Supplementary Material for

COVID-19 vaccine hesitancy and vaccine passports: a cross-sectional conjoint experiment in Japan

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Appendix Table A-1. Determinants of vaccine hesitancy

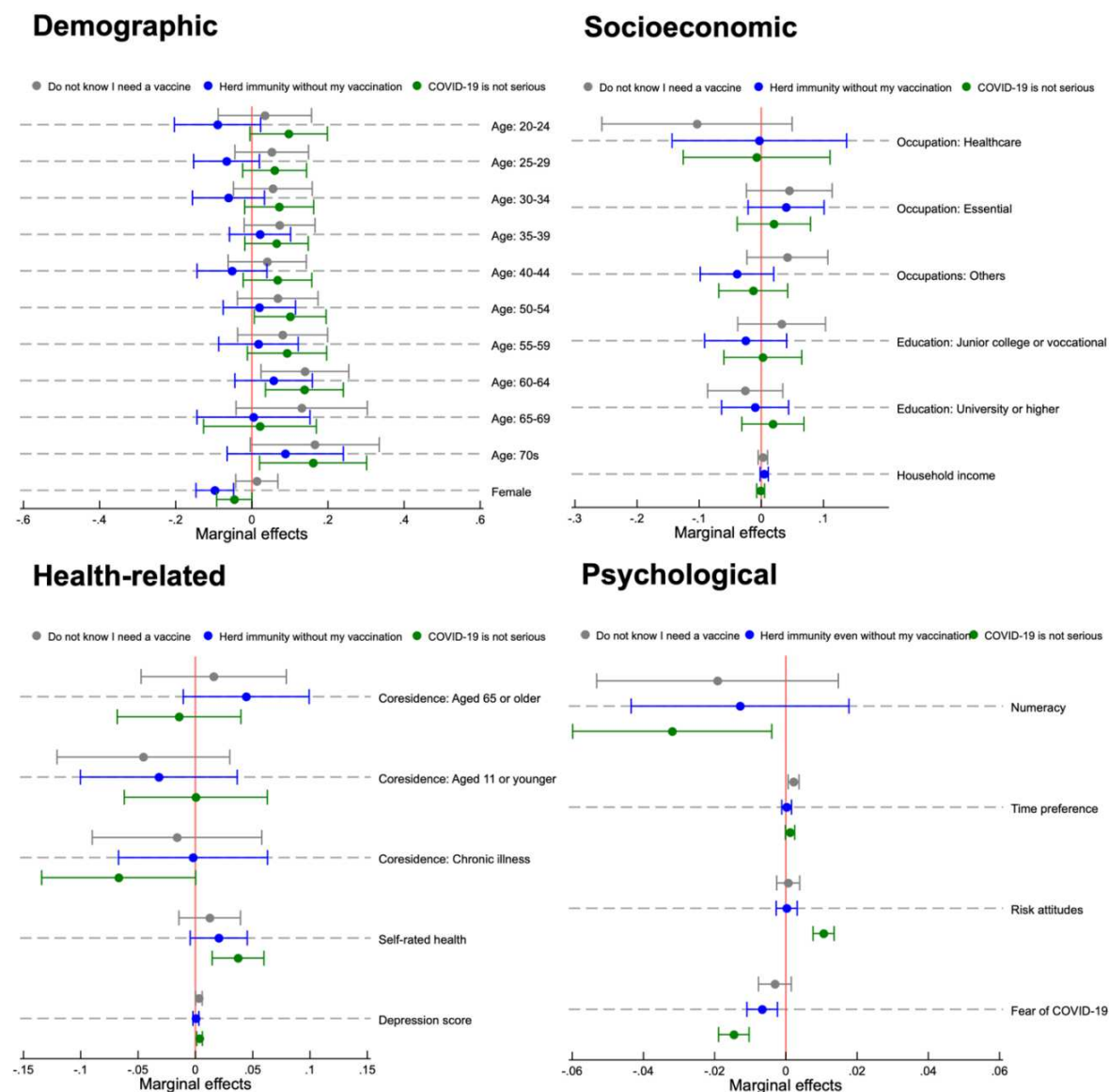| Vaccine hesitancy	Will not vaccinate		Undecided	
	Relative risk ratios	95%CI	Relative risk ratios	95%CI
Age (Ref. 45-49): 20-24	1.48	0.95 - 2.30	0.94	0.63 - 1.41
25-29	1.97**	1.36 - 2.85	1.83**	1.35 - 2.47
30-34	2.08**	1.40 - 3.09	1.47*	1.07 - 2.03
35-39	2.22**	1.55 - 3.18	1.63**	1.22 - 2.19
40-44	1.46	0.99 - 2.15	1.25	0.92 - 1.70
50-54	0.87	0.58 - 1.29	0.75	0.55 - 1.04
55-59	0.89	0.59 - 1.35	0.55**	0.38 - 0.78
60-64	0.53**	0.35 - 0.79	0.33**	0.23 - 0.47
65-69	0.24**	0.13 - 0.42	0.14**	0.08 - 0.23
70-74	0.30**	0.18 - 0.51	0.11**	0.07 - 0.20
Female	1.08	0.88 - 1.32	1.26**	1.06 - 1.51
Co-residence: Aged 65 or older	0.75*	0.60 - 0.95	0.91	0.74 - 1.11
Aged 11 or younger	0.68*	0.50 - 0.92	1.10	0.88 - 1.38
Chronic illness	0.53**	0.41 - 0.68	0.59**	0.47 - 0.73
Occupation: Healthcare worker	0.26**	0.16 - 0.43	0.20**	0.13 - 0.33
Other essential workers	0.56**	0.43 - 0.73	0.83	0.67 - 1.04
Other occupations	0.70**	0.55 - 0.89	0.88	0.71 - 1.09
Education: Junior college or vocational	0.82	0.63 - 1.07	0.87	0.69 - 1.10
University or higher	0.60**	0.48 - 0.75	0.74**	0.61 - 0.90
Household income	0.96*	0.94 - 0.99	0.94**	0.92 - 0.97
Self-rated health	0.79**	0.71 - 0.88	0.85**	0.78 - 0.92
K10 depression scale	1.01**	1.00 - 1.03	1.01	1.00 - 1.02
Statistical literacy	0.85**	0.75 - 0.96	1.05	0.94 - 1.17
Time preference	1.01*	1.00 - 1.01	1.01*	1.00 - 1.01
Risk attitudes	1.00	0.99 - 1.02	0.99	0.98 - 1.00
Fear of COVID-19	0.95**	0.93 - 0.97	0.99	0.98 - 1.01
Constant	3.01*	1.25 - 7.22	1.35	0.64 - 2.85
Observations	5,000			

Note: The outcome reference is 'Willing to vaccinate or have already vaccinated'; ** p<0.01, * p<0.05; 95% confidence intervals (CI) were estimated by robust standard errors; Adjusted for residential area with the population weight for each age group by region.

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Appendix Figure A-1. Determinants of reasons for vaccine hesitancy: Other mistrust
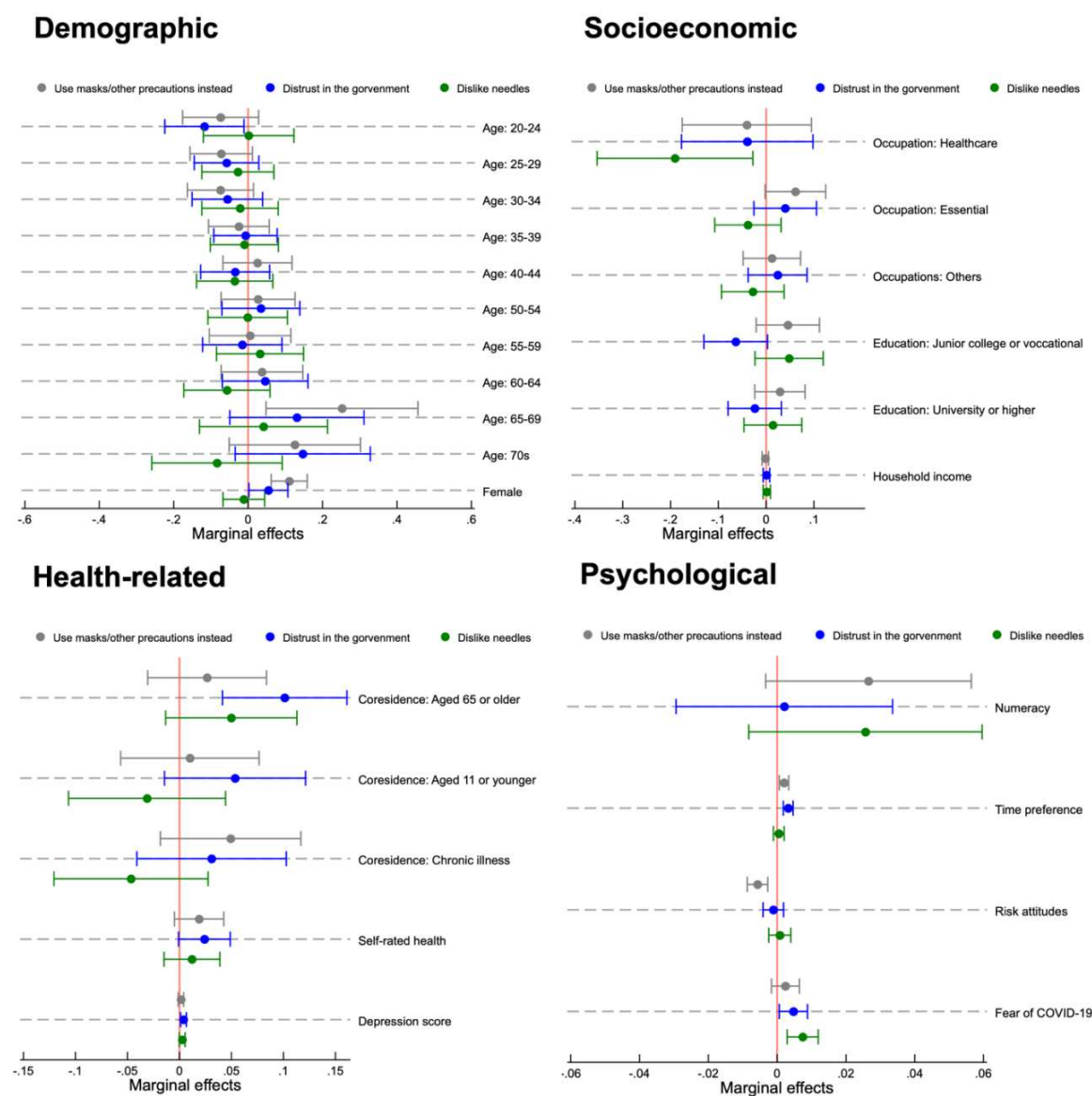
Note: Analyses among individuals who were undecided and unwilling to vaccinate (n= 1,518); Markers represent marginal effects with error bars showing 95% confidence intervals estimated by robust standard errors; Adjusted for residential area with the population weight for each age group.

Appendix Figure A-2. Determinants of reasons for vaccine hesitancy: Attitudes toward COVID-19
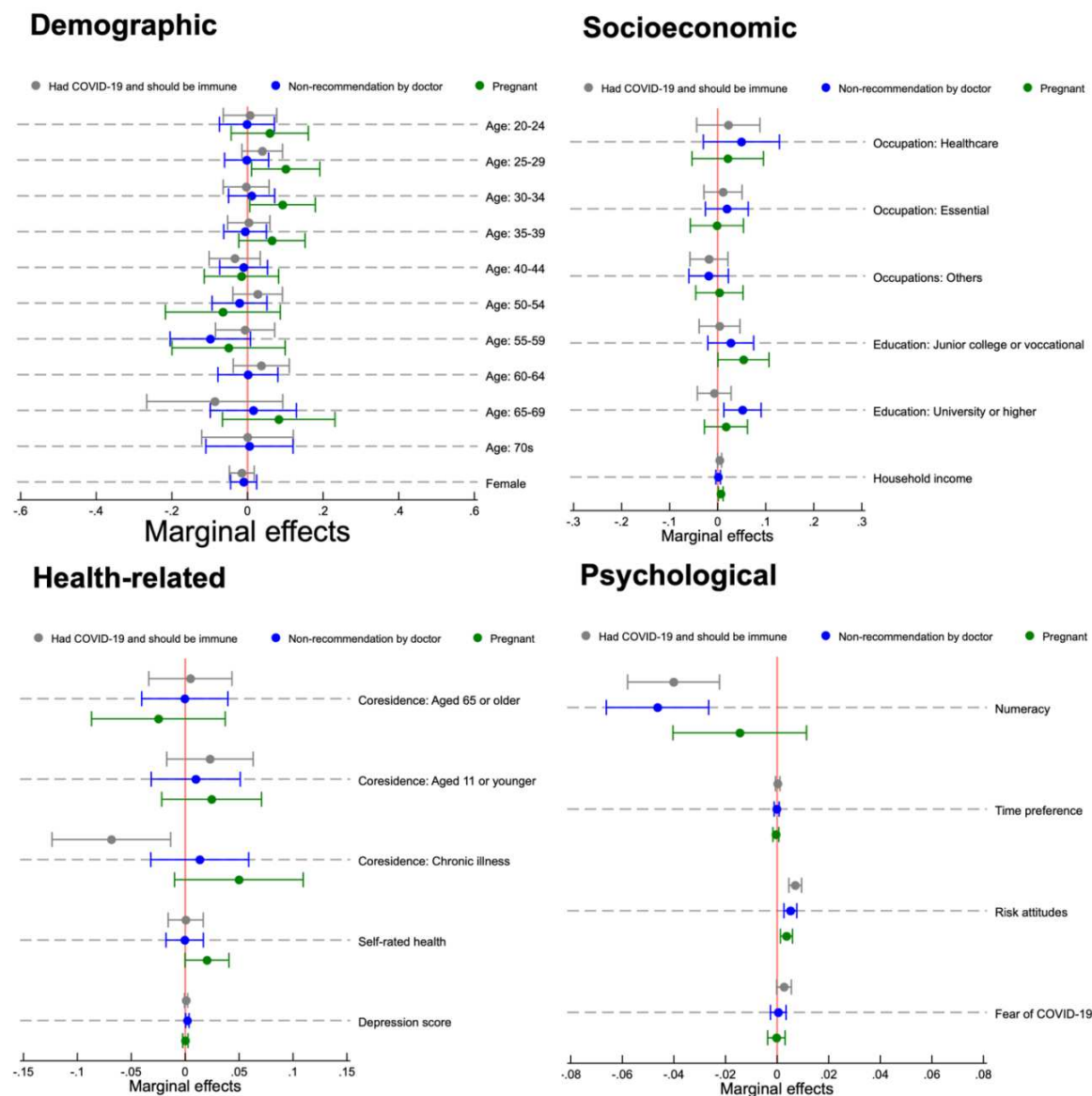

Note: Analyses among individuals who were undecided and unwilling to vaccinate (n= 1,518); Markers represent marginal effects with error bars showing 95% confidence intervals estimated by robust standard errors; Adjusted for residential area with the population weight for each age group;

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Appendix Figure A-3. Determinants of reasons for vaccine hesitancy: Health-related reasons
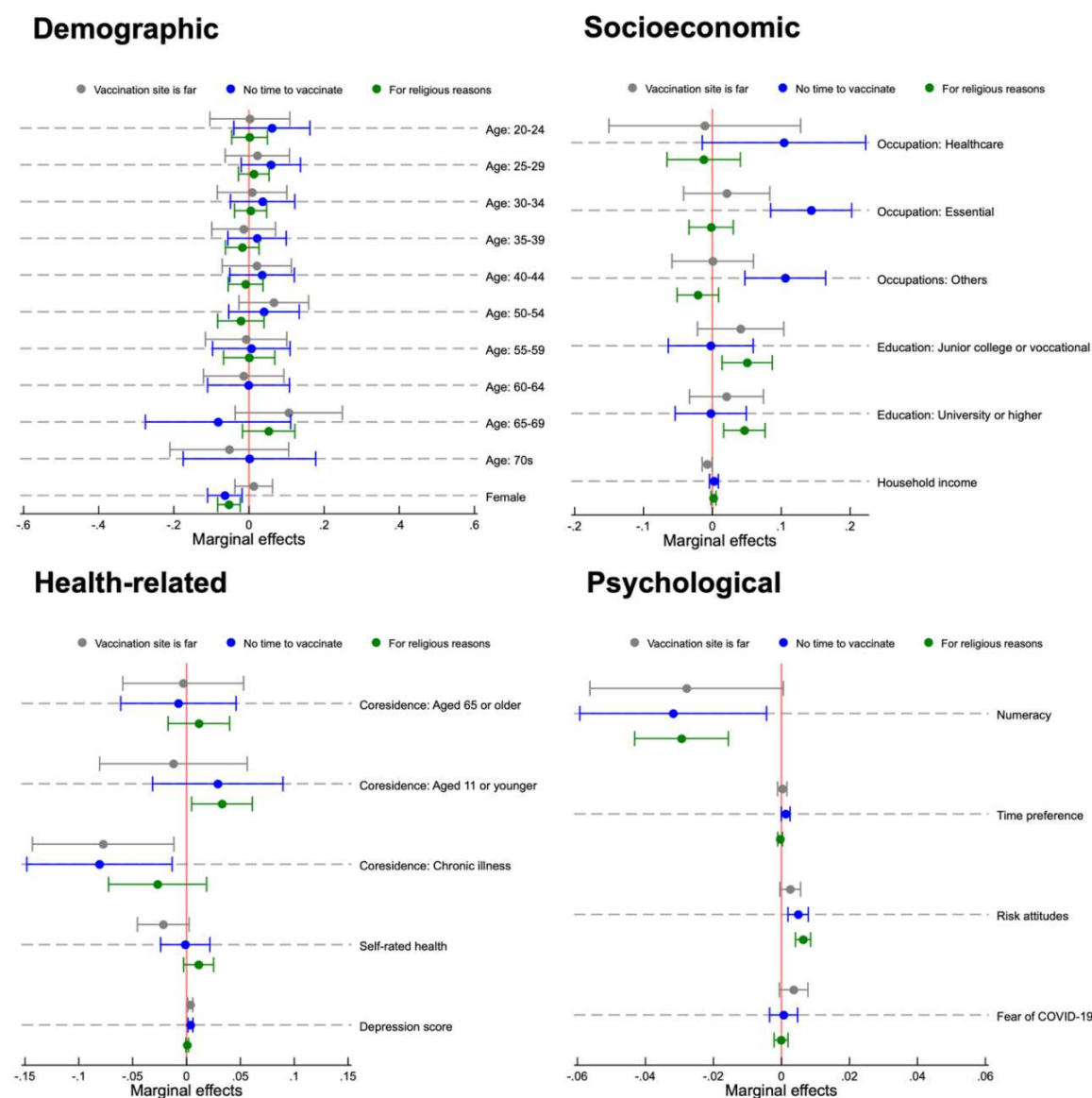

Note: Analyses among individuals who were undecided and unwilling to vaccinate (n= 1,518); Markers represent marginal effects with error bars showing 95% confidence intervals estimated by robust standard errors; Adjusted for residential area with the population weight for each age group;

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Appendix Figure A-4. Determinants of reasons for vaccine hesitancy: Other reasons
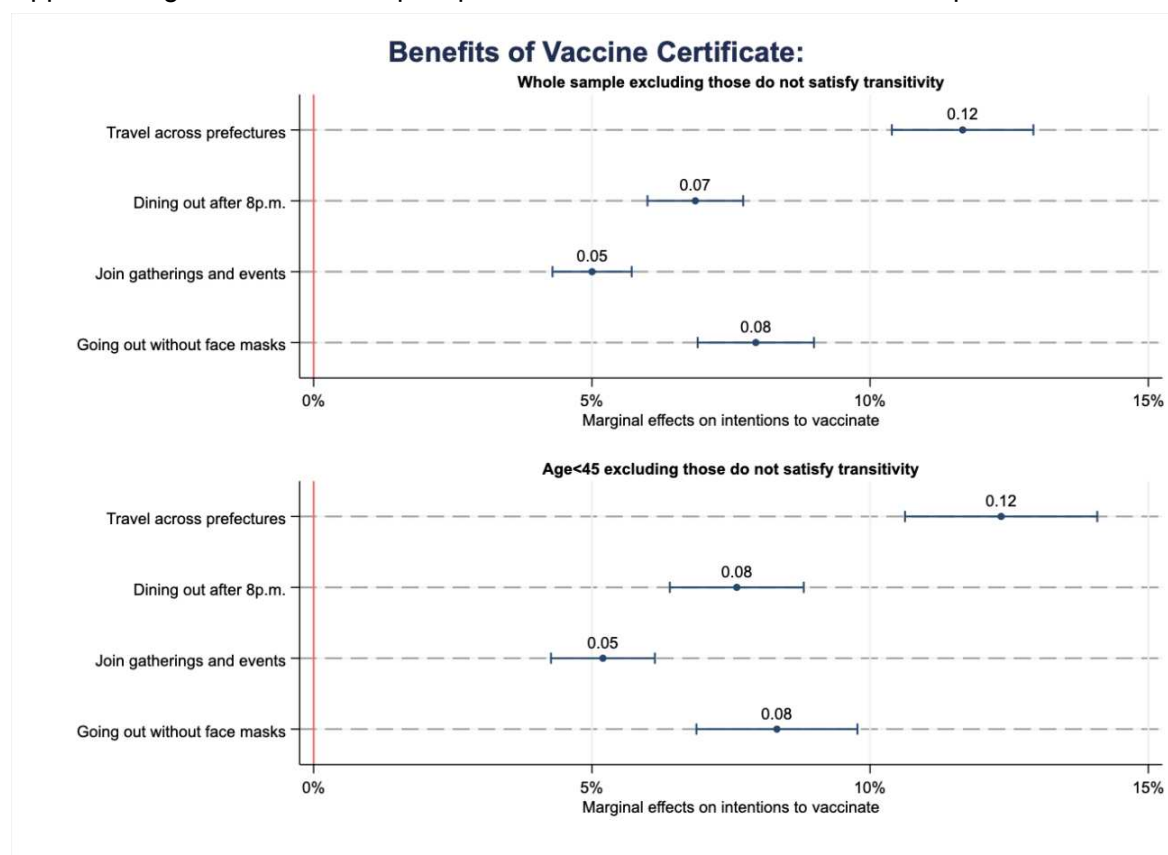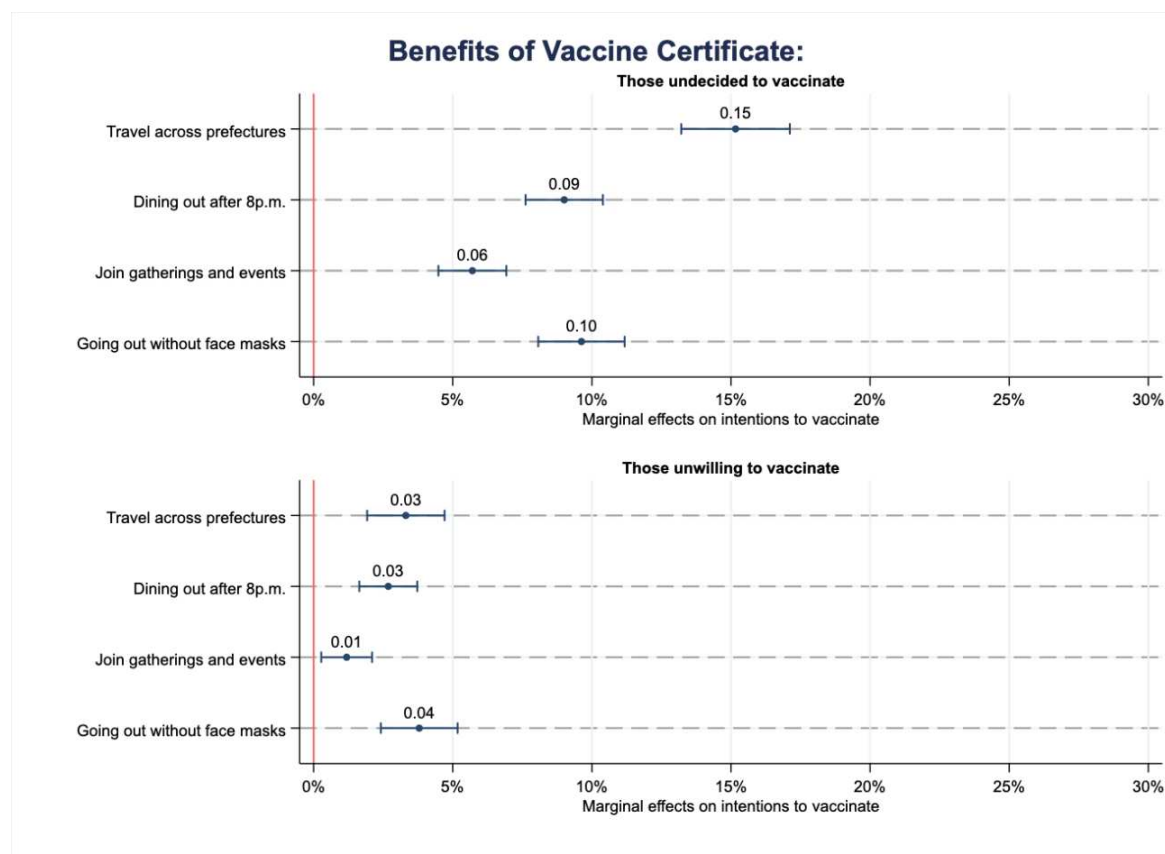

Note: Analyses among individuals who were undecided and unwilling to vaccinate (n= 1,518); Markers represent marginal effects with error bars showing 95% confidence intervals estimated by robust standard errors; Adjusted for residential area with the population weight for each age group;

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Appendix Figure A-5. Vaccine passport: Exclude those with non-transitive preferences
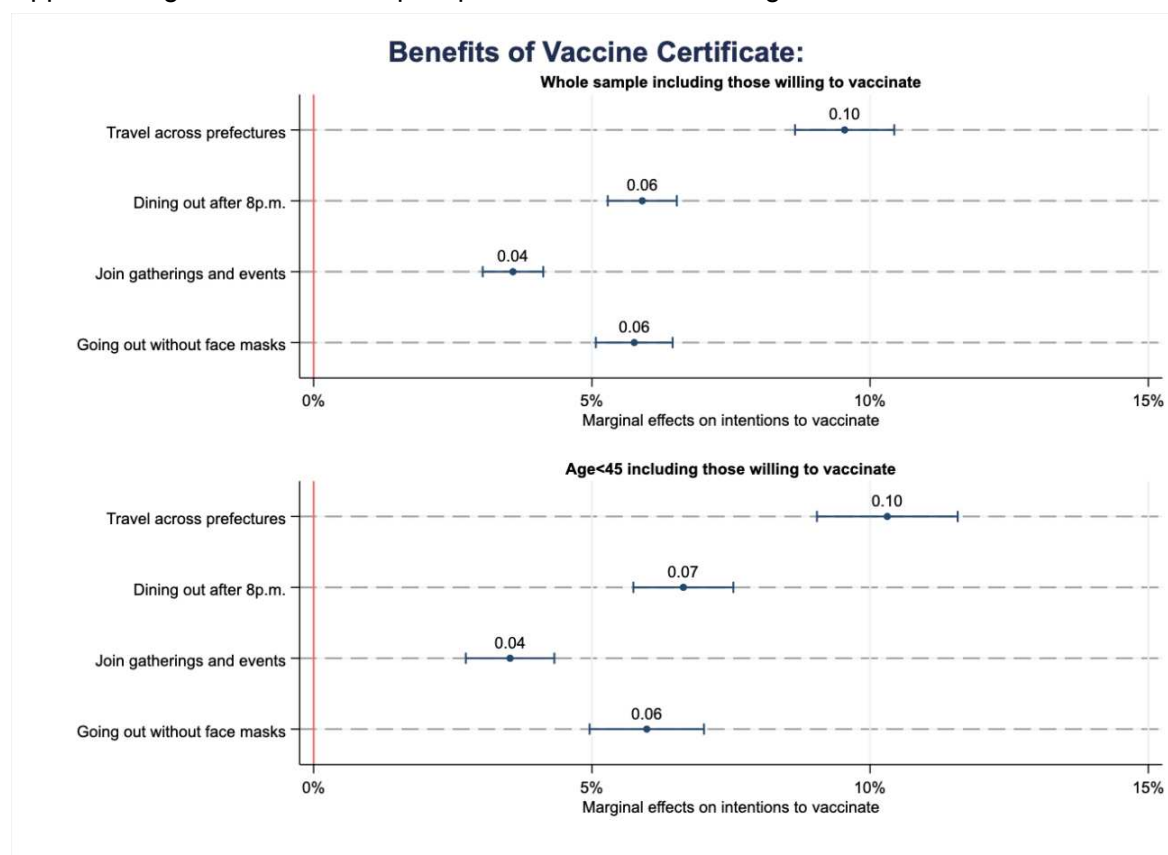

Note: Estimates among individuals who were undecided and unwilling to vaccinate, excluding those who did not satisfy transitivity of the vaccine preference (n= 1,416 for all age groups and n= 815 for those aged 45 or younger); Adjusted for age, gender, co-resident family members, occupation, education, income, health status, statistical literacy, time preference, risk attitudes, fear of COVID-19, residential area, and vaccine attributes with the population weight for each age group by region; Values and markers are marginal effects with bars representing 95% confidence intervals estimated by robust standard errors; Full results are available upon request.

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Appendix Figure A-6. Vaccine passport: Separate analyses of those undecided and unwilling to vaccinate
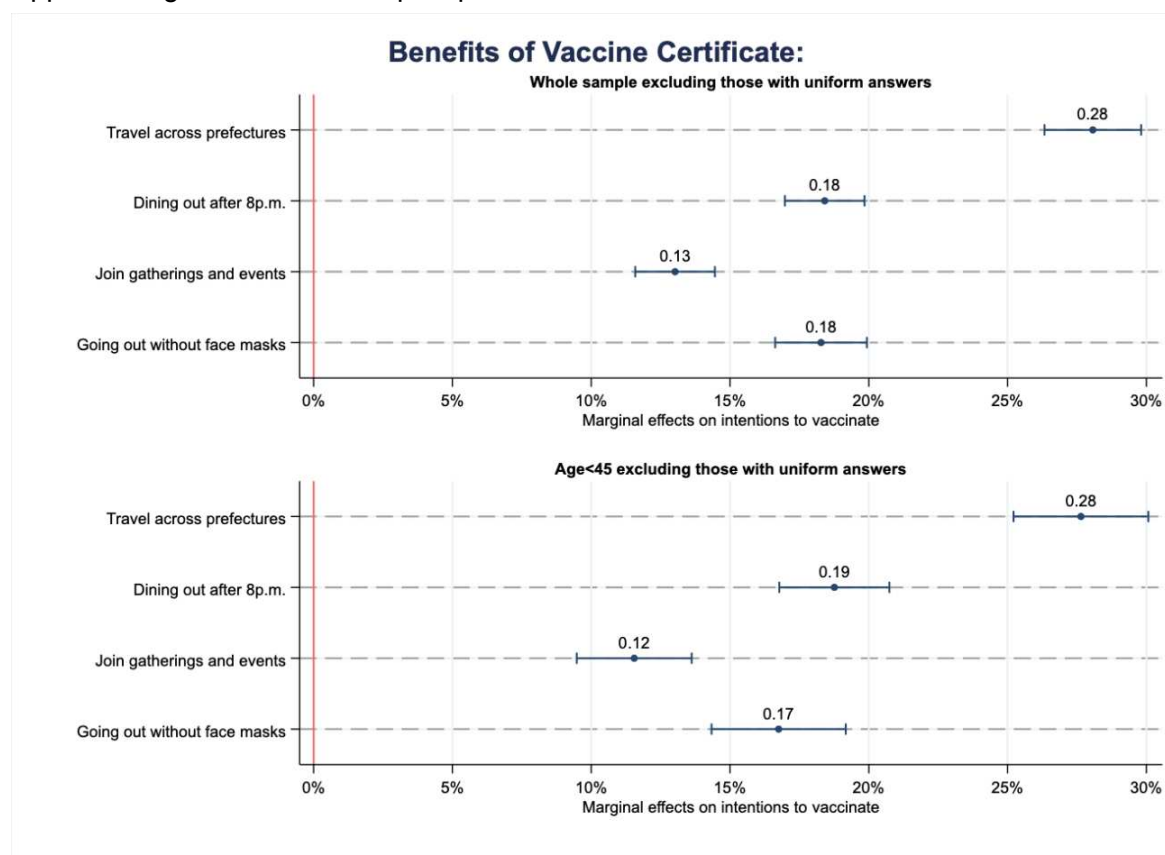

Note: Estimates among individuals who were unwilling to vaccinate (n= 894 for those undecided to vaccinate and n= 624 for those unwilling to vaccinate); Adjusted for age, gender, co-resident family members, occupation, education, income, health status, statistical literacy, time preference, risk attitudes, fear of COVID-19, residential area, and vaccine attributes with the population weight for each age group by region; Values and markers are marginal effects with bars representing 95% confidence intervals estimated by robust standard errors; Full results are available upon request.

Appendix Figure A-7. Vaccine passport: Include those willing to vaccinate

Note: Estimates among individuals who have not vaccinated yet, including 'Unwilling,' 'Undecided,' and 'Willing' (n= 3,171 for all age groups and n= 1,644 for those aged 45 or younger); Adjusted for age, gender, co-resident family members, occupation, education, income, health status, statistical literacy, time preference, risk attitudes, fear of COVID-19, residential area, and vaccine attributes with the population weight for each age group by region; Values and markers are marginal effects with bars representing 95% confidence intervals estimated by robust standard errors; Full results are available upon request.

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Appendix Figure A-8. Vaccine passport: Exclude uniform individuals

Note: Estimates among individuals who were undecided and unwilling to vaccinate, excluding those who provided uniform answers regarding their vaccination intentions regardless of available options (n= 1,531 for all age groups and n= 754 for those aged 45 or younger); Adjusted for age, gender, co-resident family members, occupation, education, income, health status, statistical literacy, time preference, risk attitudes, fear of COVID-19, residential area, and vaccine attributes with the population weight for each age group by region; Values and markers are marginal effects with bars representing 95% confidence intervals estimated by robust standard errors; Full results are available upon request.

Appendix Figure A-9. Vaccine passport: Estimates by multilevel mixed-effects logistic regression
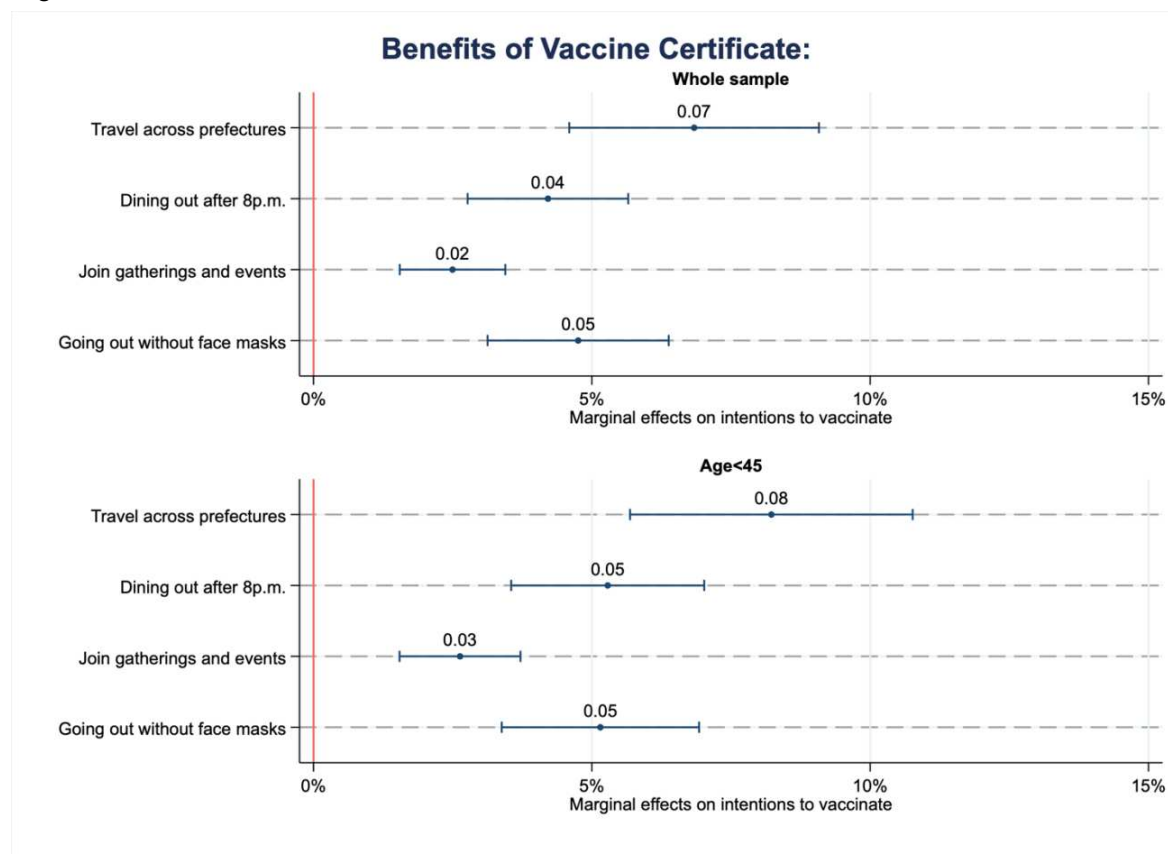
Note: Estimated by multilevel mixed-effects logistic regression with random intercepts by individuals among those who were undecided and unwilling to vaccinate (n= 1,518 for all age groups and n= 884 for those aged 45 or younger); Adjusted for age, gender, co-resident family members, occupation, education, income, health status, statistical literacy, time preference, risk attitudes, fear of COVID-19, residential area, and vaccine attributes with the population weight for each age group by region; Values and markers are marginal effects with bars representing 95% confidence intervals estimated by robust standard errors; Full results are available upon request.