

How and Why do Levels of Innovation Differ across Norwegian City Regions?

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Research questions

- What are the main drivers behind innovation in Norwegian city regions?
- How do firms in Norway overcome geographical distance in order to remain competitive?
- Are there significant differences in innovative capacity and in the sources of this capacity among Norwegian city-regions?

Agglomeration as a driver for innovation

- Agglomeration leads to:
 - Dense institutionalised markets (Trigilia 1992)
 - in which actors share knowledge resources
 - and social and political capital is formed
 - Face-to-face interaction
 - associations among stakeholders (Cooke and Morgan 1998)
 - creating relational locational assets (Storper 1997)
 - Knowledge spillovers
 - within closely-knit clusters (Florida 2002, Porter 1990)
 - exchange of tacit knowledge
 - Innovation
 - Learning regions (Cooke and Morgan 1998)
 - Innovation prone societies (Rodríguez-Pose 1999)
- What are the options for peripheral areas?

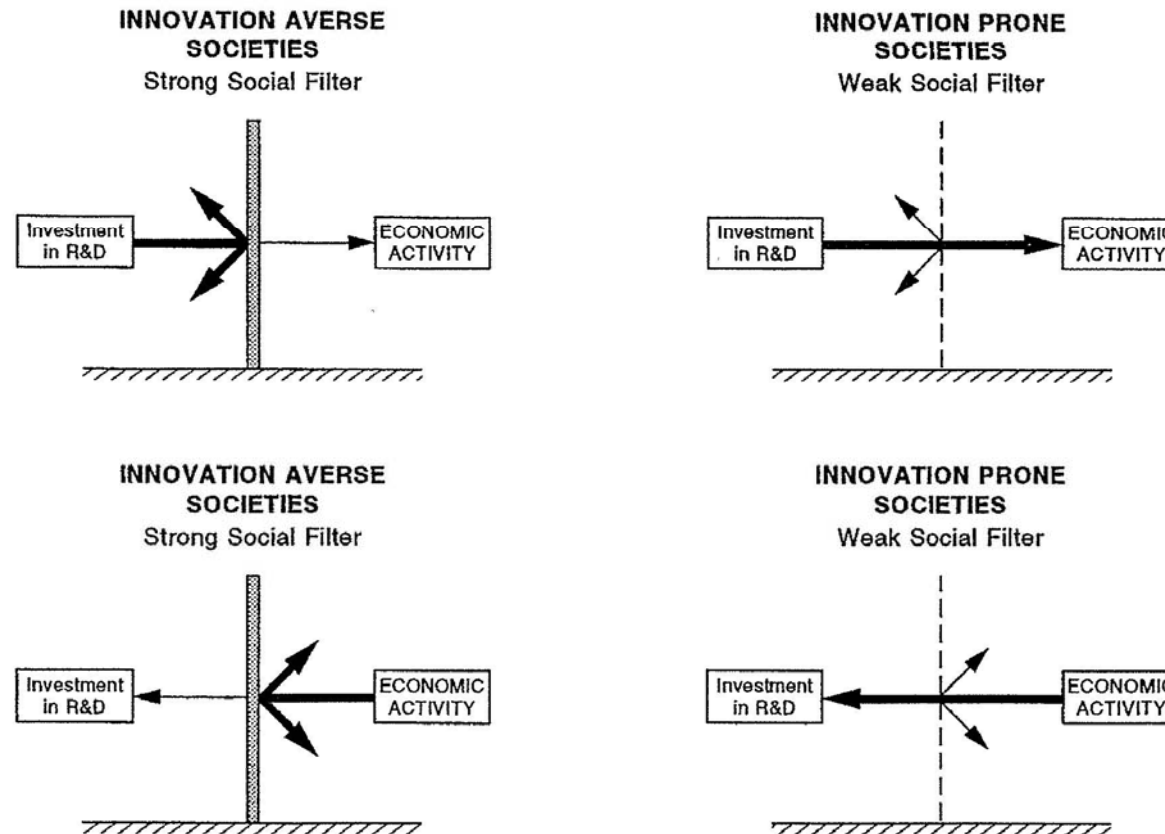
Options for peripheral areas

- Overcoming geographical distance
 - Global pipelines
- Different types of proximities (Boschma 2005)
 - Cognitive: Similarity of knowledge base and expertise
 - Organisational: Sharing of relations in an org. arrangement
 - Social: Trusting relations between micro-level agents
 - Institutional: Similarity of language, norms, habits, legislation
- Firms exploit non-geographical proximities to
 - become globally connected
 - draw on assets and capabilities from elsewhere
 - absorb tacit knowledge and innovation produced elsewhere

Reducing distances

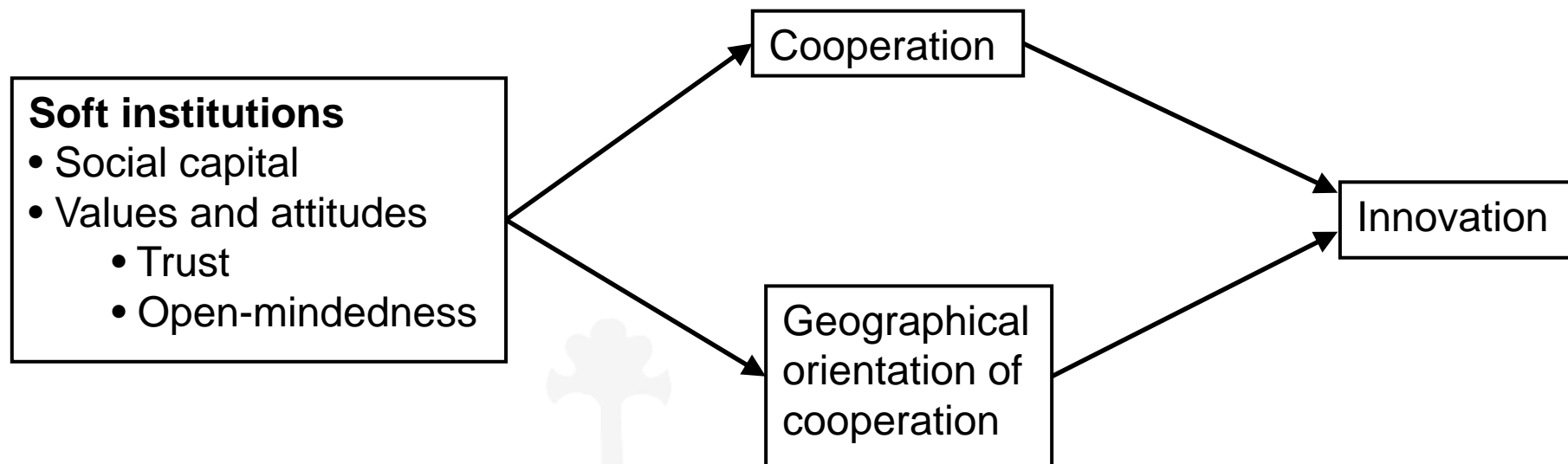
- How can these types of non-geographical distances be reduced?
 - Through collaboration
 - Human interaction
 - Mutual learning
 - Soft institutions
 - Reduce suspicion
 - Facilitate coordination and generation of trust

Innovation and the social filter



Rodríguez-Pose 1999: "Innovation Prone and Innovation Averse Societies"

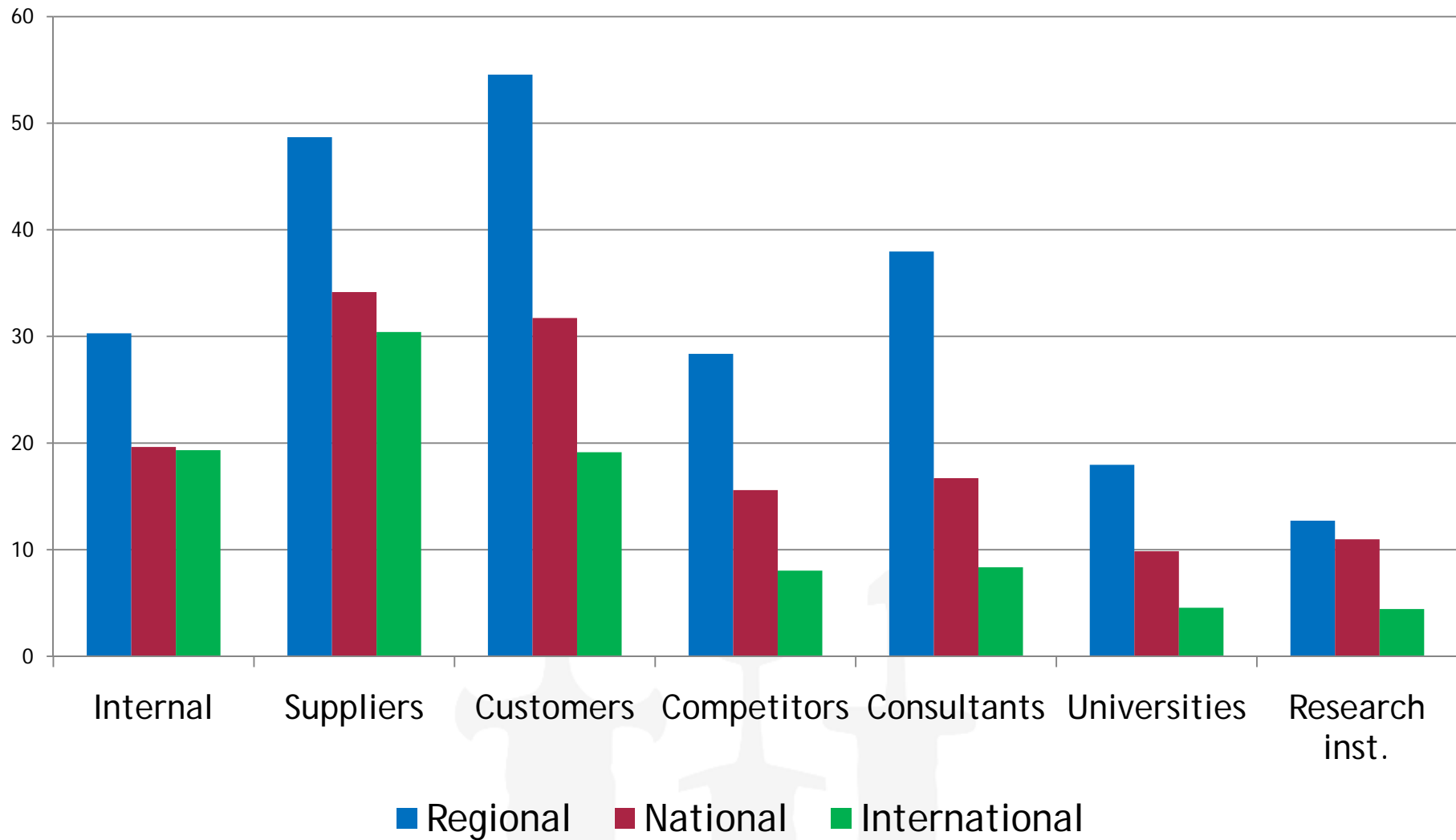
Analytical Model



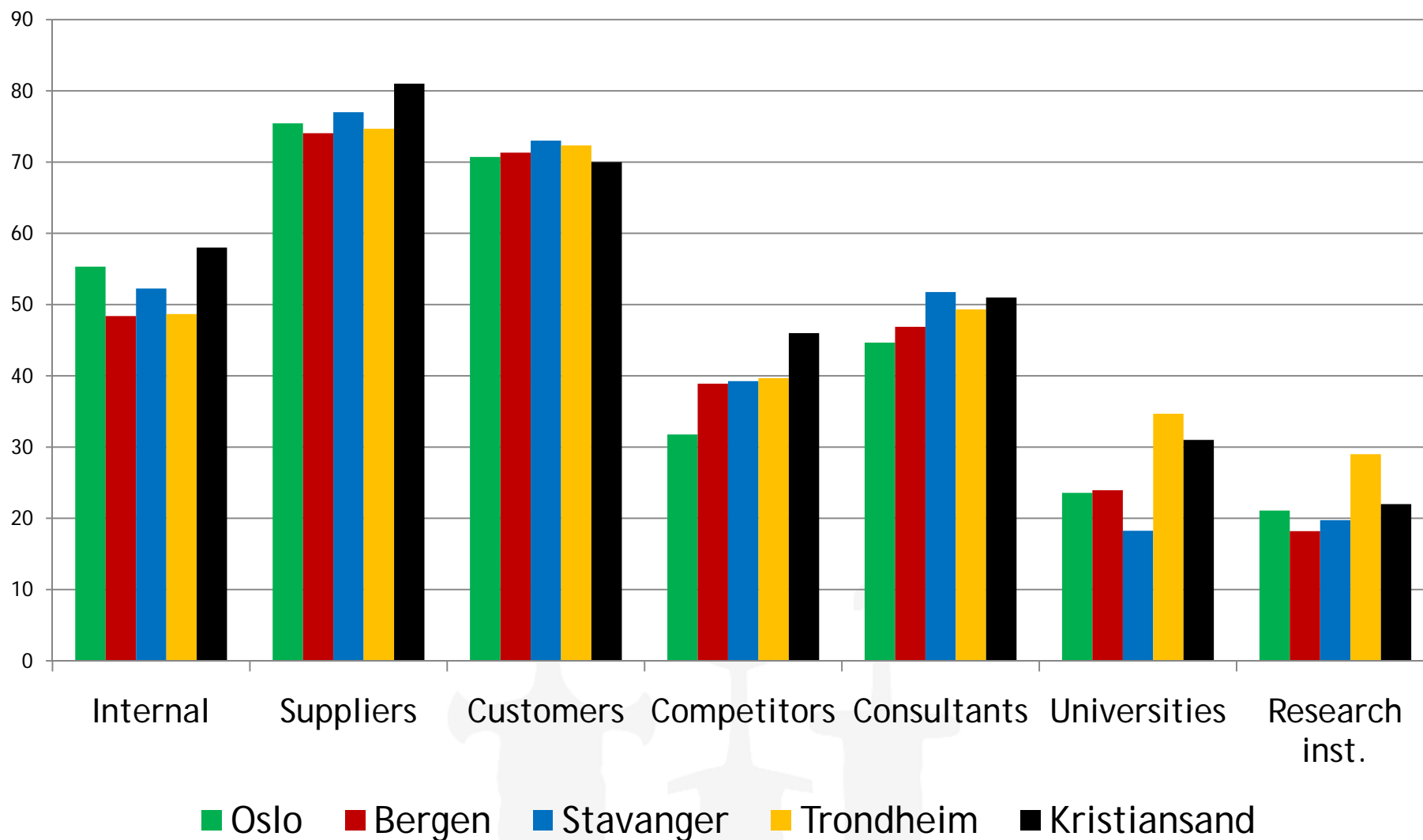
Innovation in Norwegian city regions

(% yes)	Product		Process		N
	<i>Total</i>	<i>Radical</i>	<i>Total</i>	<i>Radical</i>	
Oslo	59.6 %	34.0 %	50.4 %	20.4 %	403
Bergen	46.4 %	25.1 %	42.4 %	16.5 %	401
Stavanger	54.0 %	33.8 %	46.8 %	18.8 %	400
Trondheim	52.3 %	29.0 %	48.7 %	19.7 %	300
Kristiansand	58.0 %	30.0 %	47.0 %	20.0 %	100
Total	53.4 %	30.5 %	46.9 %	18.8 %	1604

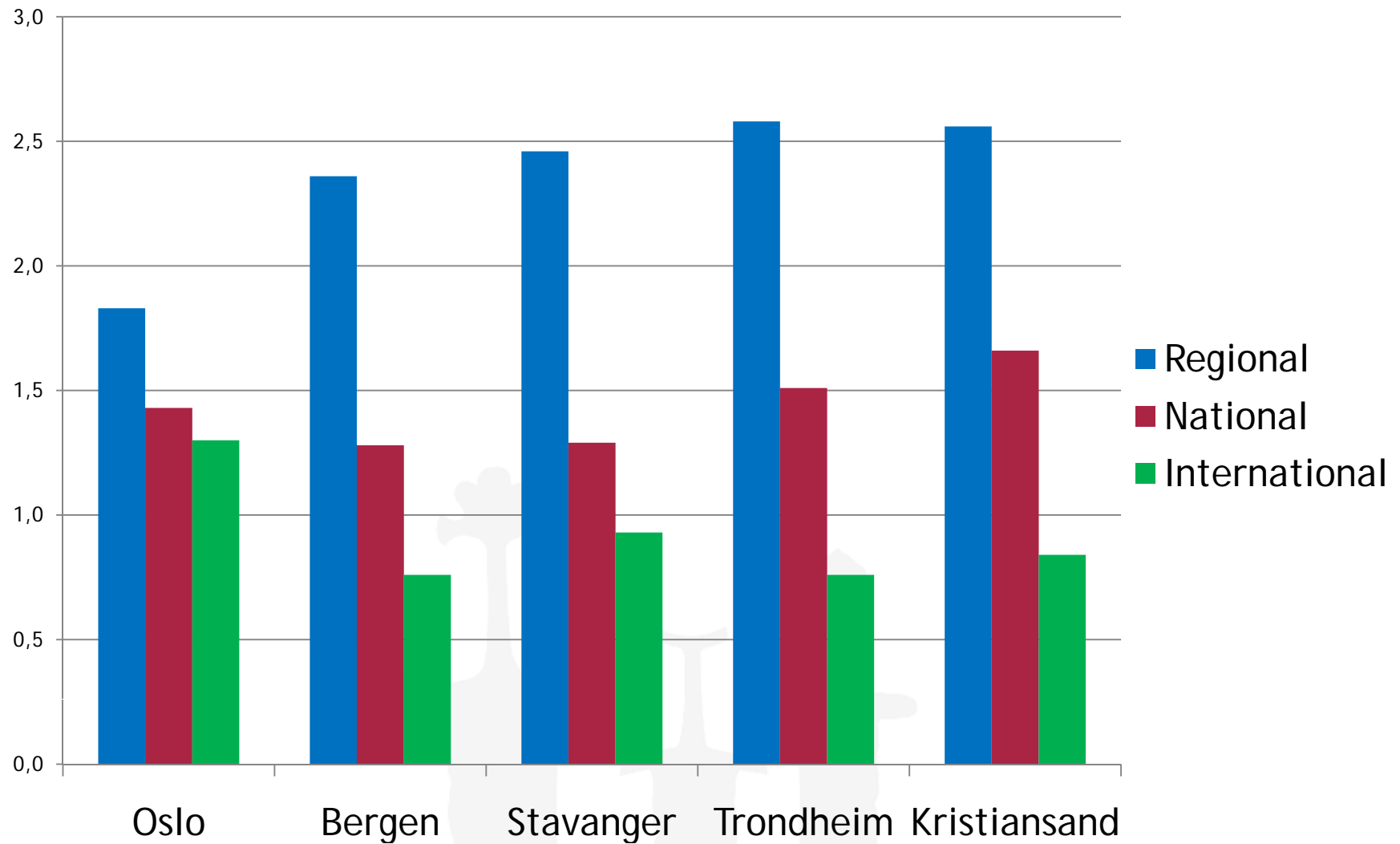
Percent of companies using partner type



Partner types used, by city region



No. of partner types used



Does cooperation lead to innovation?

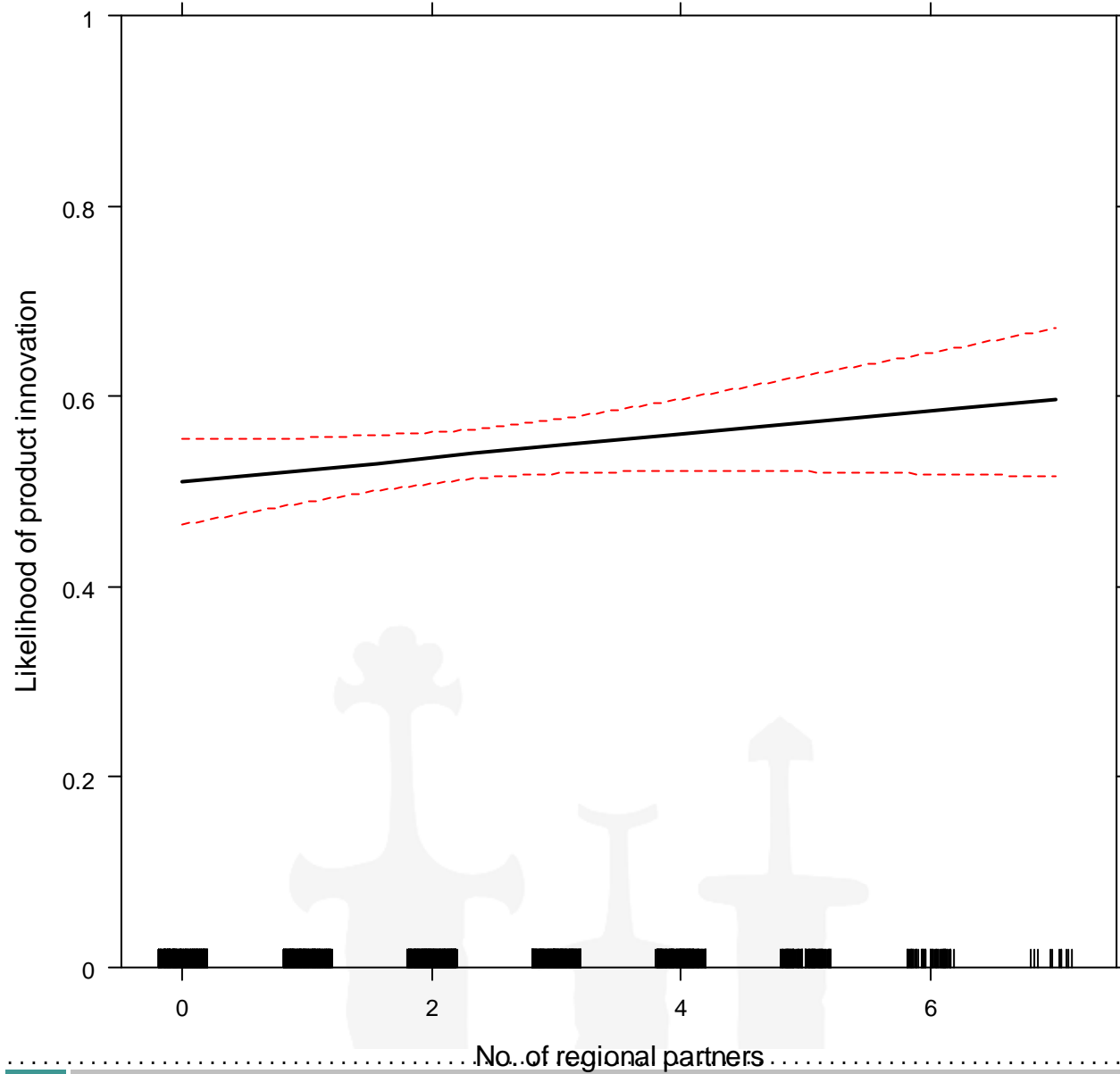
Logistic regression models, N = 1604.

Controls: Sector, region, education, age, board memberships

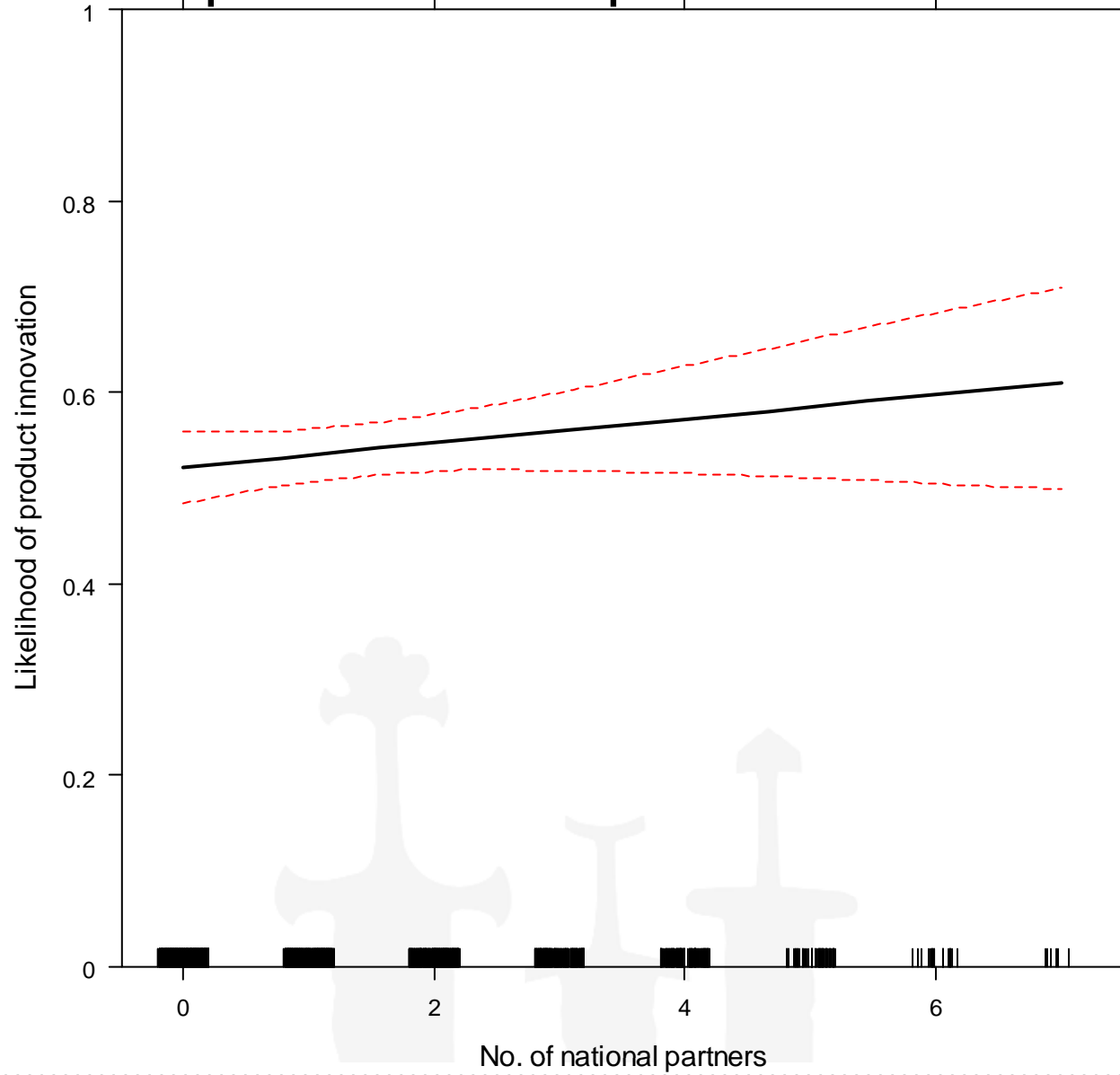
	Product	New to market	Process	New to industry
<i>Diversity of local partners</i>	0.05 (0.03)	0.05 (0.04)	0.03 (0.03)	0.01 (0.04)
<i>Diversity of national partners</i>	0.05 (0.04)	0.03 (0.04)	0.07 (0.04)	0.07 (0.05)
<i>Diversity of international partners</i>	0.19*** (0.05)	0.23*** (0.05)	0.09 (0.05)	0.13** (0.05)
<i>% foreign ownership</i>	0.50* (0.21)	0.43* (0.19)	0.28 (0.19)	0.13 (0.22)
<i>Log no. of employees</i>	0.22*** (0.06)	0.15* (0.06)	0.25*** (0.06)	0.18** (0.07)
Nagelkerke R ²	0.15	0.15	0.11	0.11

* p < 0.05, ** p < 0.01, *** p < 0.001

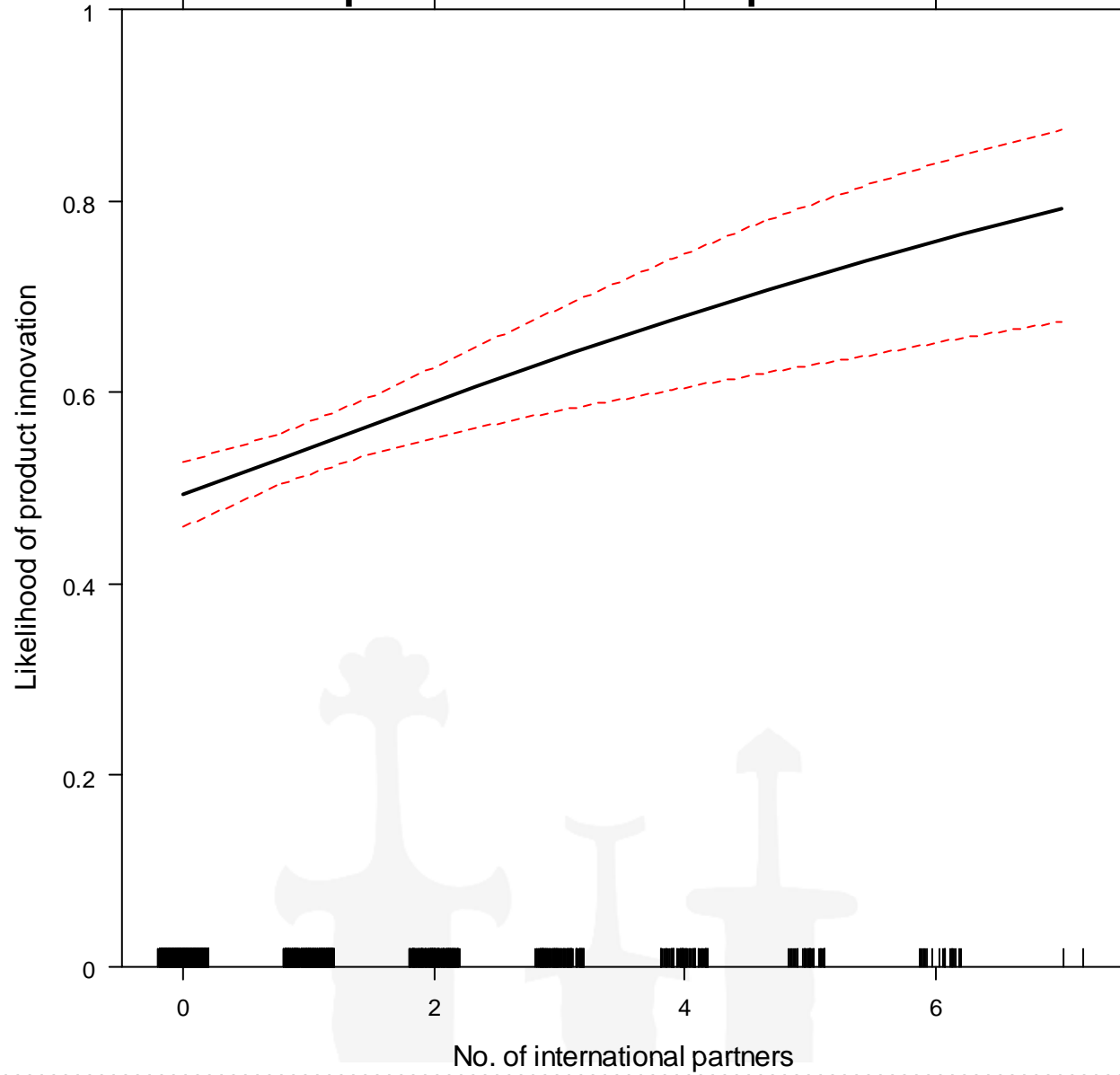
Regional cooperation and product innovation



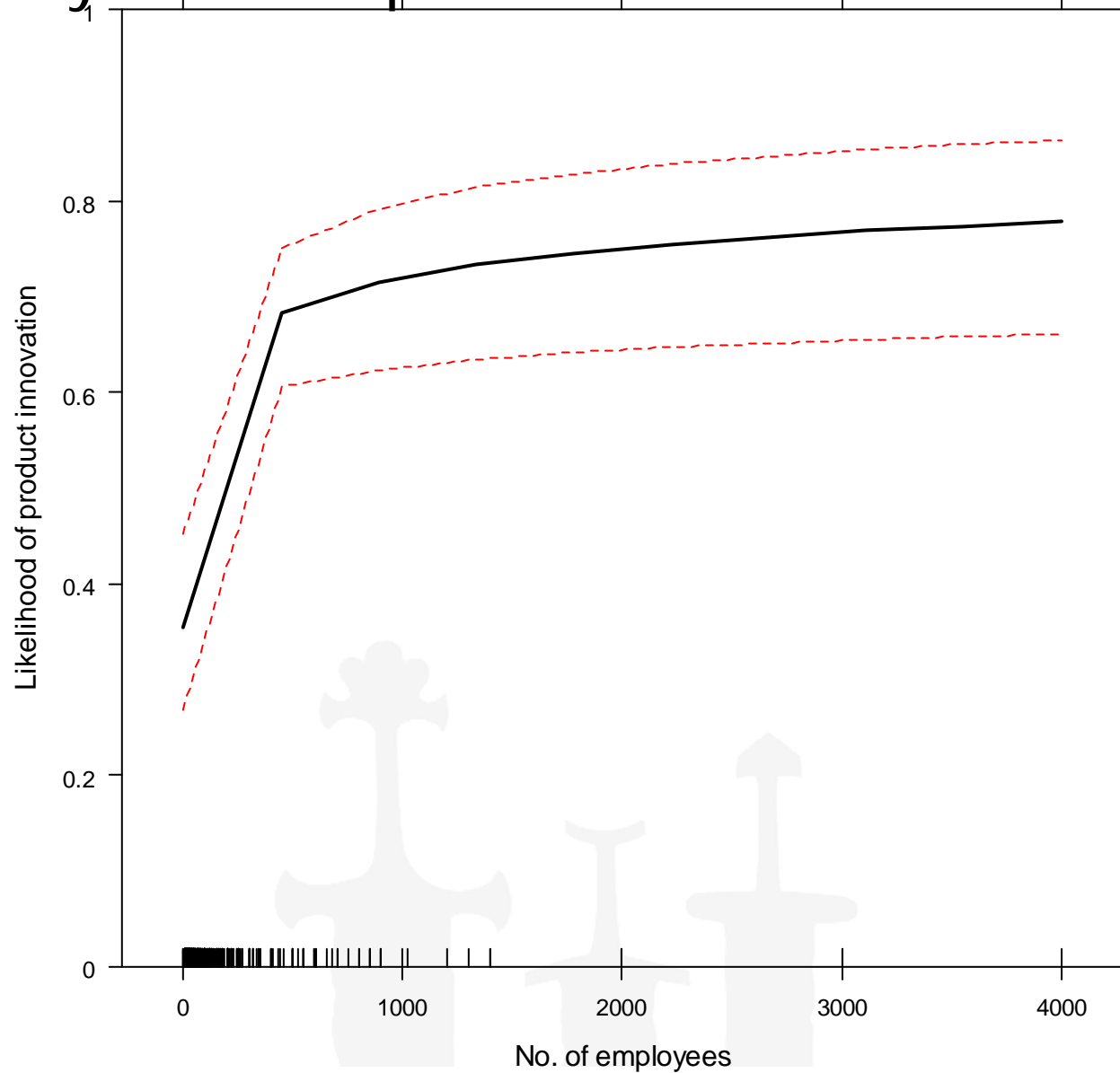
National cooperation and product innovation



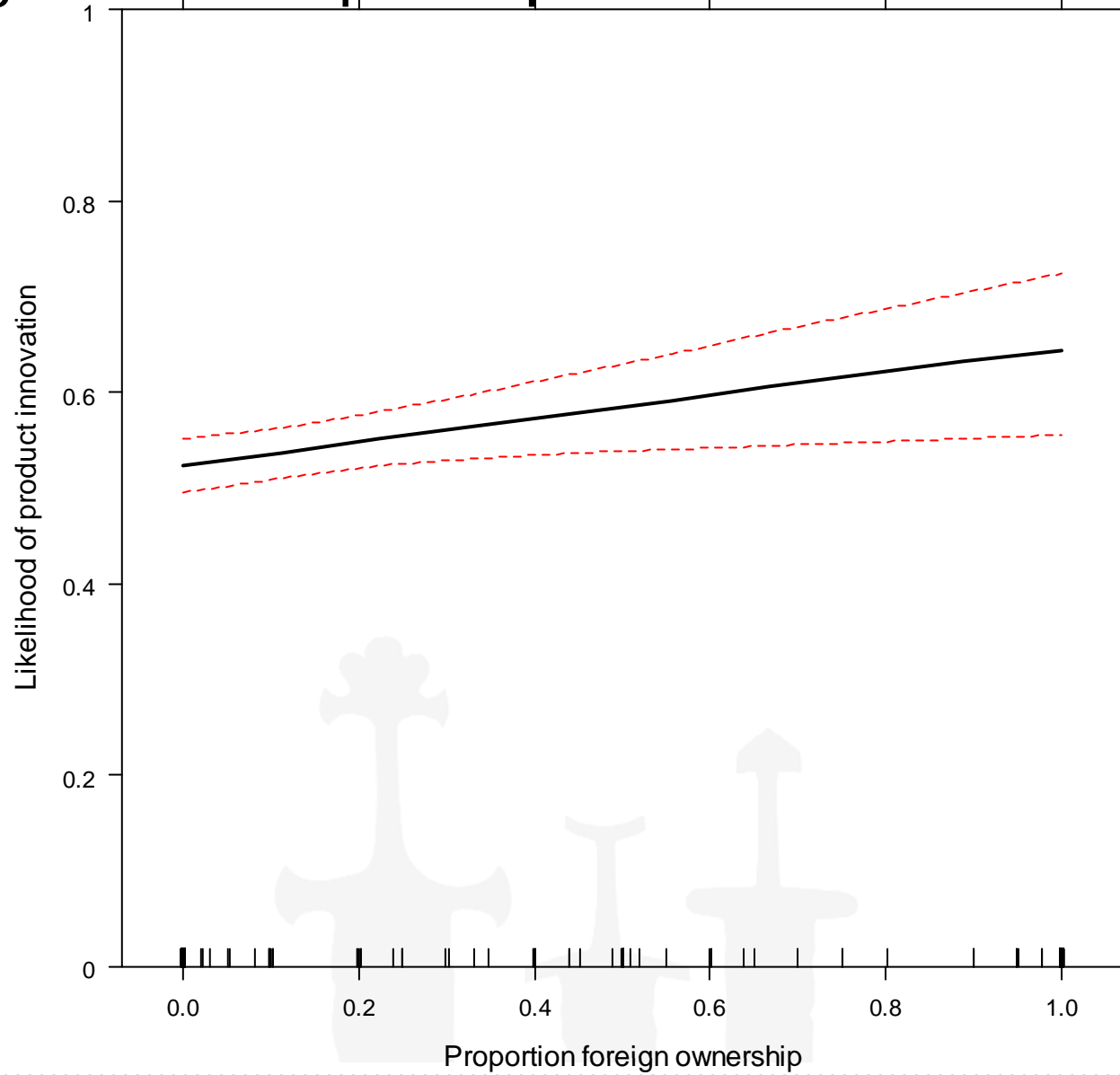
International cooperation and product innovation



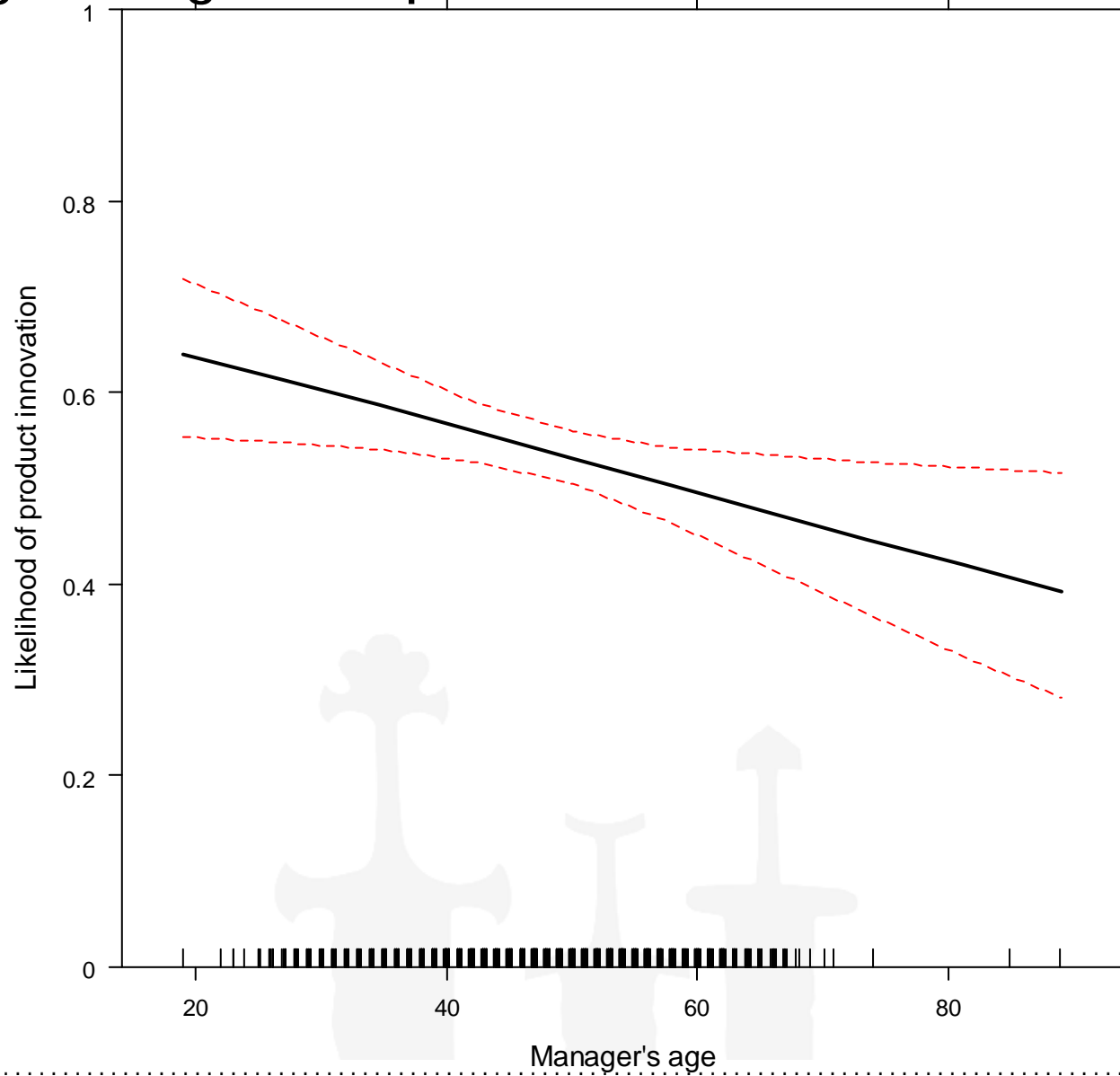
Company size and product innovation



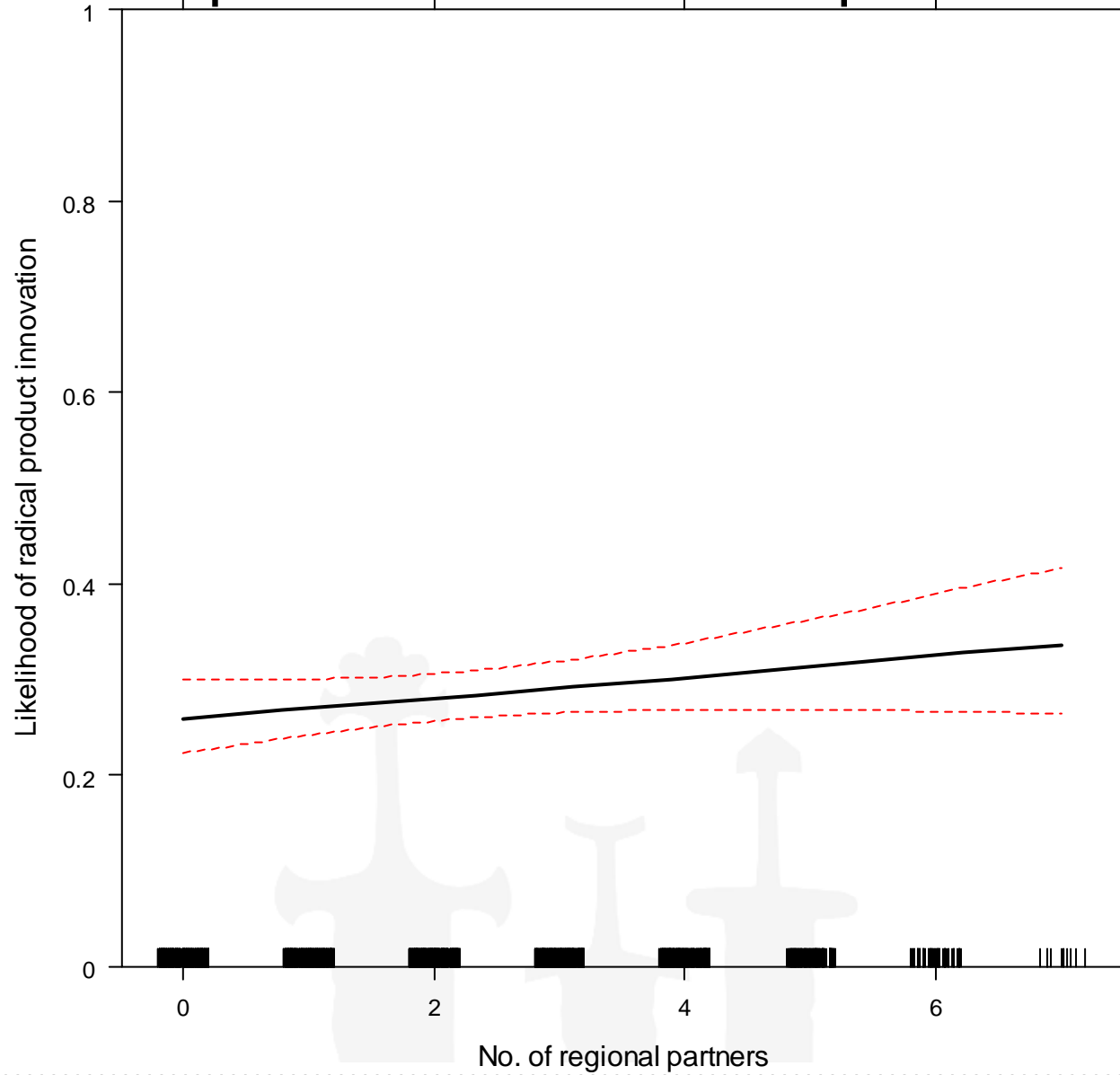
Foreign ownership and product innovation



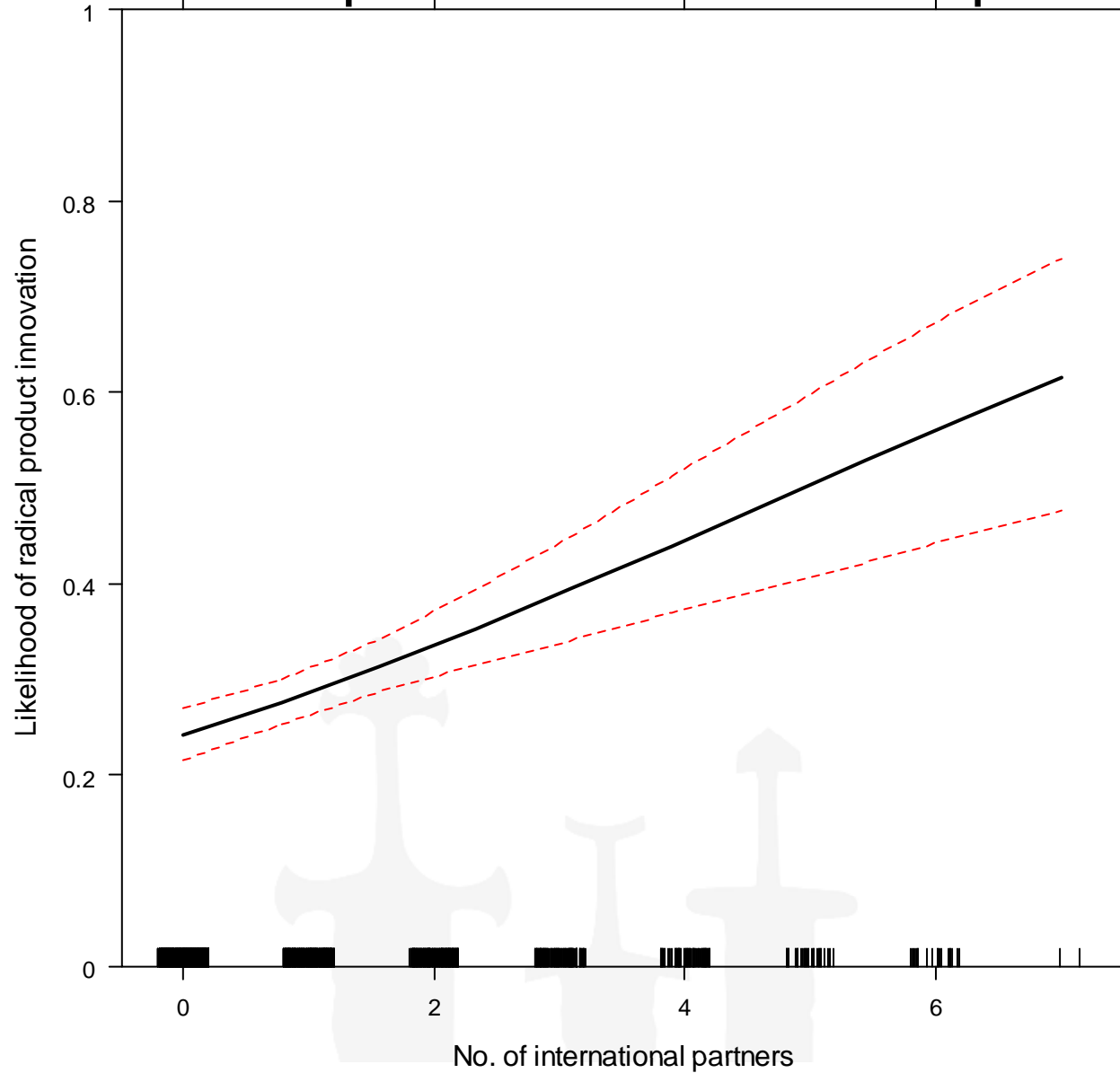
Manager's age and product innovation



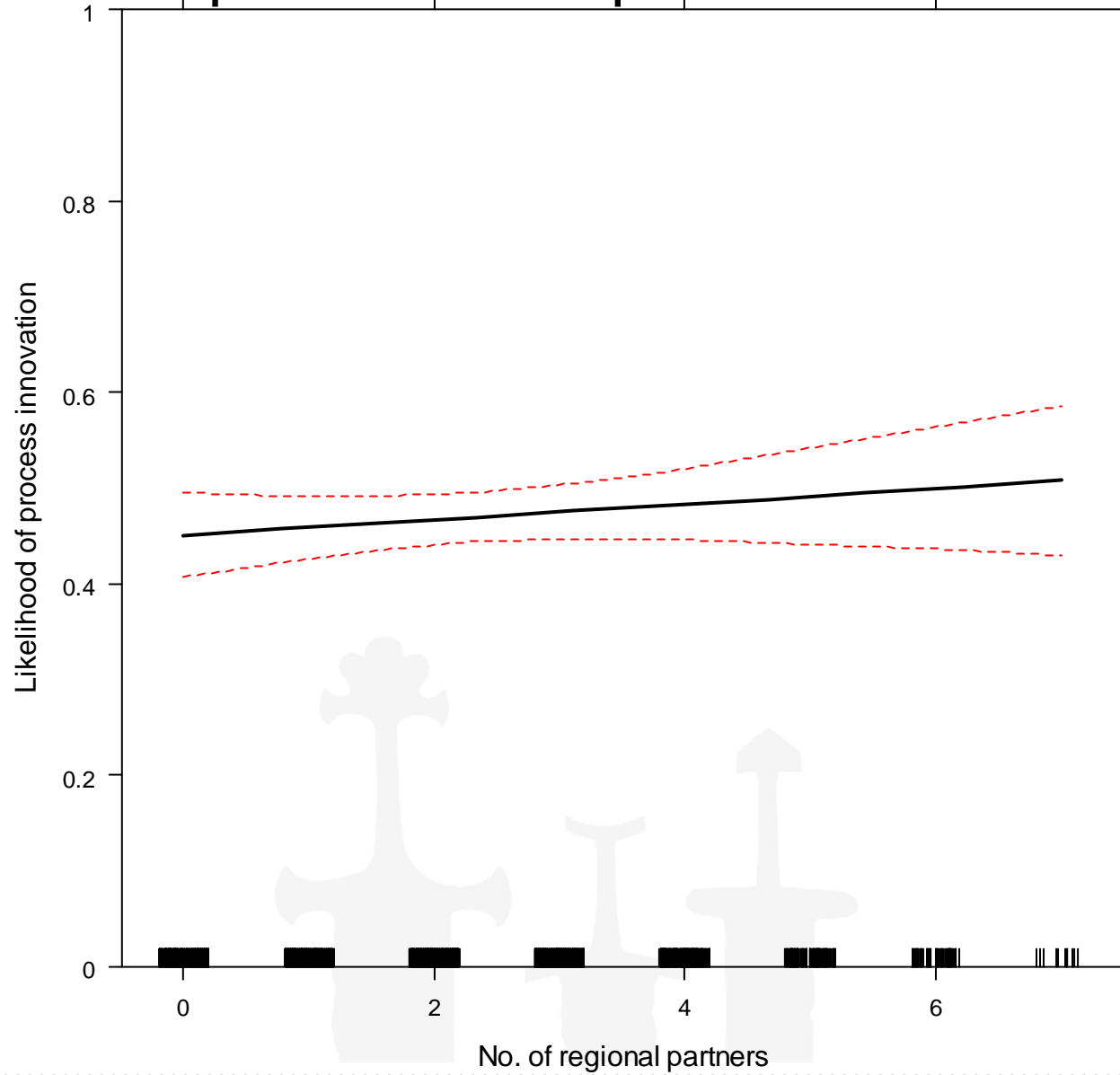
Regional cooperation and radical prod. innovation



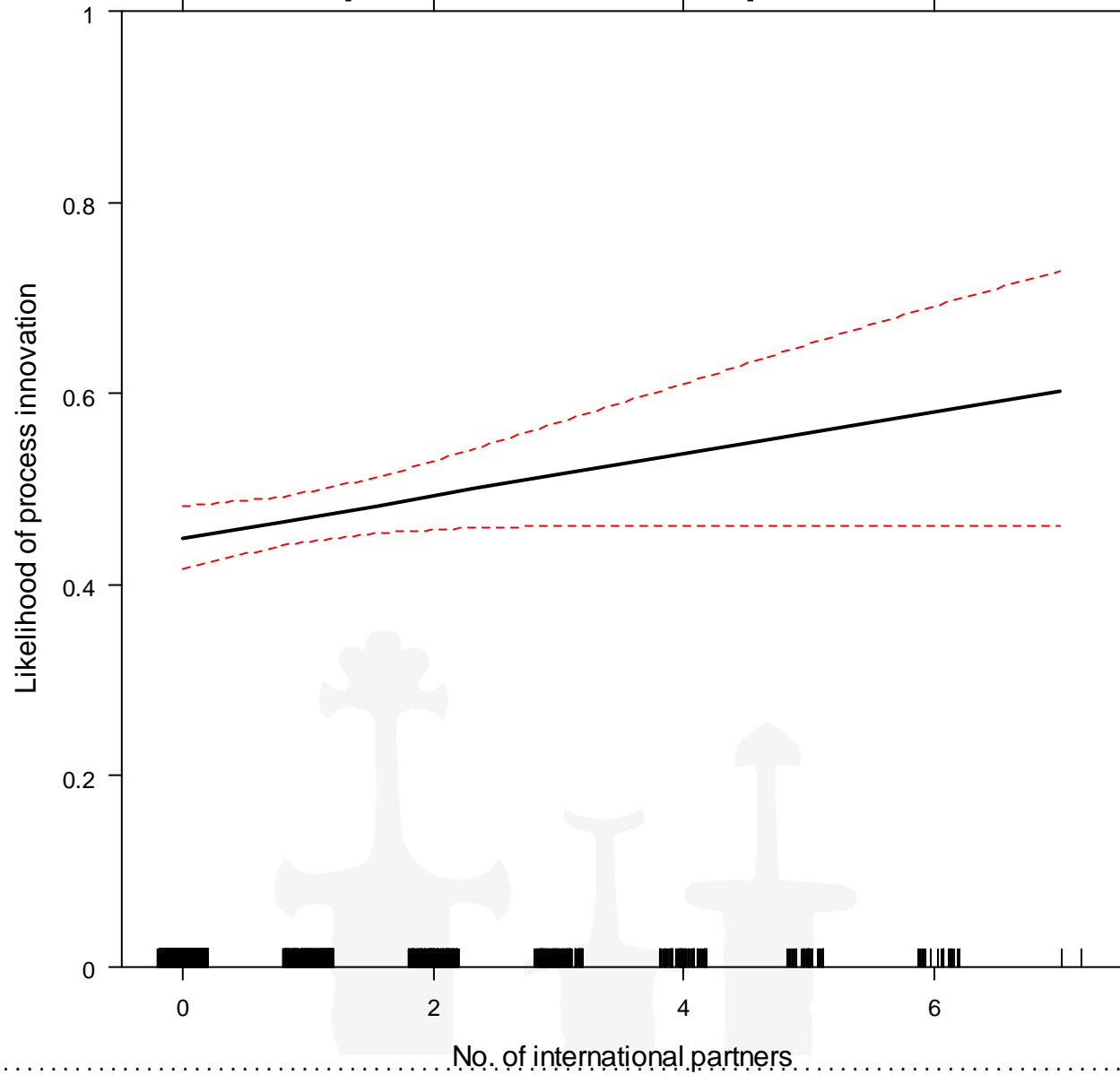
International cooperation and radical prod. innov.



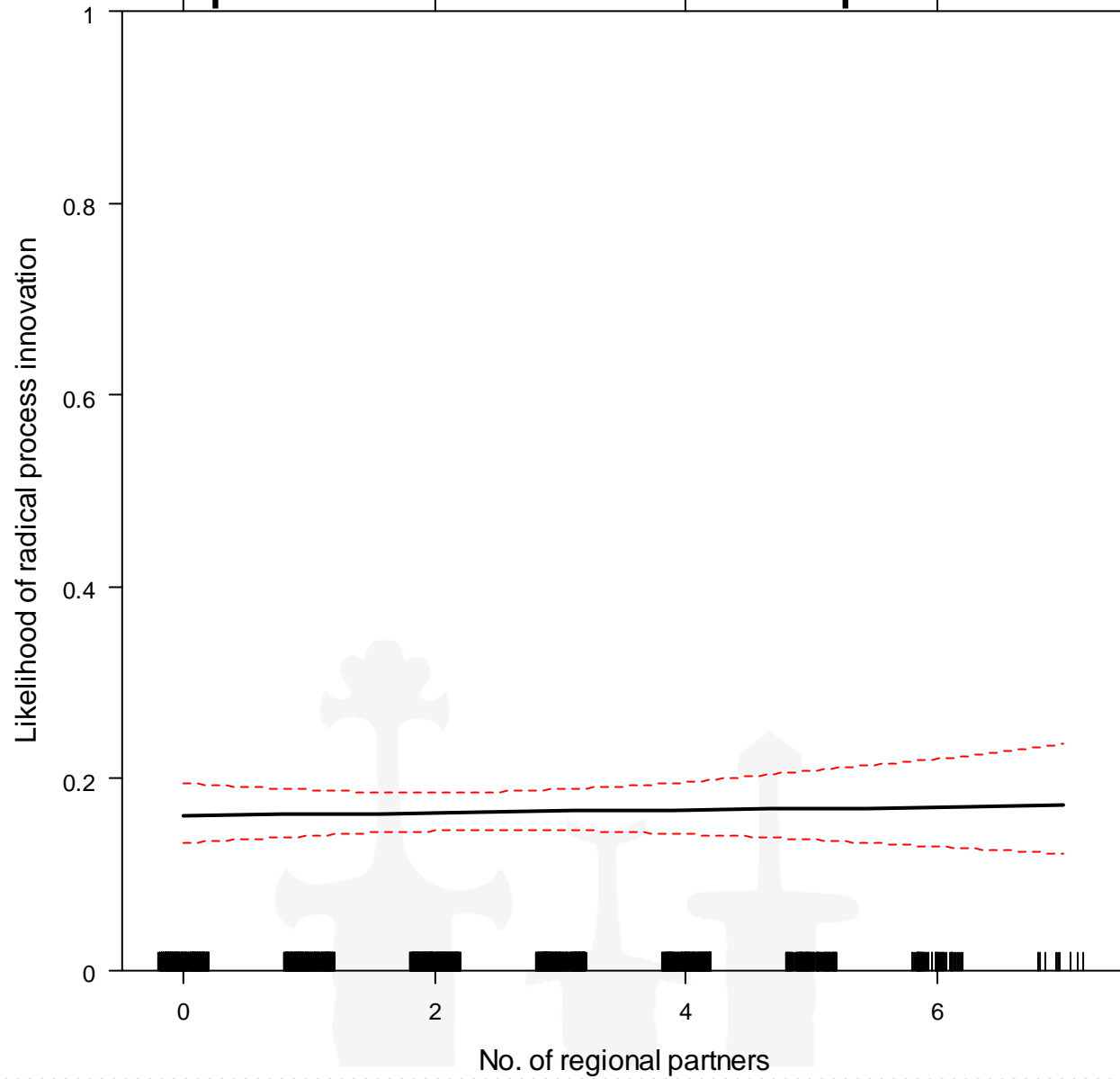
Regional cooperation and process innovation



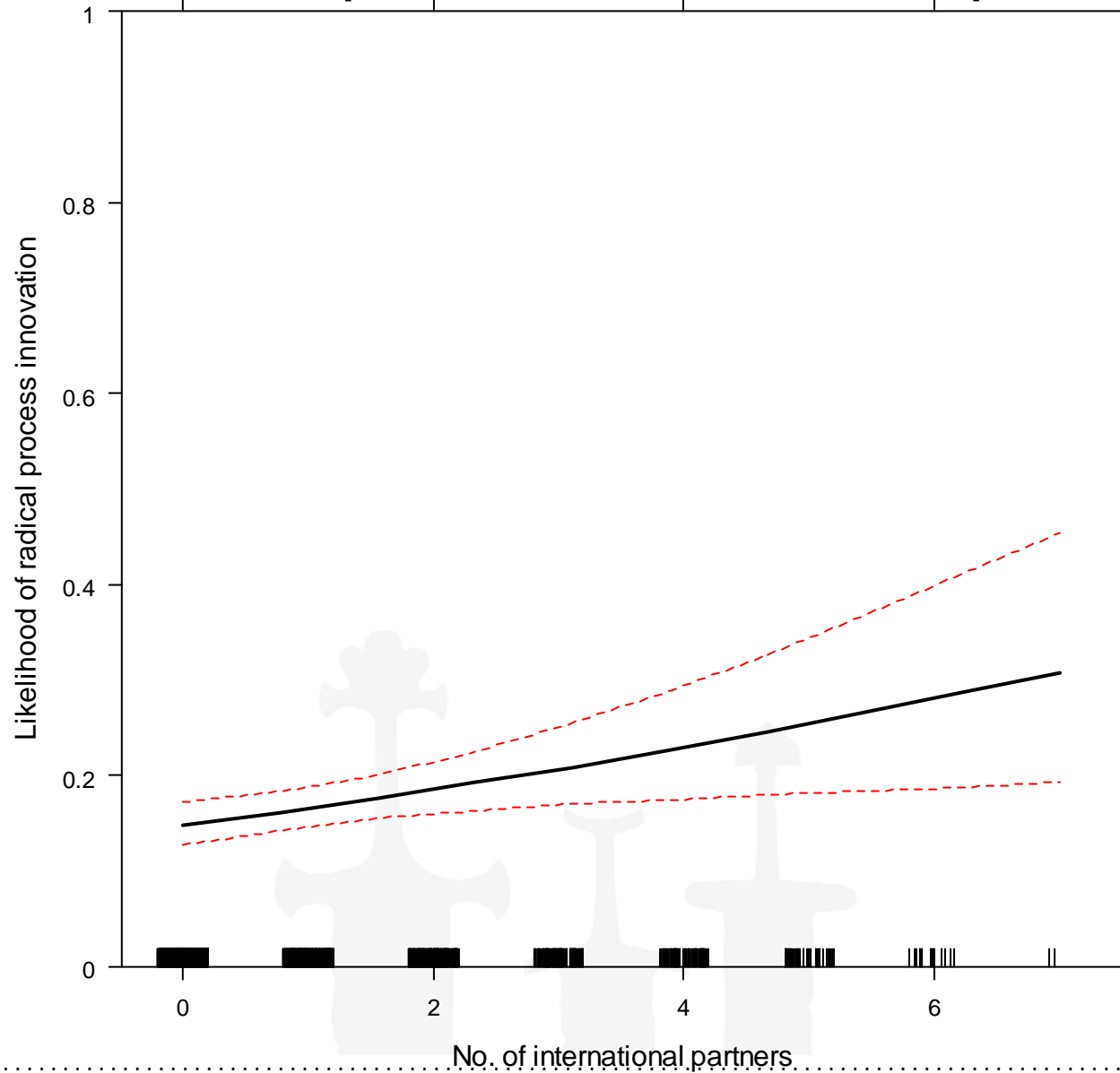
International cooperation and process innovation



Regional cooperation and radical process innov.



International cooperation and radical proc. innov.



Regional management cultures?

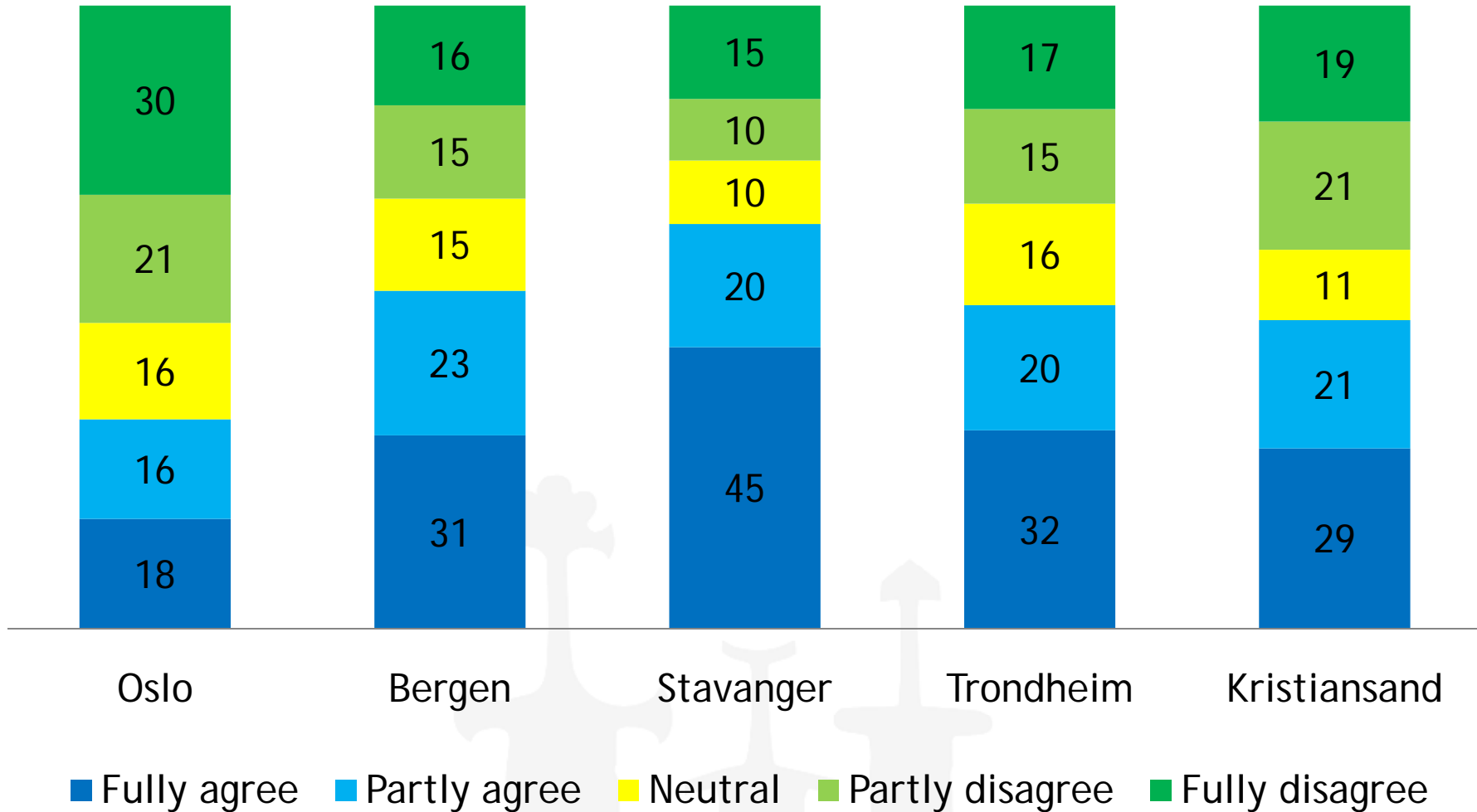
Mean scores, scales 0-1/0-3/0-4	Oslo	Bergen	Stav.	Tr.heim	Kr.sand
<i>Trust other people in general</i>	0.81	0.81	0.84	0.83	0.81
<i>Trust in regional business managers</i>	3.04*	3.06	3.18	3.15	3.23
<i>Trust in regional politicians</i>	1.90	1.81	2.04*	1.87	1.97
<i>Trust in regional bureaucrats</i>	2.61	2.53	2.57	2.72*	2.82*
<i>Regional empl > company profits</i>	2.29***	2.79*	2.80*	2.74	2.79
<i>Easier cooperate with reg. actors</i>	1.75***	2.38	2.70***	2.35	2.21
<i>Include staff in decision-making</i>	3.53	3.48	3.40**	3.54	3.59
<i>Let staff get their way when wrong</i>	2.86	2.75*	2.87	2.92	2.85
<i>Old and proven > newfangled ideas</i>	0.97**	1.10	1.09	1.15	1.10
<i>Impr. understanding of for. cultures</i>	1.73	1.64	1.71	1.63	1.56
<i>Wish more open to outside world</i>	2.27	2.20	2.16	2.22	2.24
<i>Comfortable w ppl open to change</i>	2.76	2.71	2.66*	2.72	2.78
<i>N</i>	403	401	400	300	100

Probability of regional mean different from combined mean of other regions:

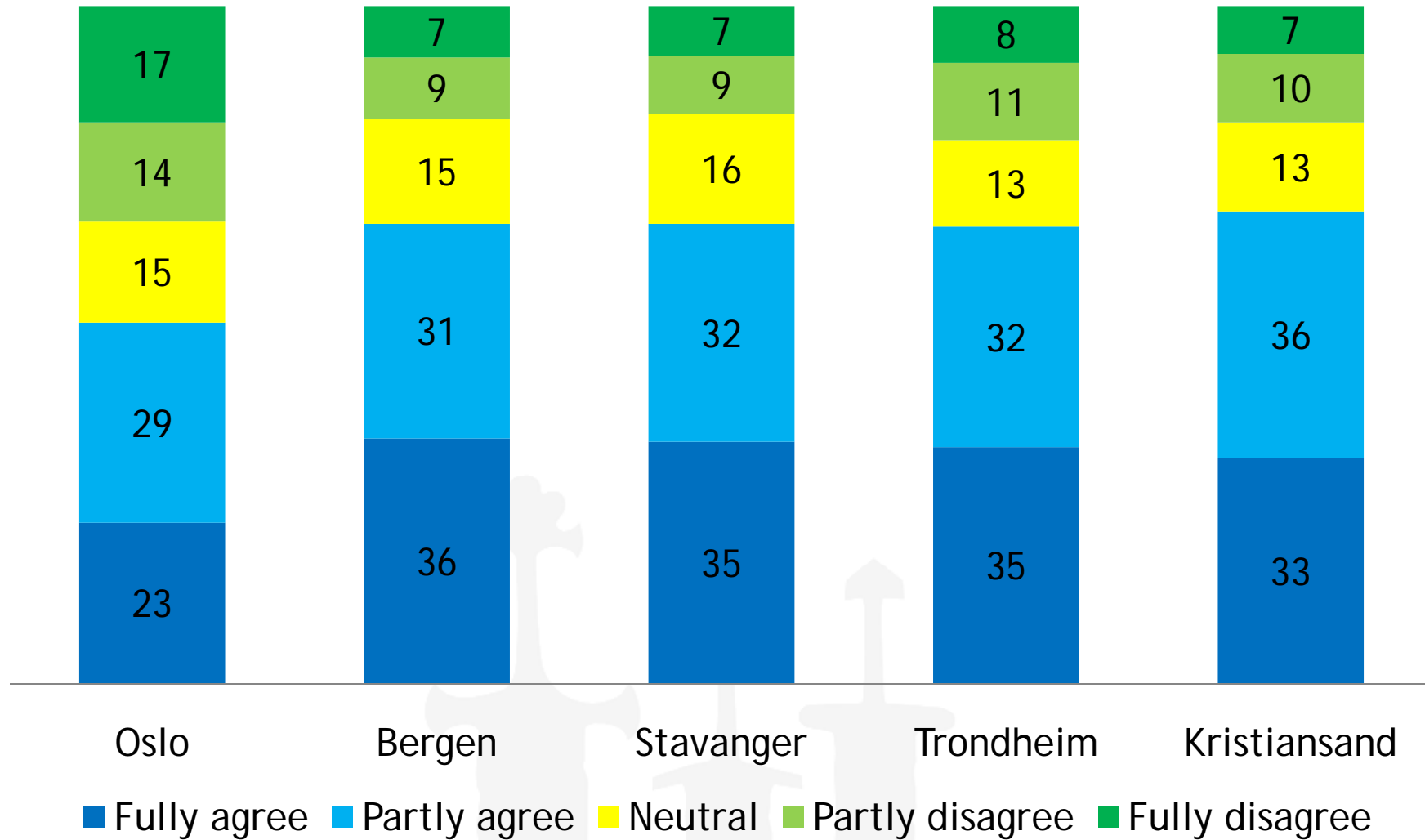
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



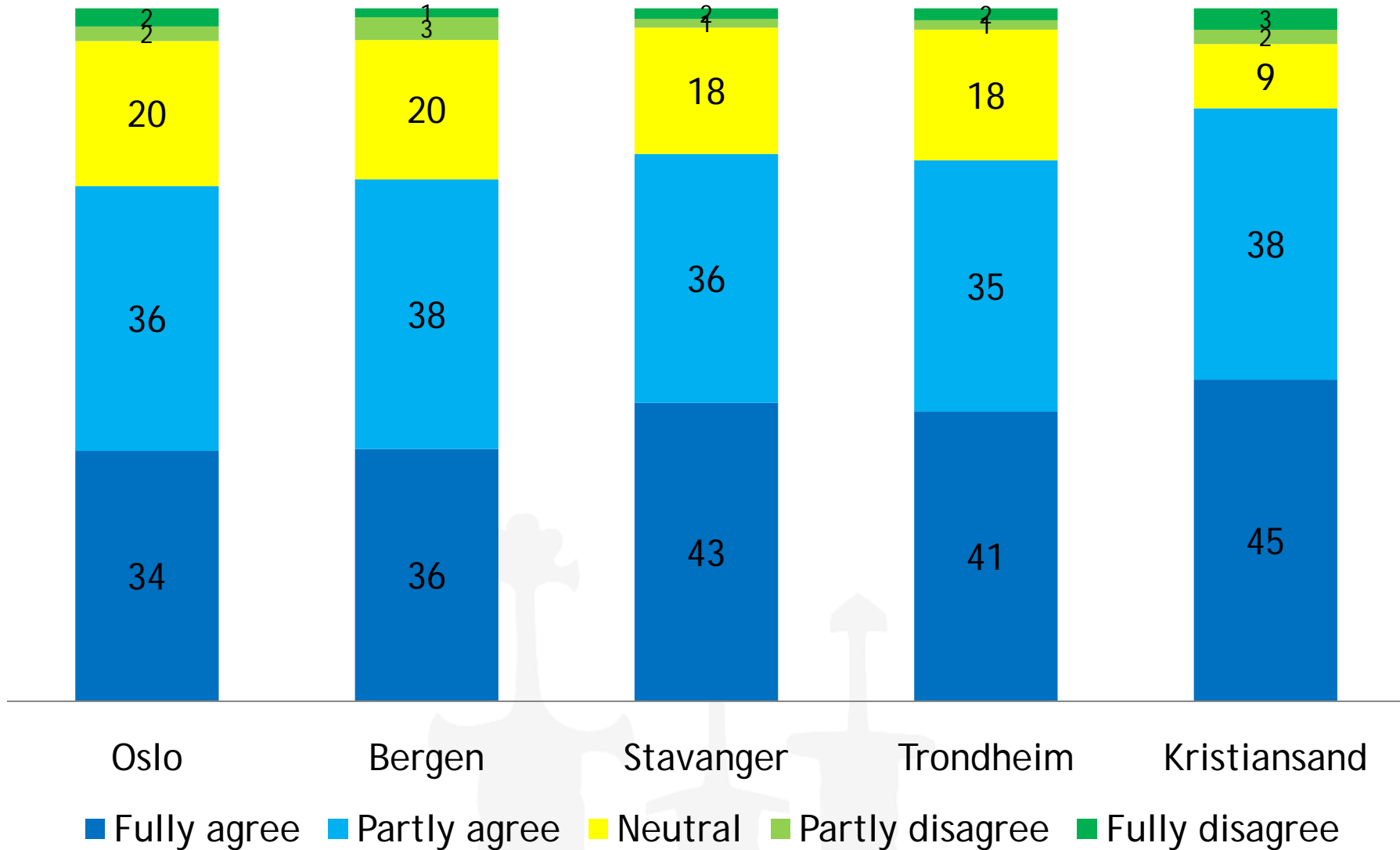
"I find it easier to cooperate with local and regional actors than with people from outside the region"



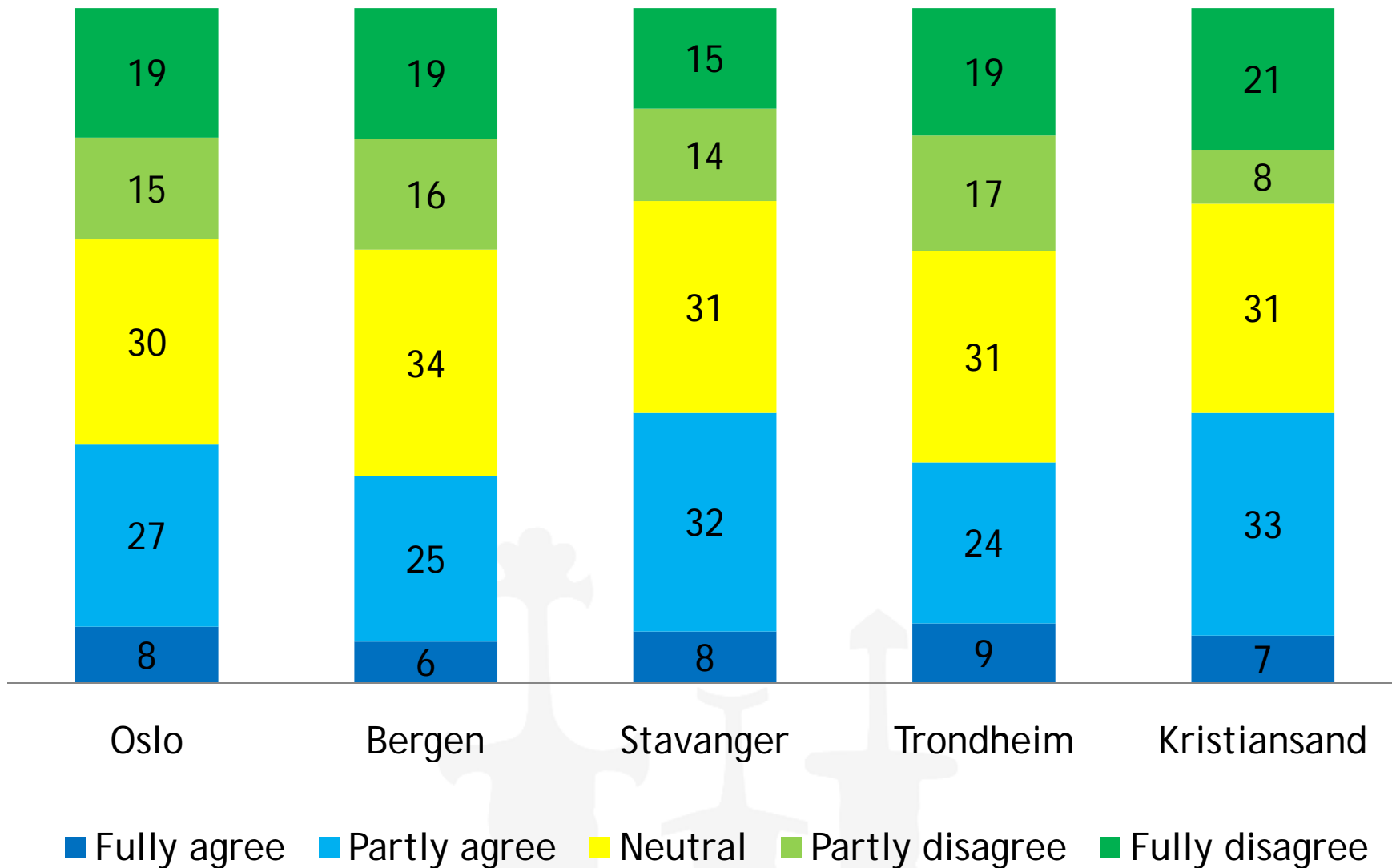
"It is important to maintain employment in the region, even if it should hurt the business' profits"



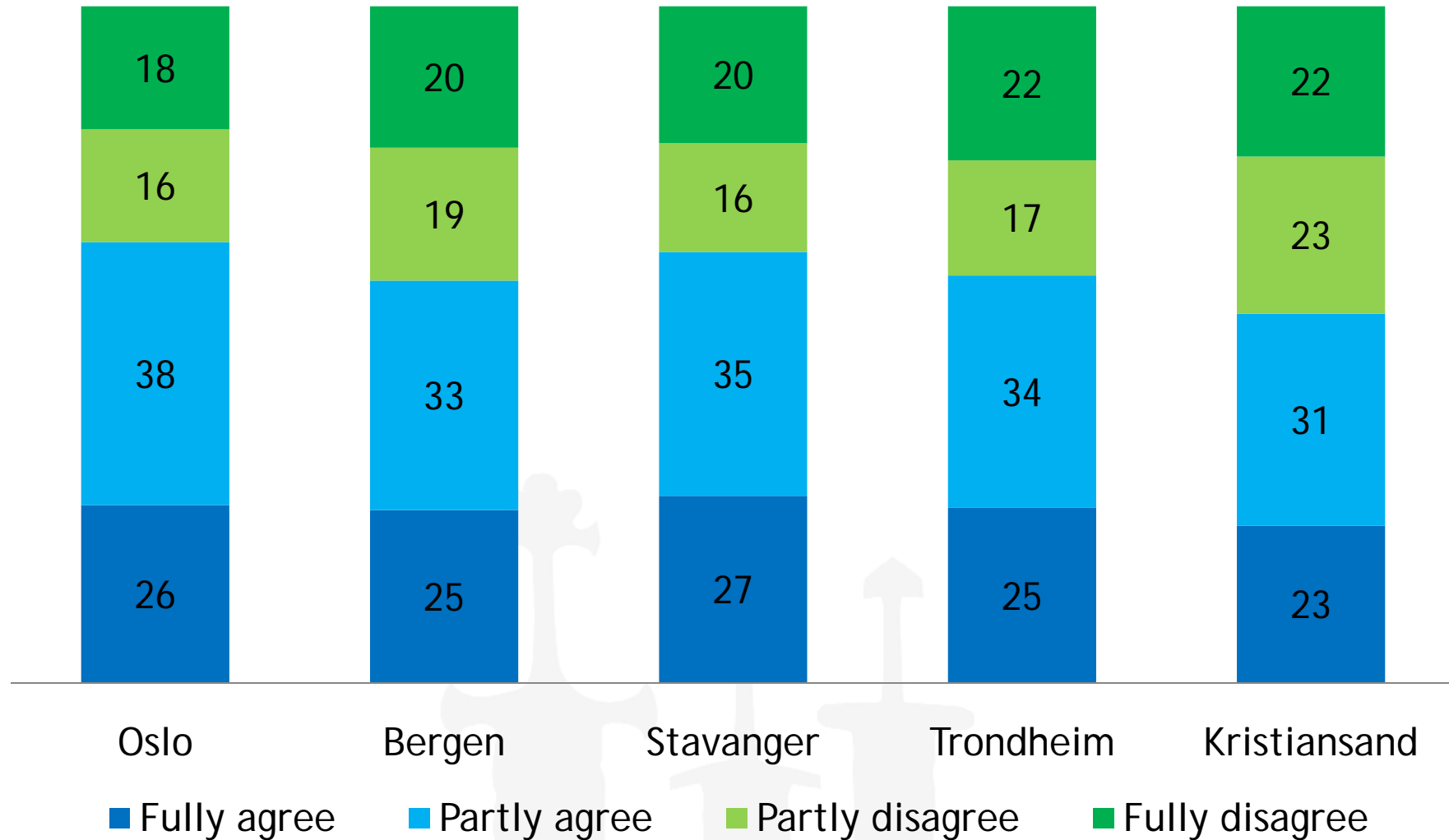
"I trust other business managers in this region"



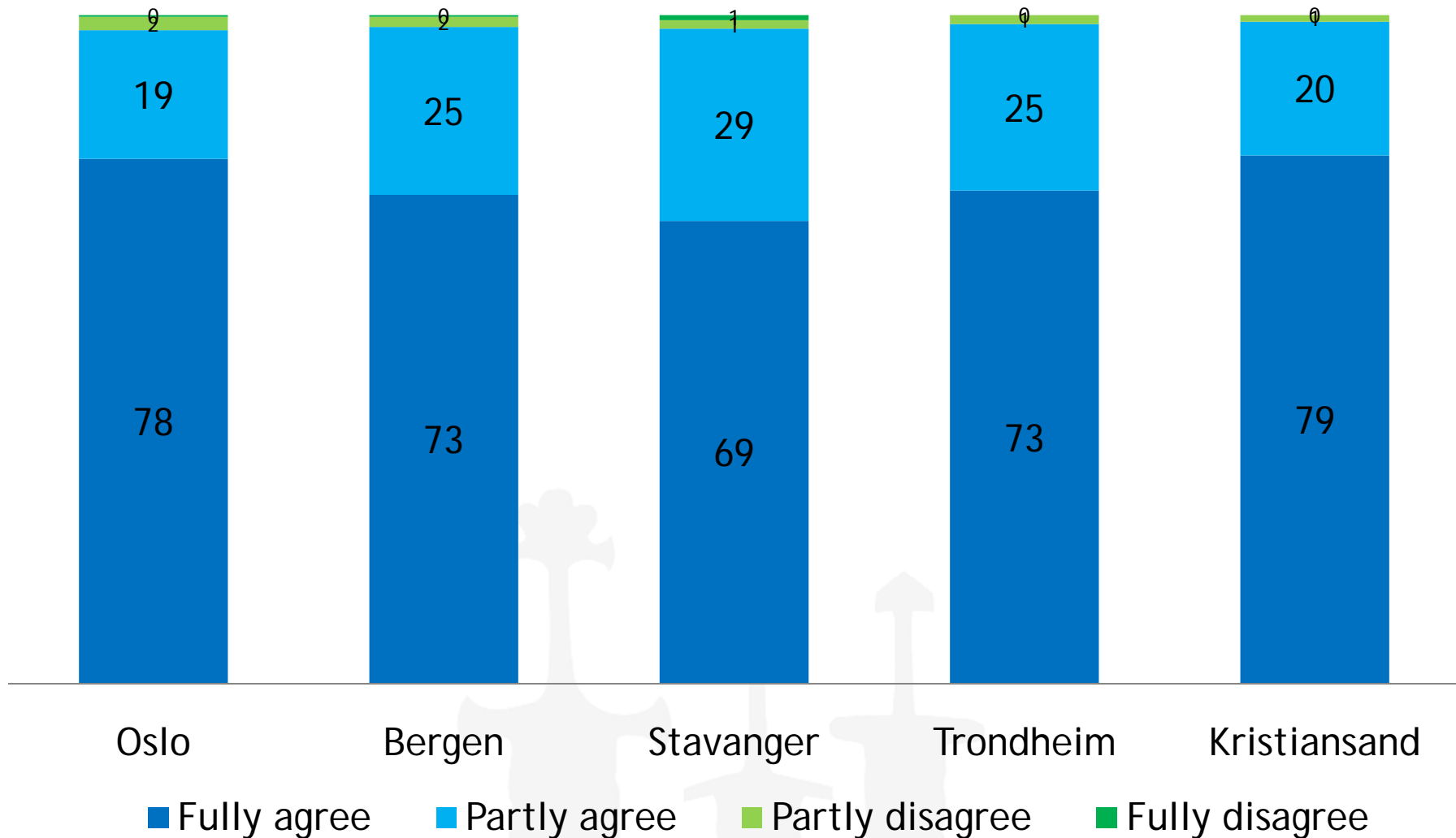
"I trust politicians in this region"



"I need to improve my understanding of other countries' cultures"



"I am most comfortable around people who are open to change and new ideas"



Dimensions of managers' values

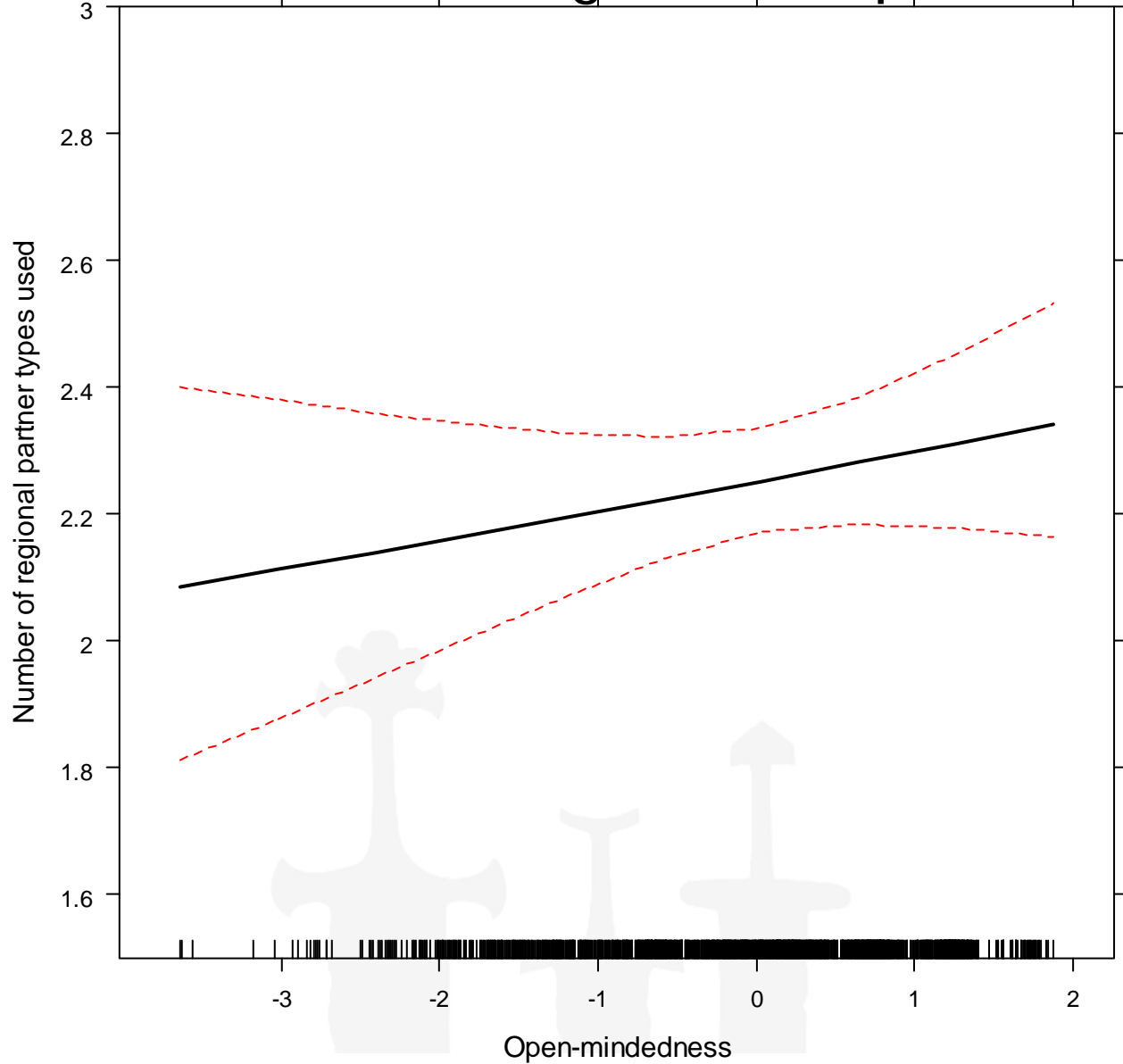
Principal components, N=1604	General trust	Open-mindedn.	Regional orientation	Work-rel. trust
<i>Trust in other people in general</i>	0.37	-0.13	-0.29	0.37
<i>Trust in regional business managers</i>	0.67	-0.00	0.06	0.05
<i>Trust in regional politicians</i>	0.77	0.07	-0.02	-0.04
<i>Trust in regional bureaucrats</i>	0.74	0.08	-0.02	0.10
<i>Regional employment > company profits</i>	0.06	0.06	0.65	0.11
<i>Easier cooperate with regional actors</i>	0.04	-0.07	0.70	-0.00
<i>Include staff in decision-making</i>	0.12	0.14	-0.02	0.72
<i>Let staff get their way even when wrong</i>	-0.04	0.04	0.17	0.72
<i>Old and proven > newfangled ideas</i>	-0.09	-0.11	0.54	0.00
<i>Impr. understanding of foreign cultures</i>	0.07	0.69	-0.20	-0.06
<i>Wish Norw. more open to outside world</i>	0.09	0.76	-0.03	0.02
<i>More comfortable w ppl open to change</i>	-0.05	0.62	0.09	0.22
<i>Eigenvalue</i>	1.77	1.49	1.36	1.25

Does culture explain cooperation?

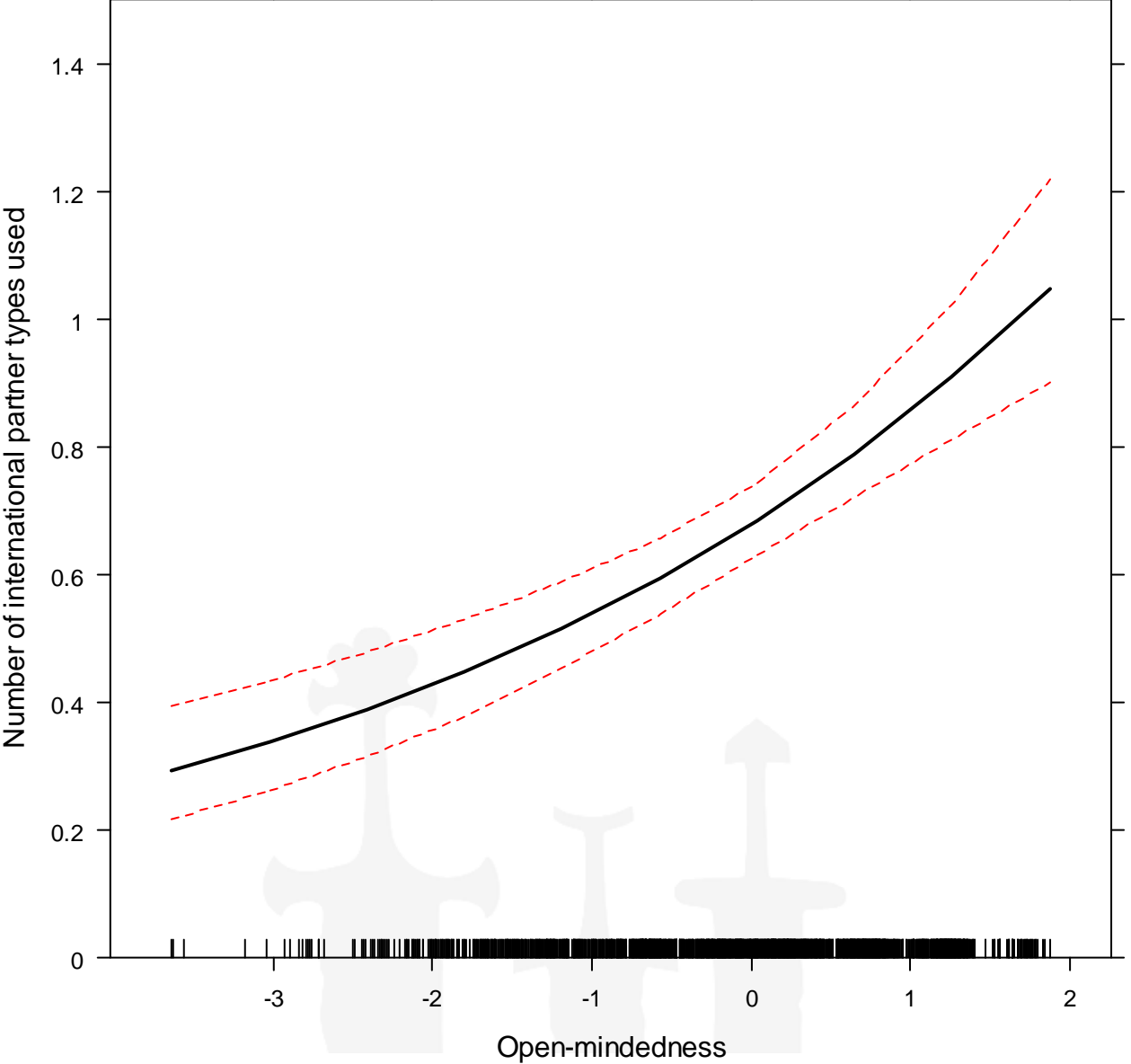
Neg. bin. regressions, N = 1604	Regional	National	Internat'l
<i>General trust (comp. 1)</i>	0.07***	0.06*	0.00
<i>Work-related trust (comp. 4)</i>	0.02	-0.01	-0.03
<i>Open-mindedness (comp. 2)</i>	0.02	0.01	0.23***
<i>Regional orientation (comp. 3)</i>	0.00	-0.16***	-0.20***
<i>Education</i>	-0.00	0.03*	0.07***
<i>Age</i>	-0.01***	-0.00	-0.01
<i>Log no. of employees</i>	0.06**	0.16***	0.15***
<i>Log no. of directorships</i>	0.01	0.06	-0.01
<i>Foreign-owned share</i>	-0.14*	-0.08	0.80***
<i>Region</i>	Oslo ÷***	O/B/S < K/T*	Not sign.
<i>Sector</i>	Controlled	Controlled	Controlled
<i>Pseudo R²</i>	0.02	0.04	0.12

* p < 0.05, ** p < 0.01, *** p < 0.001

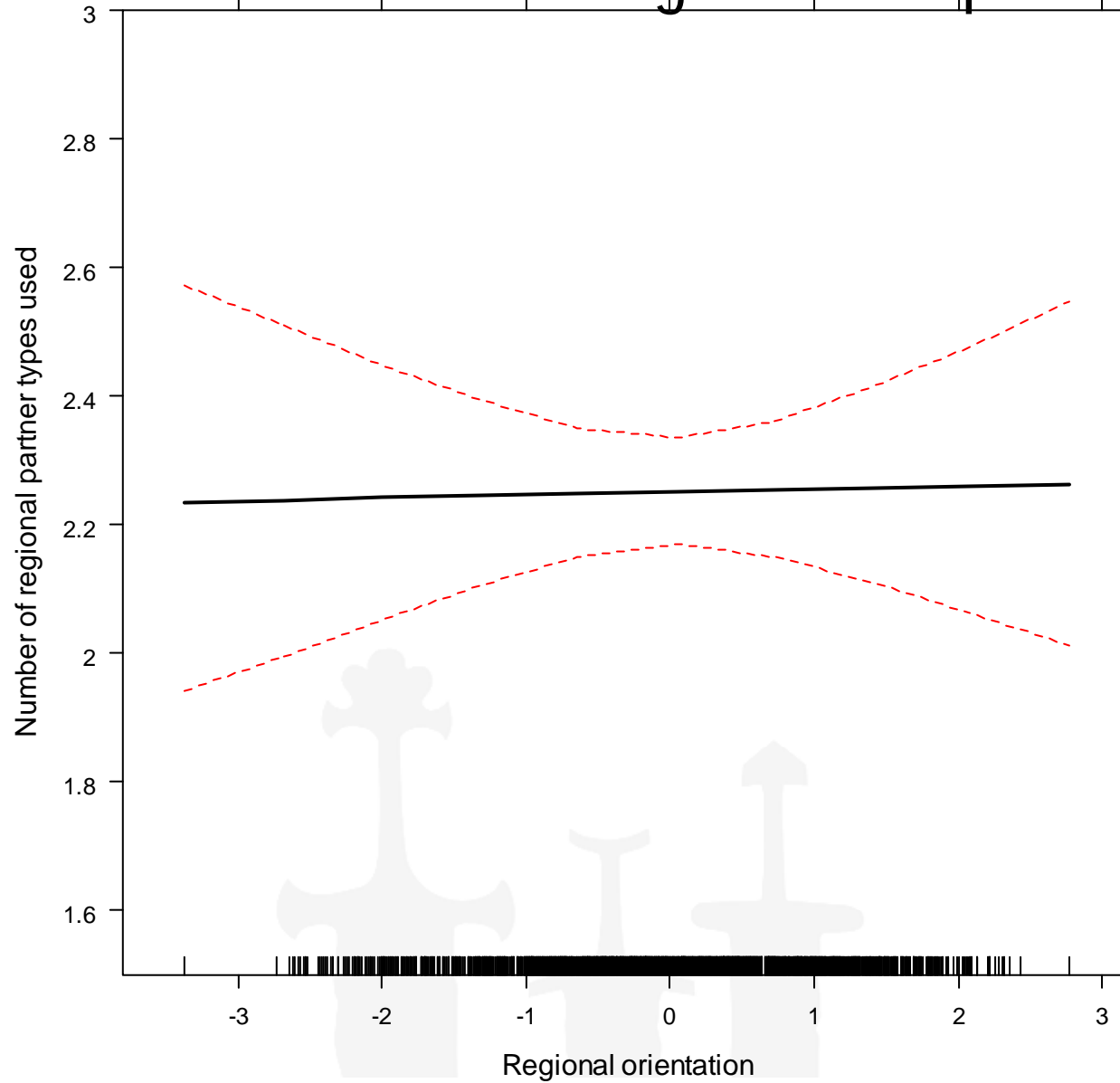
Open-mindedness and regional cooperation



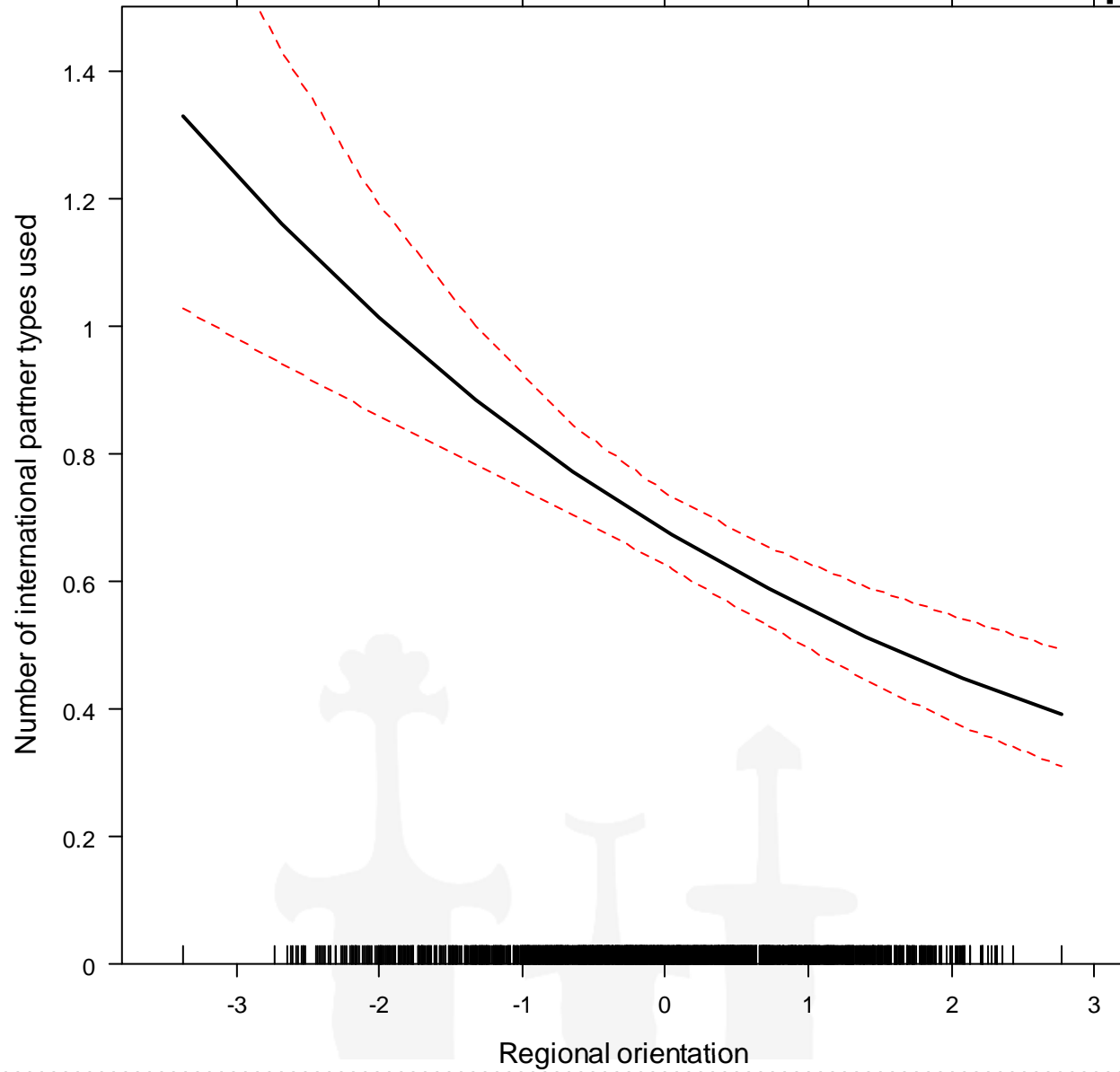
Open-mindedness and international cooperation



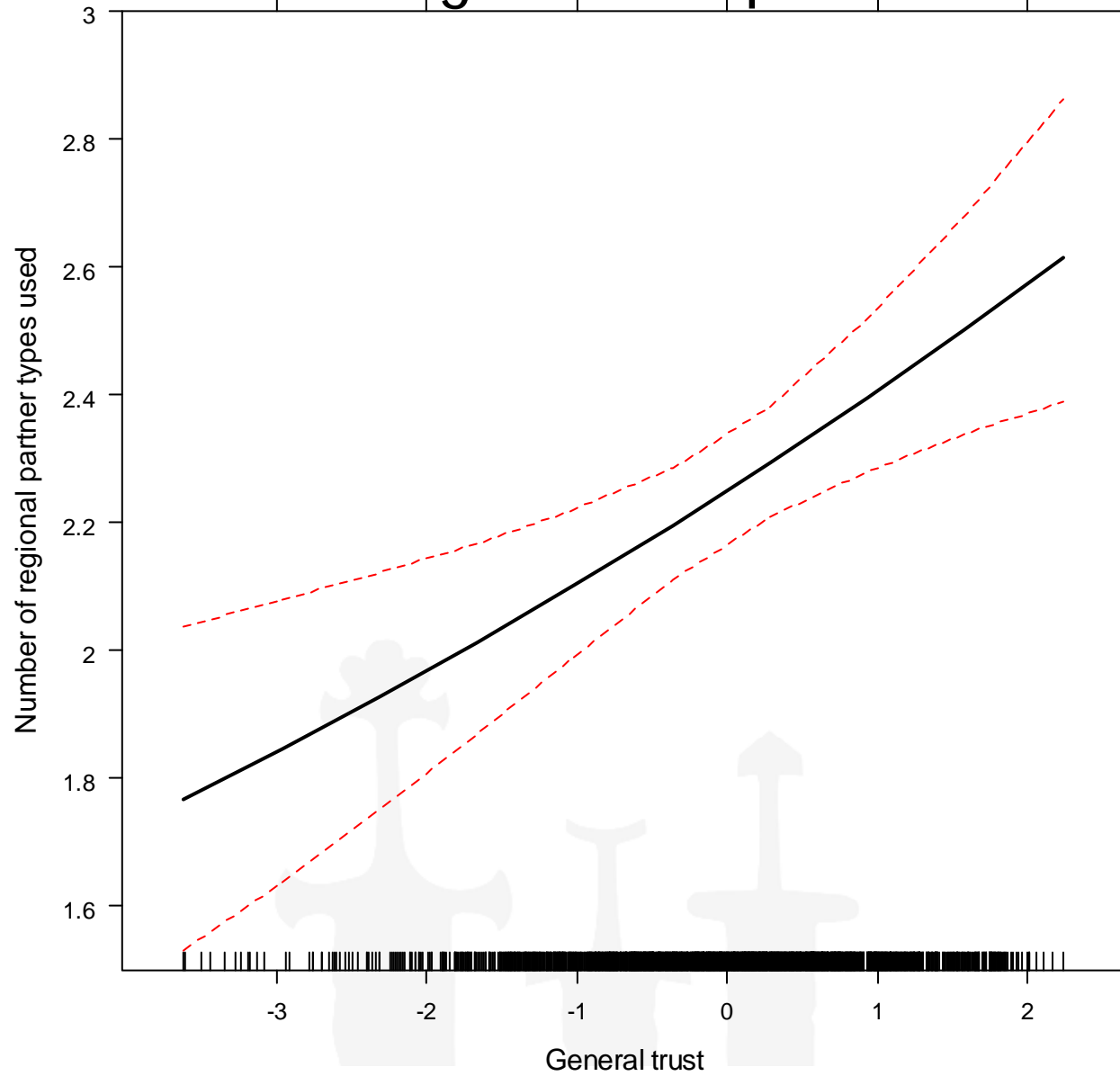
Regional orientation and regional cooperation



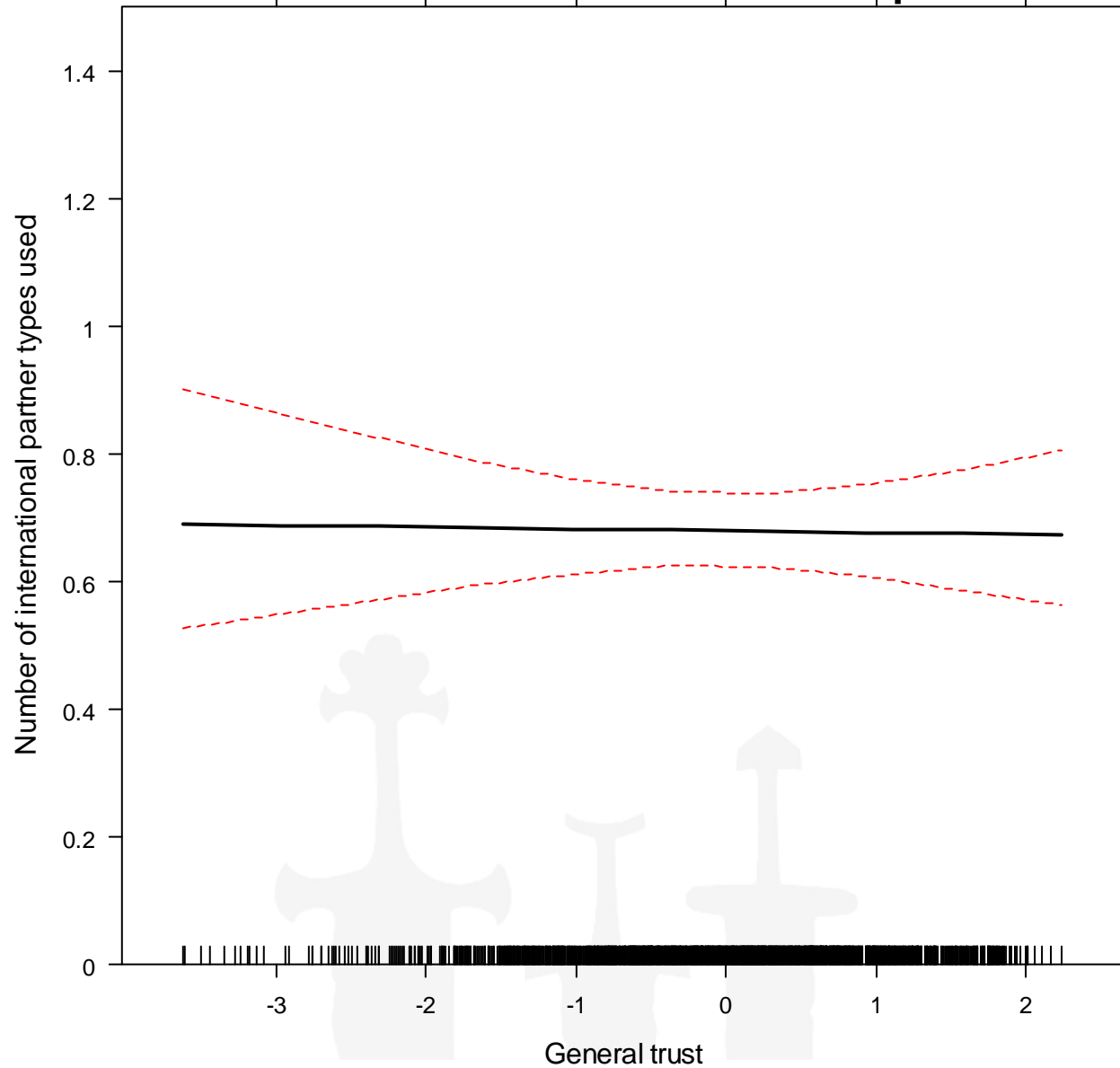
Regional orientation and international cooperation



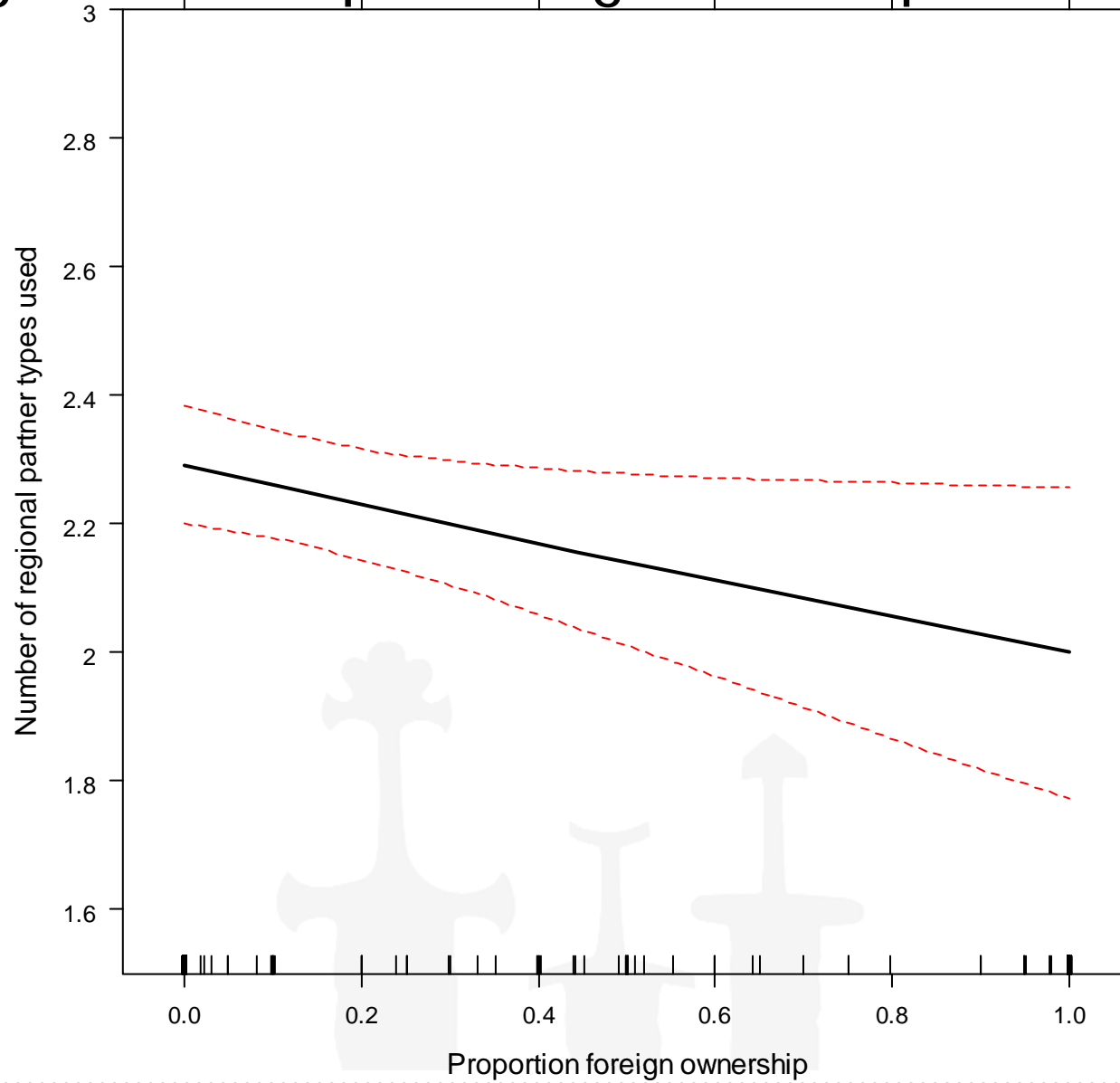
General trust and regional cooperation



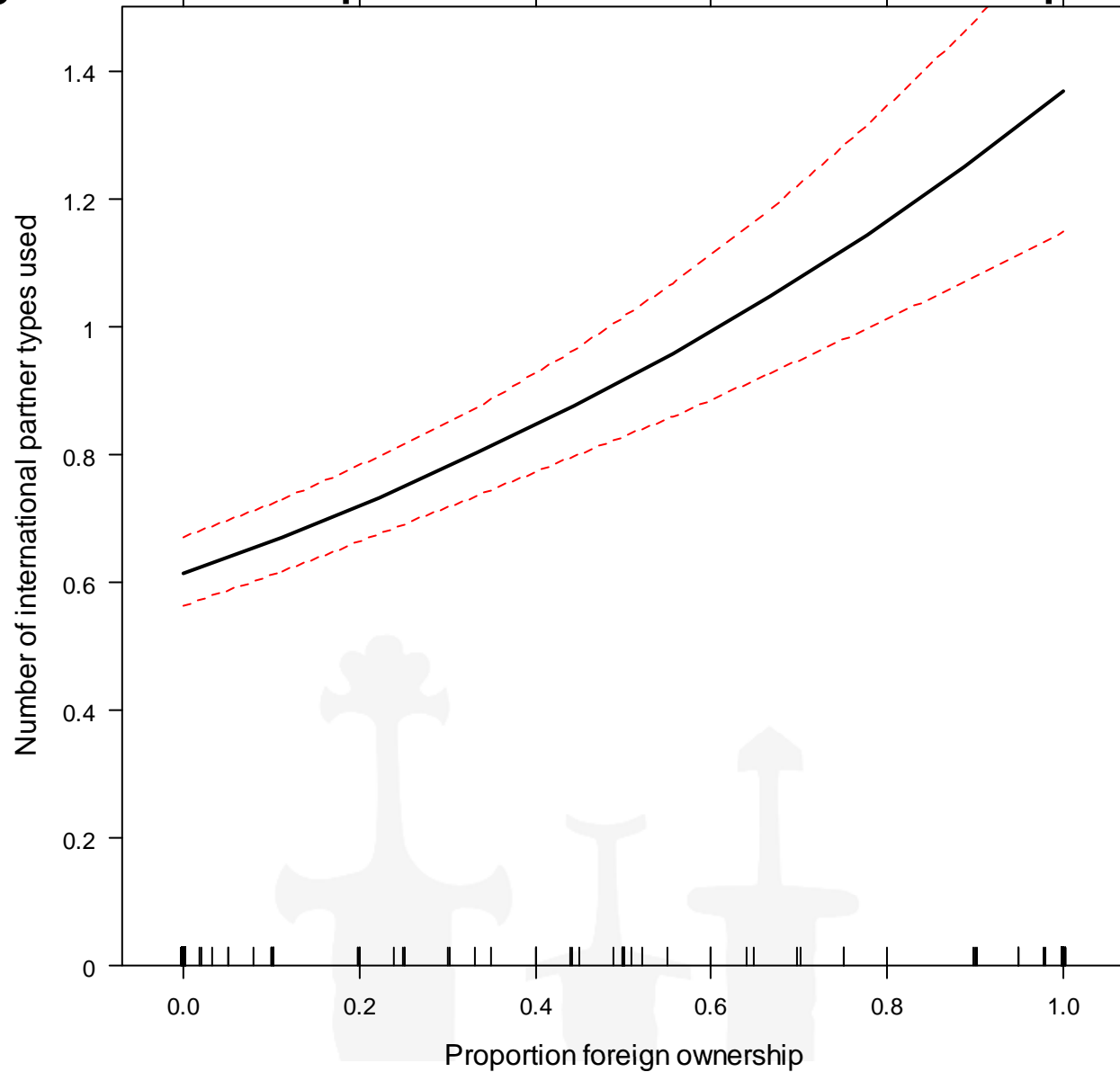
General trust and international cooperation



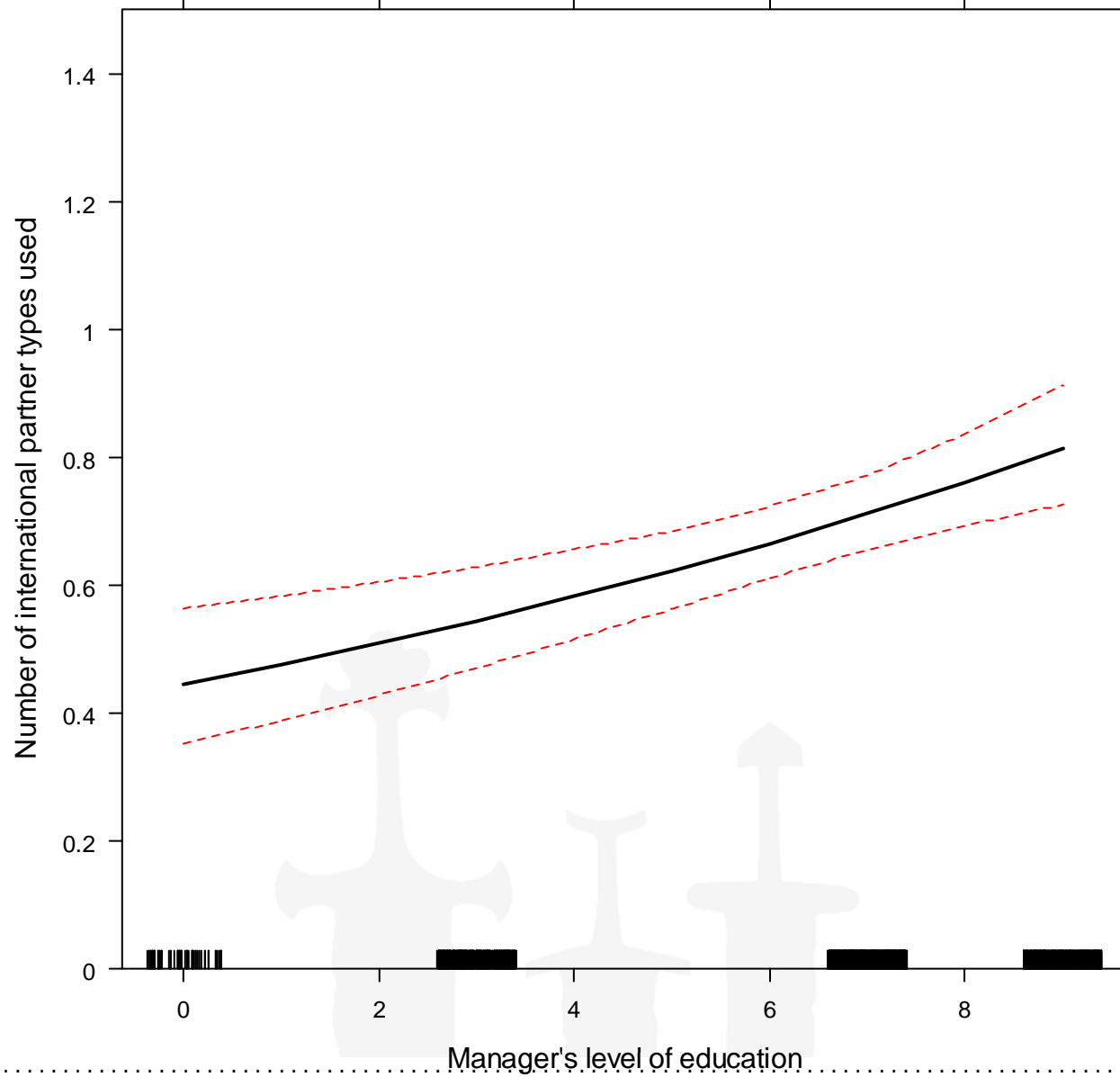
Foreign ownership and regional cooperation



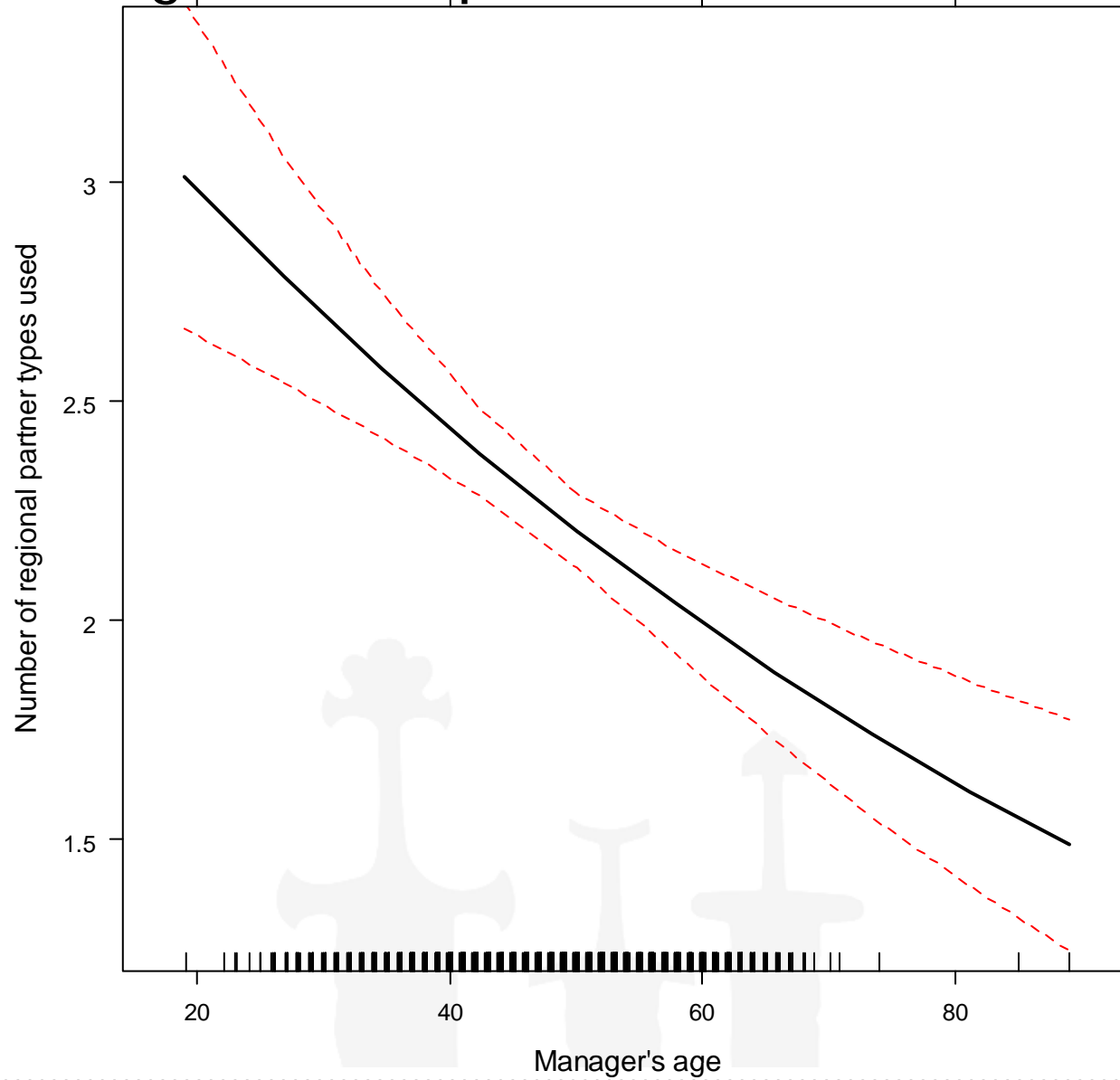
Foreign ownership and international cooperation



Education and international cooperation



Age and regional cooperation



Conclusions

- International cooperation is conducive to most kinds of innovation:
 - Incremental and radical product innovation
 - Radical process innovation
- Regional and national cooperation has almost no significant effect on innovation
- Patterns of cooperation are associated with managers' values and attitudes:
 - Open-mindedness and lack of regional orientation produces national and international cooperation
 - General trust produces regional and national cooperation

Conclusions, II

- Oslo has the highest proportion of innovative businesses in all categories, while Bergen has the least
- Companies in Oslo cooperate more internationally and less regionally
- Managers in Oslo are also less regionally oriented on value dimensions, while managers in Stavanger are more regionally oriented than their counterparts