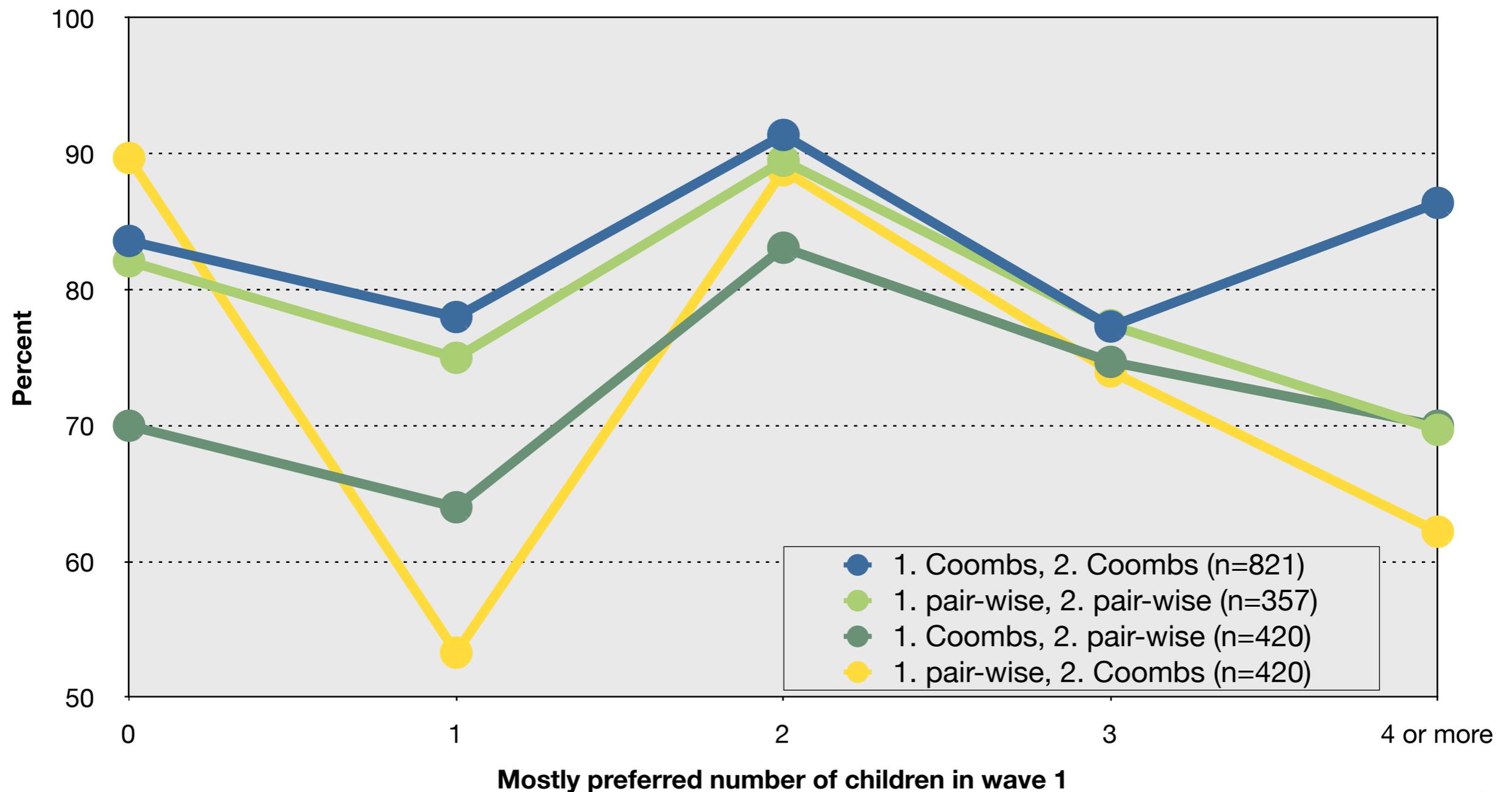
Shares of consistent answers on preferred family size in wave 1 and wave 2

Shares of consistent answers on preferred family size in wave 1 and wave 2

Determinants of consistent answers on preferred family size in wave 1 and wave 2 (logit-regr.)

	All respondents
Combination of question designs	
1. Coombs, 2. Coombs	1
1. pair-wise, 2. pair-wise	0.82
1. Coombs, 2. pair-wise	0.57***
1. pair-wise, 2. Coombs	0.66**
Mostly desired number of children in wave 1	
0	1
1	0.48**
2	5.10***
3	0.66*
4	0.57*
Certainty	
Fairly much	--
Very or extremely much	--
N	1,980

Levels of significance: *** $\leq$ 0.01, ** $\leq$ 0.05, * $\leq$ 0.1.

Determinants of consistent answers on preferred family size in wave 1 and wave 2 (logit-regr.)

	All respondents	Coombs Scale in 1st wave (1,2,3 children named)	
		Model 1	Model 2
Combination of question designs			
1. Coombs, 2. Coombs	1	1	
1. pair-wise, 2. pair-wise	0.82	--	
1. Coombs, 2. pair-wise	0.57***	0.62**	
1. pair-wise, 2. Coombs	0.66**	--	
Mostly desired number of children in 1st wave			
0	1	--	
1	0.48**	0.33***	
2	5.10***	1	
3	0.66*	0.40***	
4	0.57*	--	
Certainty			
Fairly much	--	--	
Very or extremely much	--	--	
N	1,980	973	

Levels of significance: *** < 0.01, ** < 0.05, * < 0.1.

Determinants of consistent answers
on preferred family size in wave 1 and wave 2 (logit-regr.)

	All respondents	Coombs Scale in 1st wave (1,2,3 children named)	
		Model 1	Model 2
Combination of question designs			
1. Coombs, 2. Coombs	1	1	1
1. pair-wise, 2. pair-wise	0.82	--	--
1. Coombs, 2. pair-wise	0.57***	0.62**	0.62**
1. pair-wise, 2. Coombs	0.66**	--	--
Mostly desired number of children in 1st wave			
0	1	--	--
1	0.48**	0.33***	0.38***
2	5.10***	1	1
3	0.66*	0.40***	0.50***
4	0.57*	--	--
Certainty			
Fairly much	--	--	2.28***
Very or extremely much	--	--	3.04***
N	1,980	973	973

Levels of significance: *** < 0.01, ** < 0.05, * < 0.1.

Conclusions

- According to the mostly desired number of children …
  - … Coombs Scale and pair-wise comparison produce similar distributions
  - … the Coombs Scale is probably more sensitive to normative perceptions
- Coombs-Scale and pair-wise comparison have high reliabilities

- Open questions:
  - Examination of the normative character of the Coombs-Scale
  - Explanation of the significant variation of consistent answers according to parity
  - Exploration and comparison of latent desires by analyzing the complete ordinal information of the Coombs-Scale and pair-wise comparison

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