

ONLINE APPENDIX OF
FRANCHINO, FABIO, AND FRANCESCO ZUCCHINI
VOTING IN A MULTI-DIMENSIONAL SPACE: A CONJOINT ANALYSIS EMPLOYING
VALENCE AND IDEOLOGY ATTRIBUTES OF CANDIDATES
POLITICAL SCIENCE RESEARCH AND METHODS

In this appendix, we include additional results from the conjoint analysis, diagnostics for carryover and profile order effects and a new quantity of interest developed by Hainmueller, Hopkins and Yamamoto (2014) for their variant of randomized conjoint analysis – the average marginal component effect.

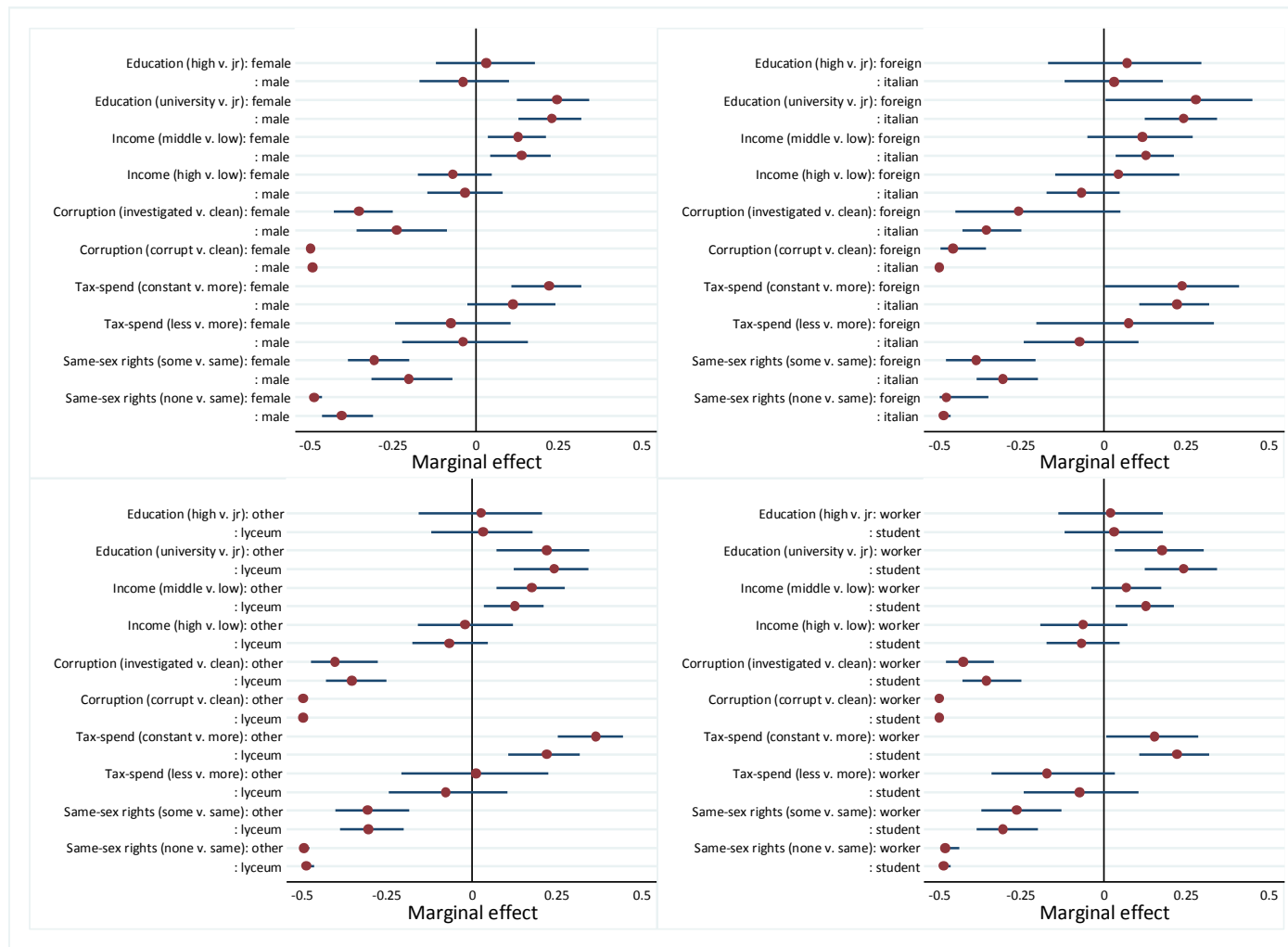
Additional Results from the Conjoint Analysis

Figures A1 to A3 display the marginal effects for different socio-demographic traits of respondents.

Figures A4 and A5 provide further complementary analysis of the competency form.

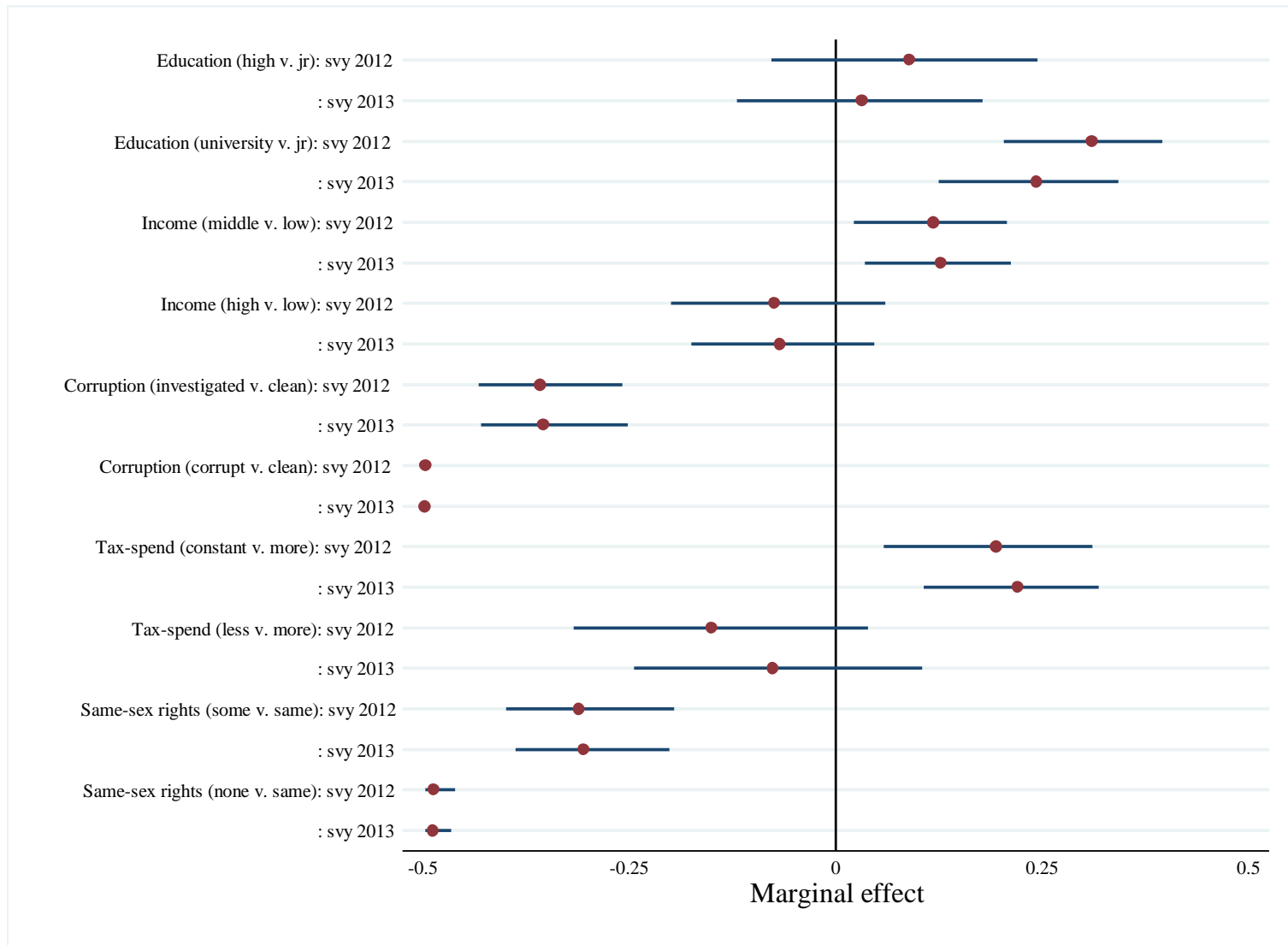
Figures A6 to A9 illustrate additional results of awkward (and less awkward) choices.

FIGURE A1 *Marginal effects of candidate attributes for different socio-demographic traits of respondents*



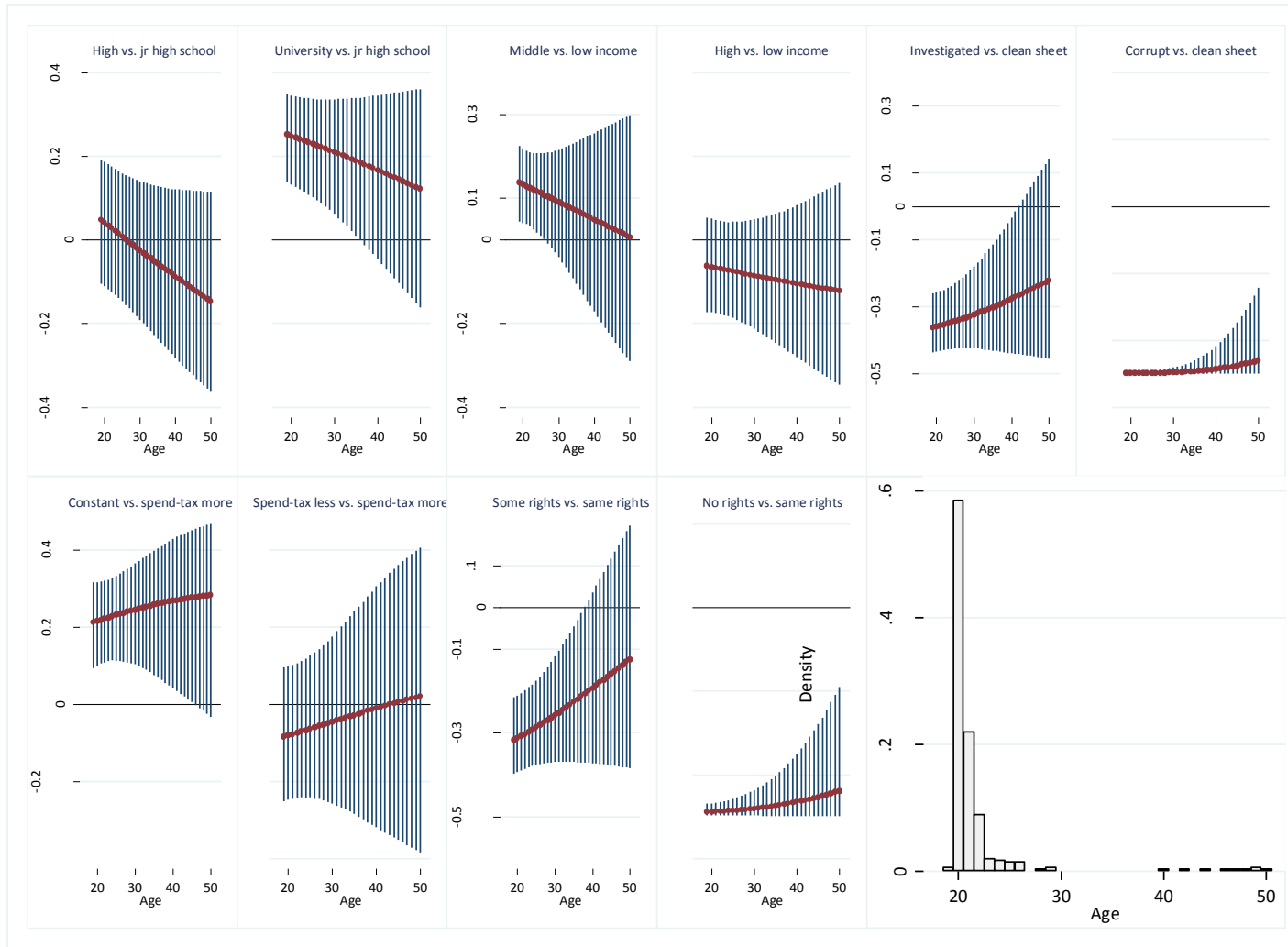
Note: Non-varying attributes are set at their baseline values (junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples)

FIGURE A2 *Marginal effects of candidate attributes for different survey waves*



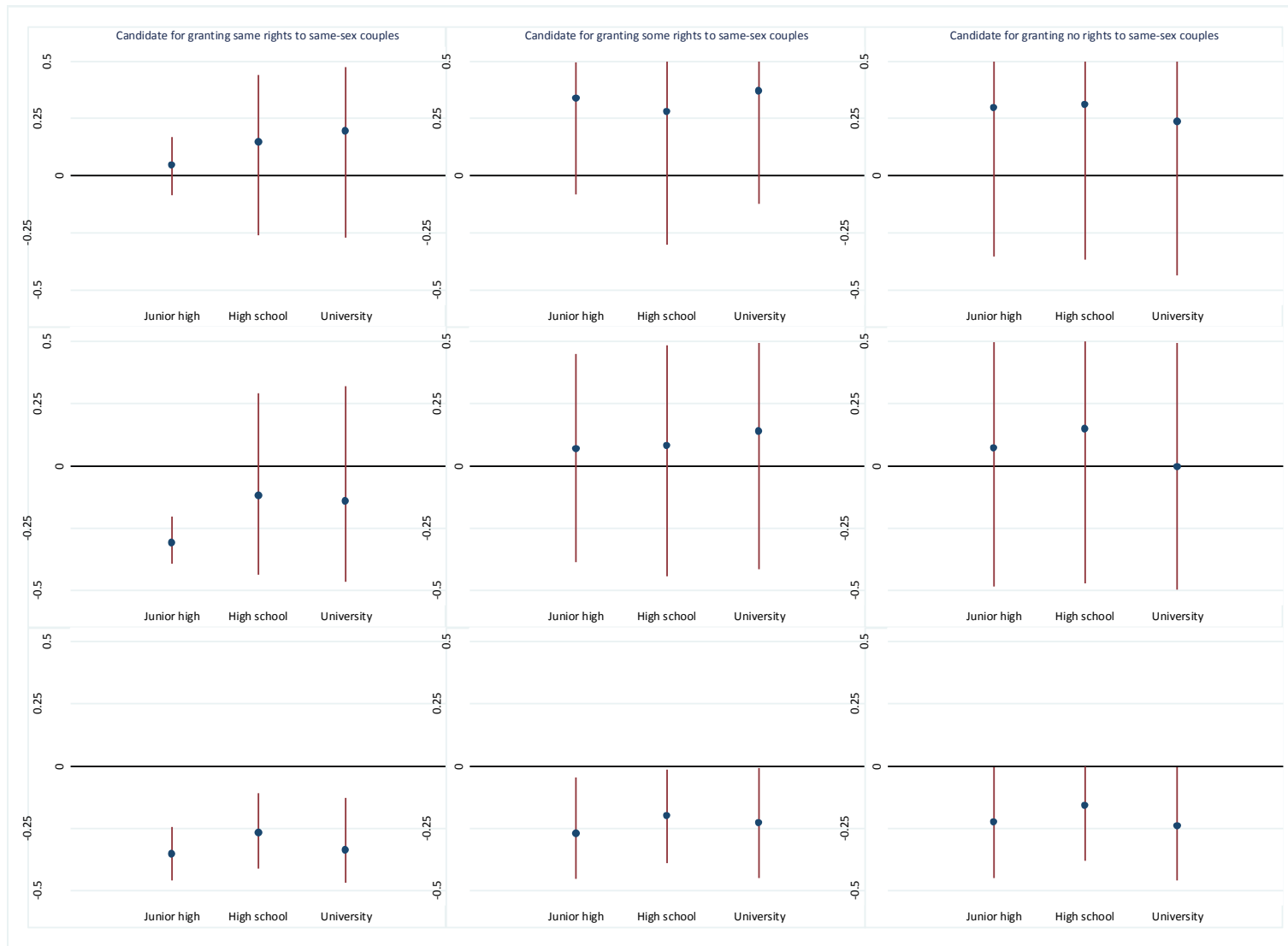
Note: Non-varying attributes are set at their baseline values (junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples)

FIGURE A3 *Marginal effects of candidate attributes at different ages of respondents*



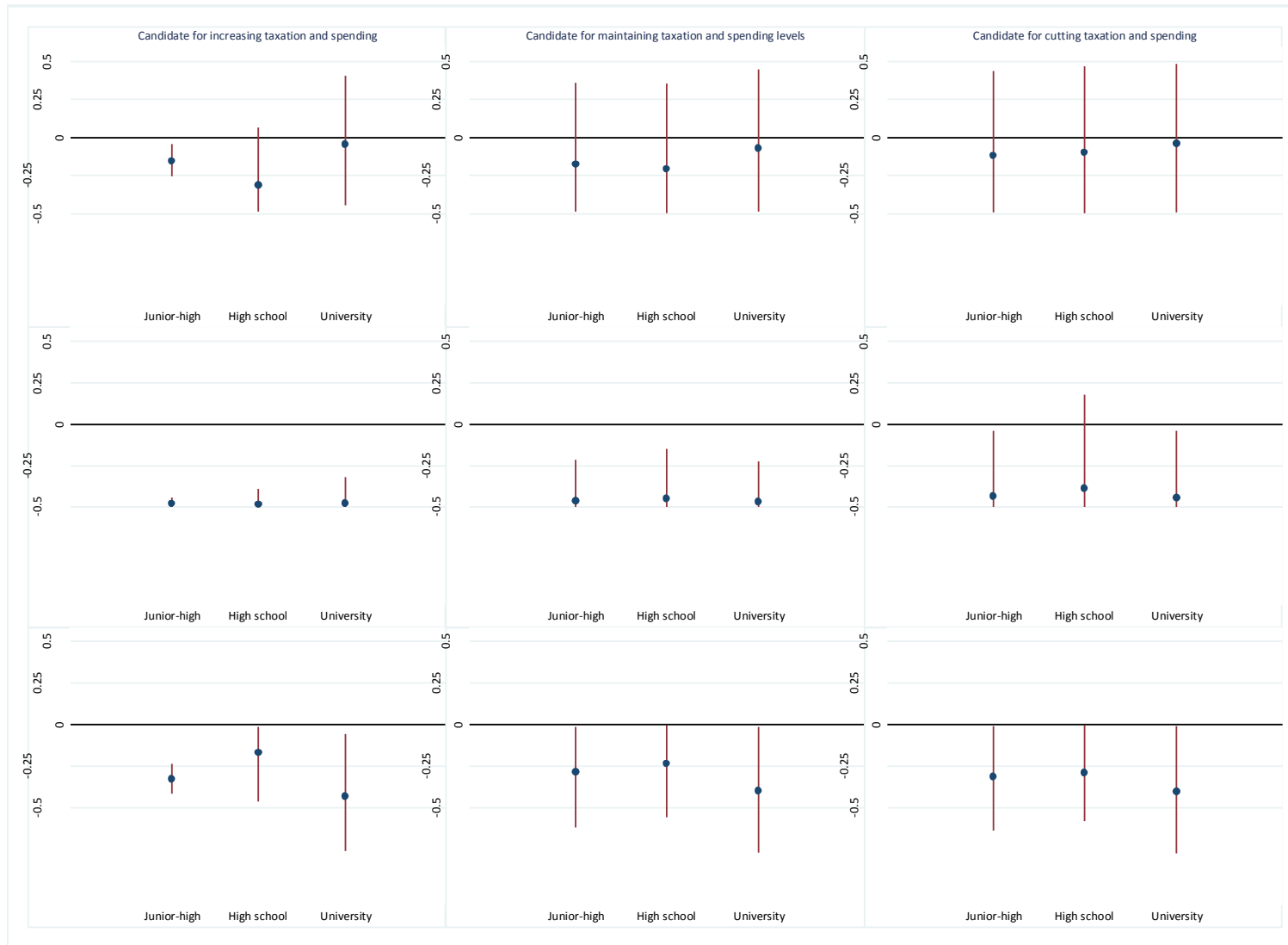
Note: Non-varying attributes are set at their baseline values (junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples)

FIGURE A4 *Competency form: the interaction between education and policy positions (marginal effects of tax-spend positions)*



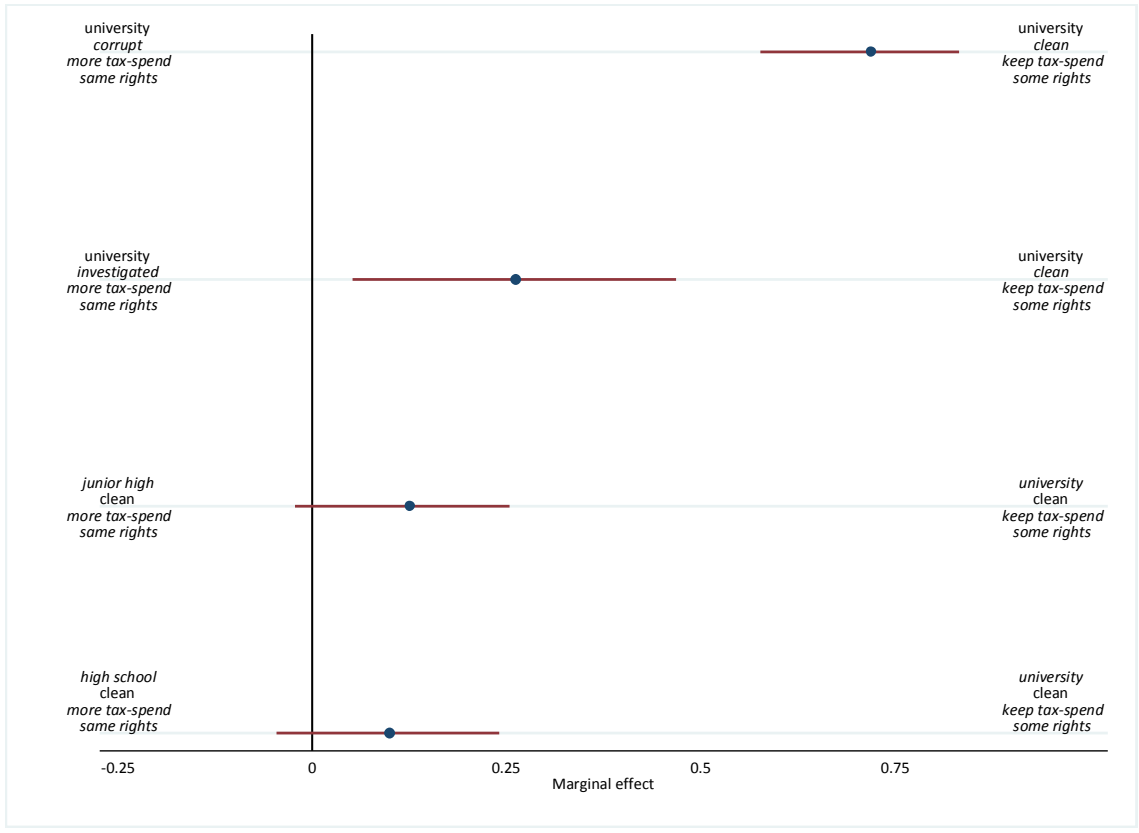
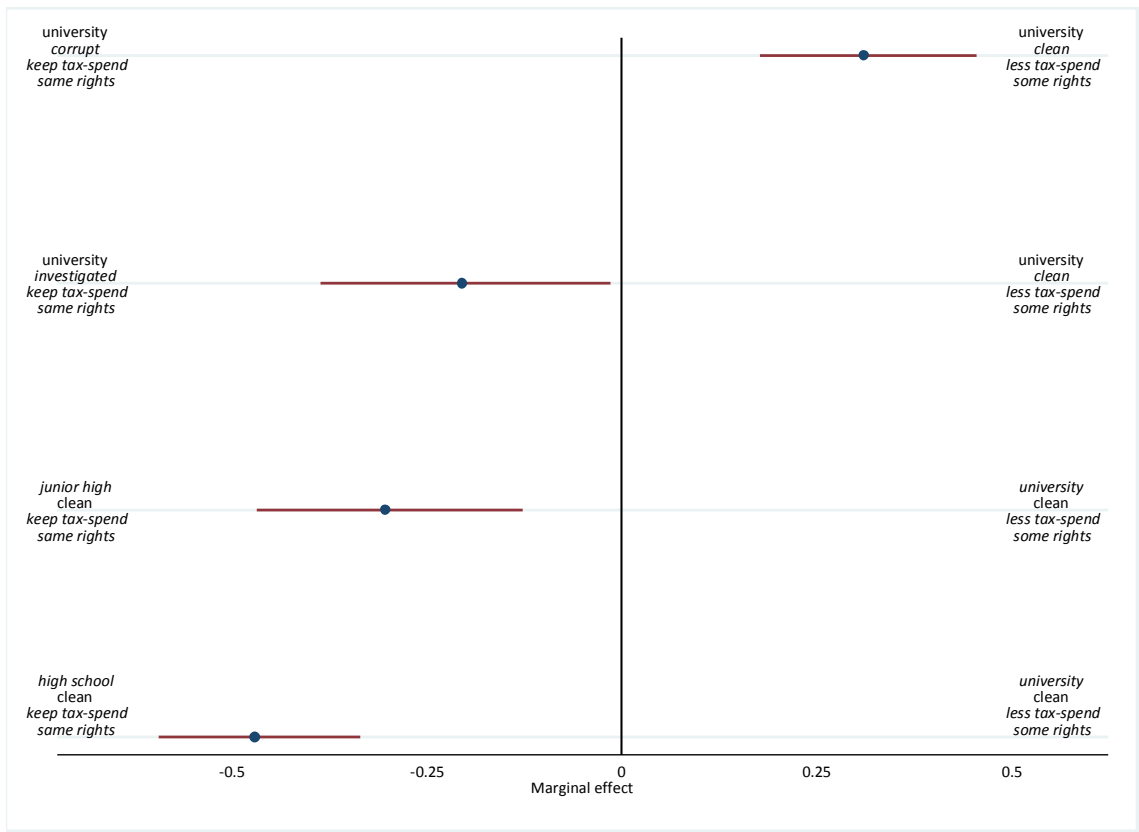
Note: Non-varying attributes are set at their baseline values (low income, clean)

FIGURE A5 *Competency form: the interaction between education and policy positions (marginal effects of rights positions)*



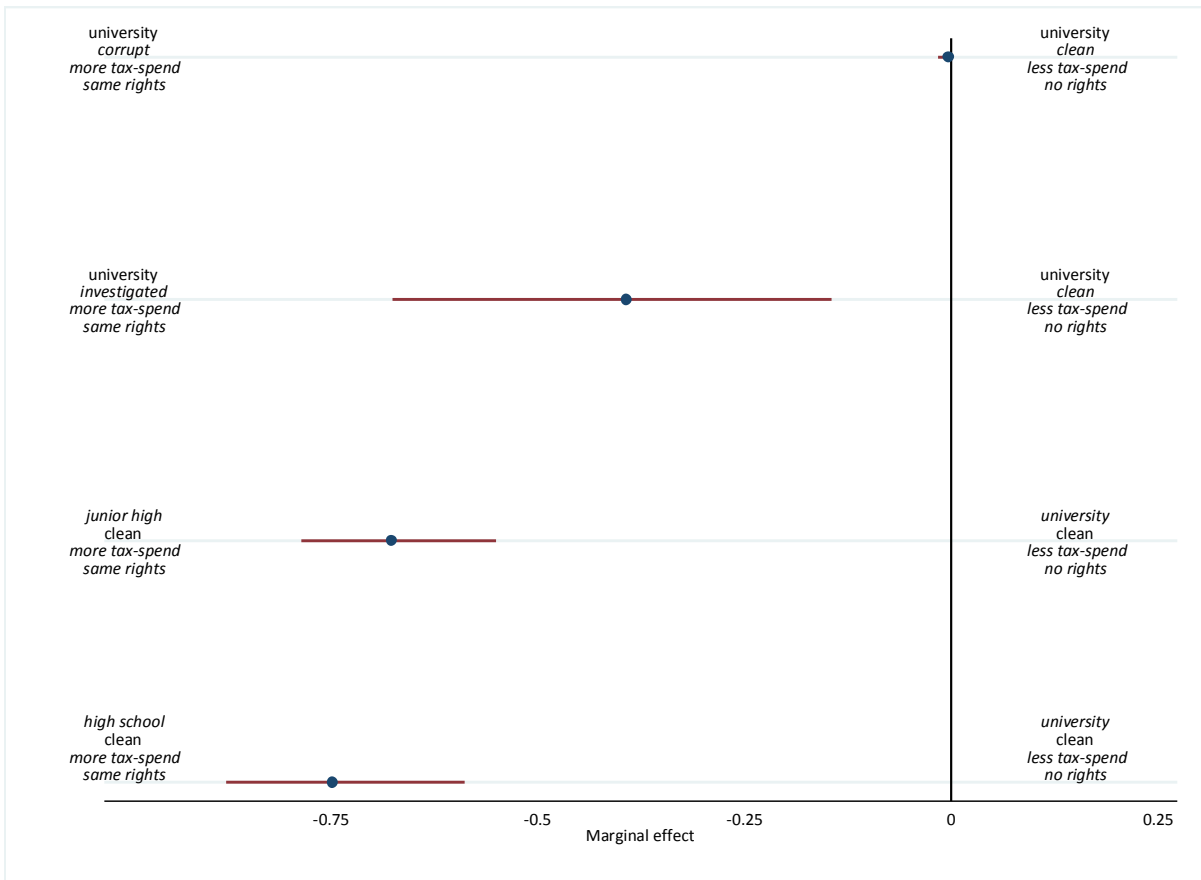
Note: Non-varying attributes are set at their baseline values (low income, clean)

FIGURE A6 *Less awkward choices for typical respondent*



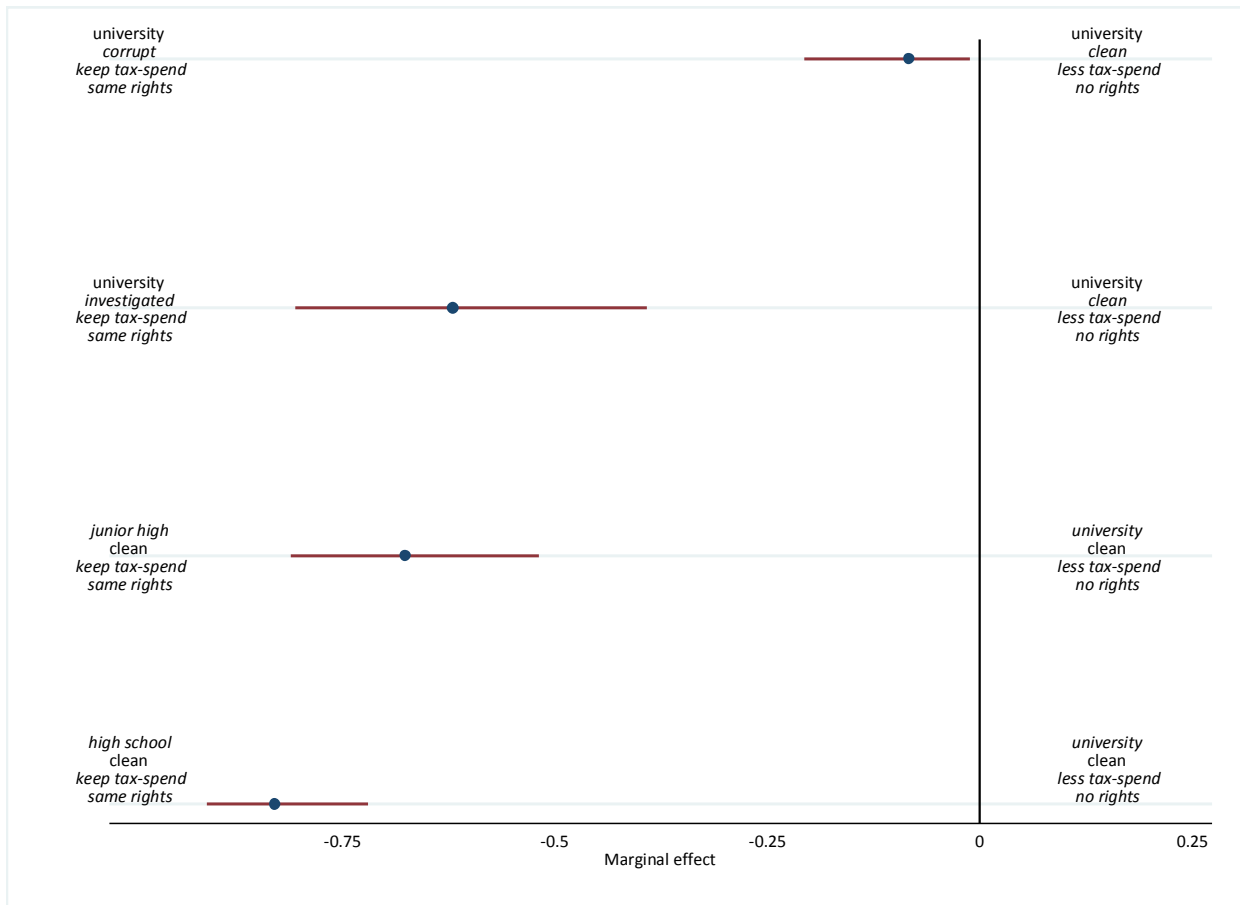
Note: Respondent with mean or modal traits, all candidates with middle income.

FIGURE A7 *Awkward choices for left-wing respondents*



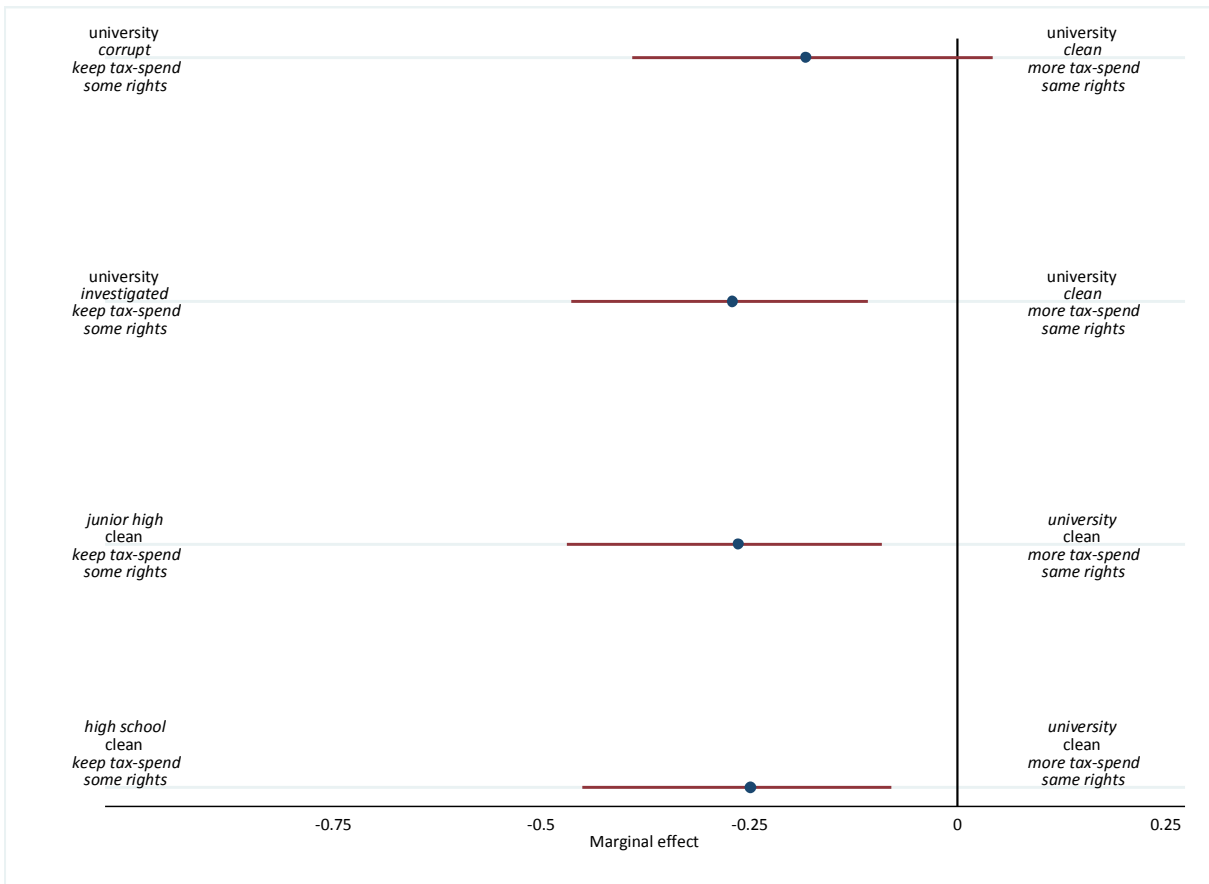
Note: Left respondent with political interest and saliency traits at the modal or mean value of their subsets and other socio-demographic traits at the modal or mean value of the full sample, all candidates with middle income. Although it hard to see, the first estimate is significantly lower than zero at the 95 percent confidence interval as well.

FIGURE A8 *Awkward choices for centrist respondents*



Note: Centrist respondent with political interest and saliency traits at the modal or mean value of their subsets and other socio-demographic traits at the modal or mean value of the full sample, all candidates with middle income.

FIGURE A9 *Awkward choices for right-wing respondents*



Note: Right respondent with political interest and saliency traits at the modal or mean value of their subsets and other socio-demographic traits at the modal or mean value of the full sample, all candidates with middle income. The first estimate is significantly lower than zero at the 90 percent confidence interval.

Diagnostics for Carryover and Profile Order Effects

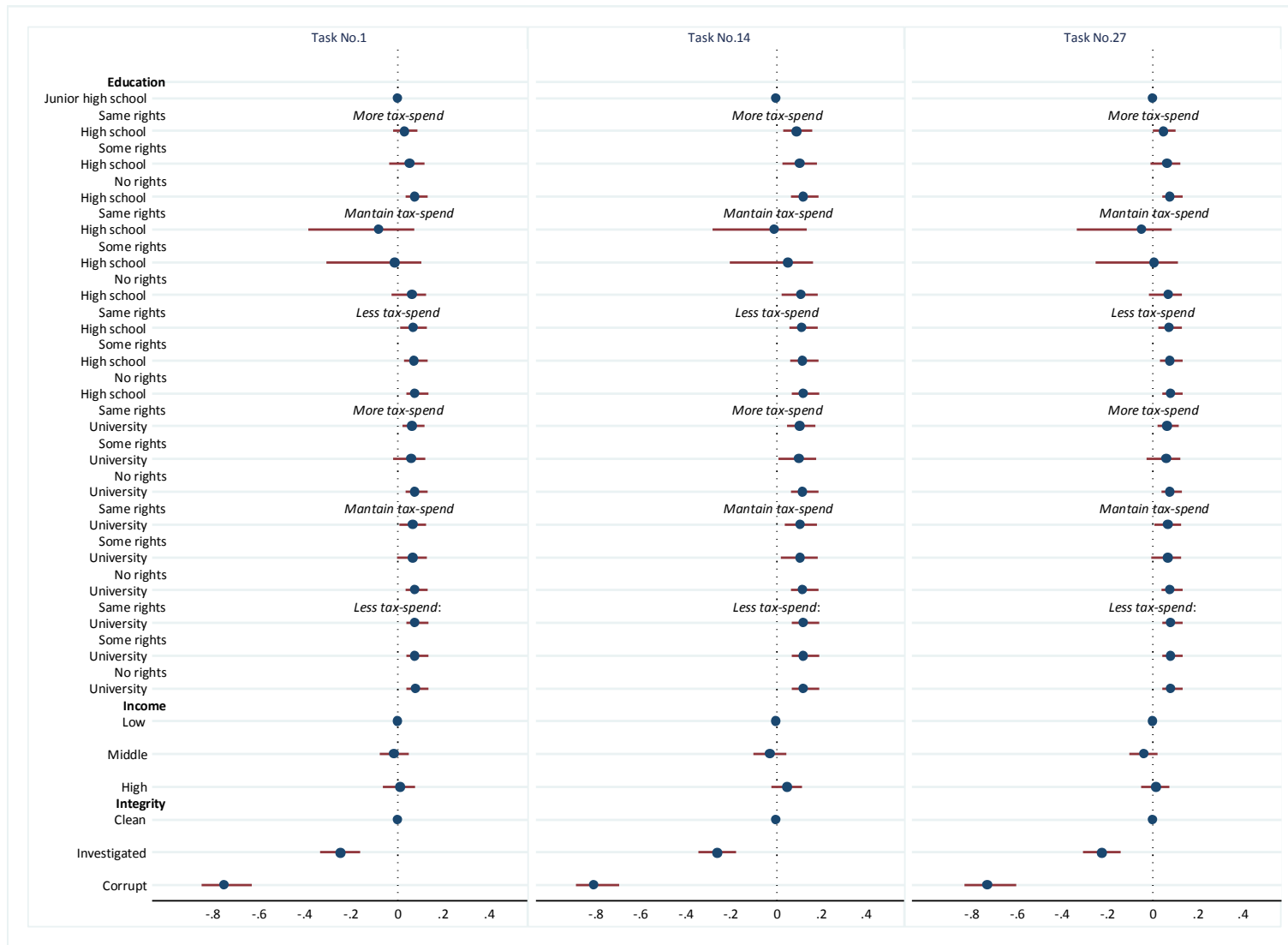
Hainmueller, Hopkins and Yamamoto (2014) argue that pooling requires no carryover and no profile order effects. The former implies that outcomes in each trial are independent from outcomes in other trials, as long as the attributes' values do not change. In other words, the respondents would choose the same candidate in the pairwise comparison of a given trial regardless of the profiles she had seen or would see in the rest of the experiment. To test for these effects, we have estimated the logit model in (1) adding interactions between attribute and task indicators. Figure A10 reports the marginal effects for the profiles combining education and policy positions and for income and corruption in the first, fourteenth and last task. They are very similar. With one exception, F-tests for the joint significance of the interaction terms cannot reject the null hypothesis that attribute effects are identical across tasks.¹ Even in the only exception - the 'corrupt' attribute level - the interaction terms are not significantly different from zero across the twenty seven tasks (p -values range from 0.25 and 0.98)

The no profile order effect implies that the ordering of profiles (A and B – left and right of the computer screen - in our case) does not affect the outcome in any manner. Differently ordered profiles should produce the exact same outcomes as long as the attributes' values are the same. To test for these effects, we have estimated the logit model in (1) adding interactions between indicators for attributes and for positions A and B. Figure A11 reports the marginal effects for the profiles combining education and policy positions and for income and corruption by candidate A and B. With one exception, they are very similar in this case as well. Such similarity is in expectation because most F-tests reject the null hypothesis that they are identical.² The profile order effect for 'high income' may reflect its low relevance but it deserves further investigation.

¹ The p -values are: high school (≈ 0.88); university (≈ 0.87); middle income (≈ 0.38); high income (≈ 0.36); investigated (≈ 0.87); corrupt (≈ 0.04); keep tax and spend (≈ 0.24); cut tax and spend (≈ 0.26); some rights (≈ 0.71); no rights (≈ 0.67).

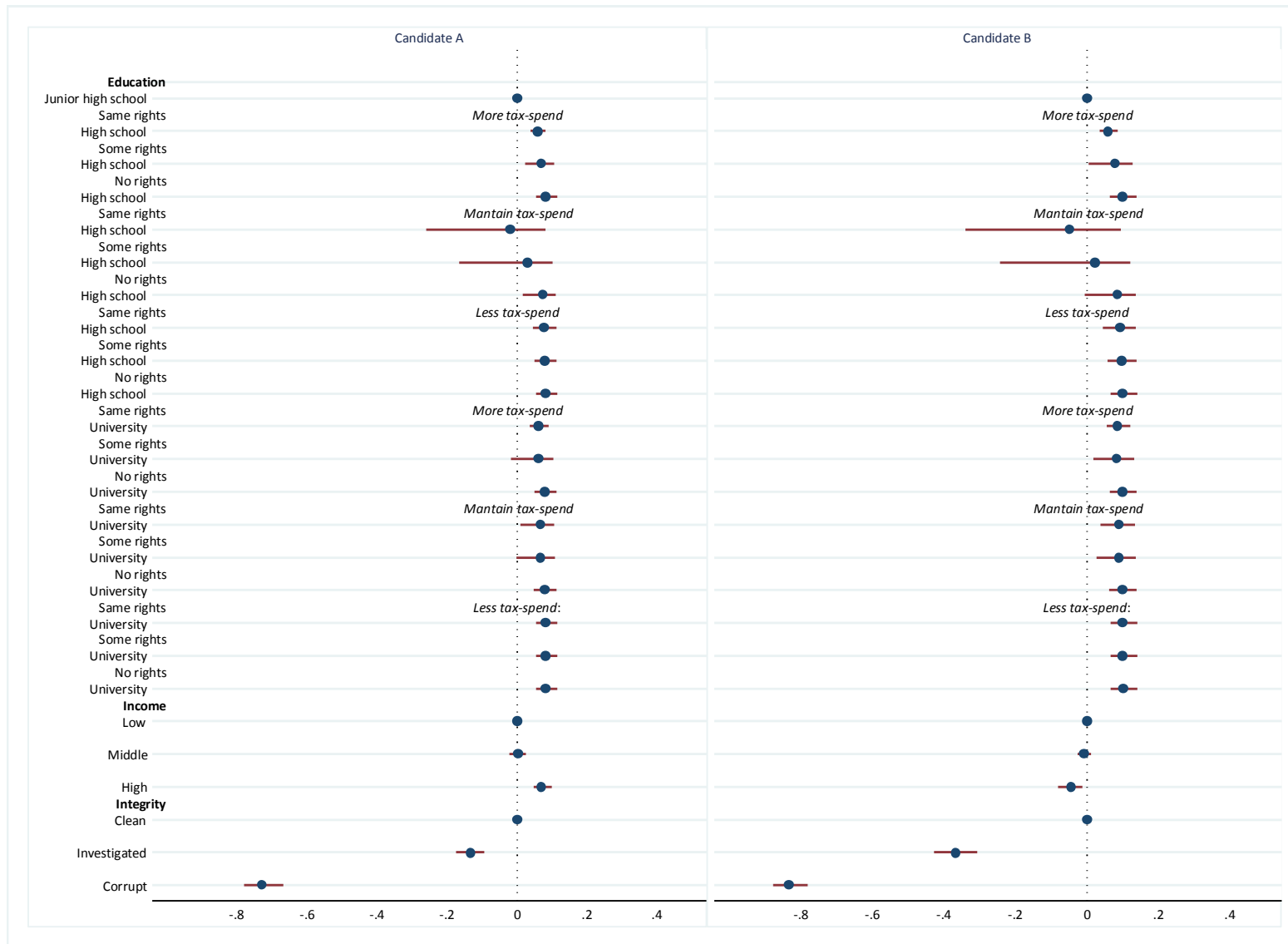
² The F-test cannot reject the null hypothesis only for middle income (p -value ≈ 0.23) and no rights (p -value ≈ 0.93).

FIGURE A10 *Marginal effects over reference attributes by task number (diagnostics for carryover effects)*



Note: Non-varying attributes are set at their baseline values (junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples)

FIGURE A11 *Marginal effects over reference attributes by profile type (diagnostics for profile order effects)*



Note: Non-varying attributes are set at their baseline values (junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples)

Average Marginal Component Effects and Average Component Interaction Effects

Hainmueller, Hopkins and Yamamoto (2014) have recently proposed a new variant of randomized conjoint analysis and a related new quantity of interest - the average marginal component effect (AMCE) and the related average component interaction effect (ACIE). According to these scholars, AMCEs and ACIEs can be estimated by simple linear regressions and the procedure should yield the same results in expectation whether the effects are estimated separately for each attribute or simultaneously in single model with all the attributes. Following a comment from a reviewer, we report these effects in Figures A12 and A13. The top left panel in Figure A12 shows the ACMEs from a separate regression, controlling for the socio-demographic characteristics of respondents; the remaining panels display the ACIEs from separate regressions of the ten pairwise interactions among the attributes. Figure A13 displays the ACIEs from a single model which is similar to the conditional logit in (1). It includes the five attributes, the interactions between education and the two policy dimensions, the socio-demographic characteristics as well as their interactions with the attributes.

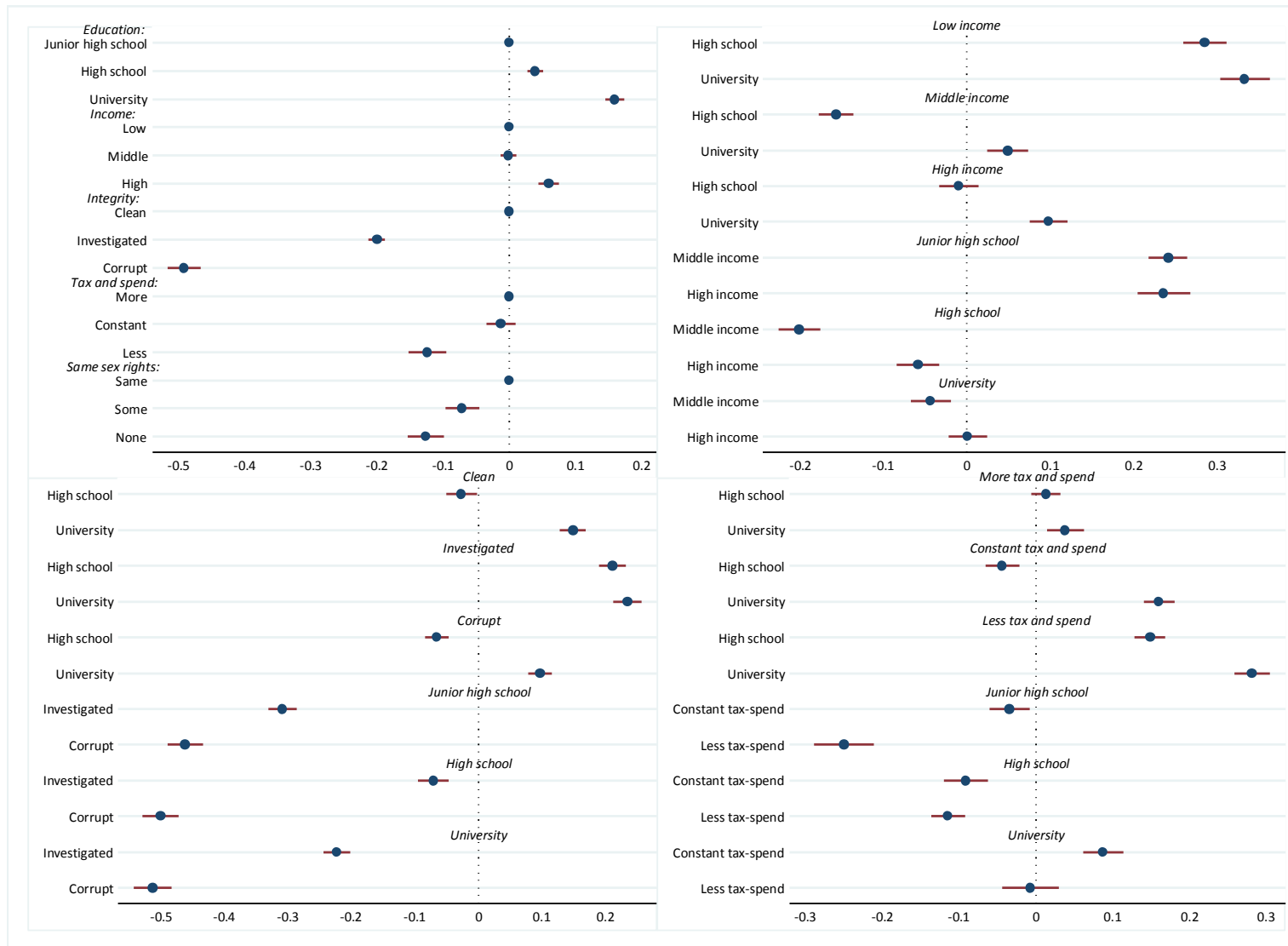
The AMCEs (top left panel in Figure A12) confirm our results with regard to the most preferred attributes of our typical respondent, with the only exception that middle income does not confer an advantage over low income, while high income does so, slightly (the probability to win support increases by 5.9 percentage points).

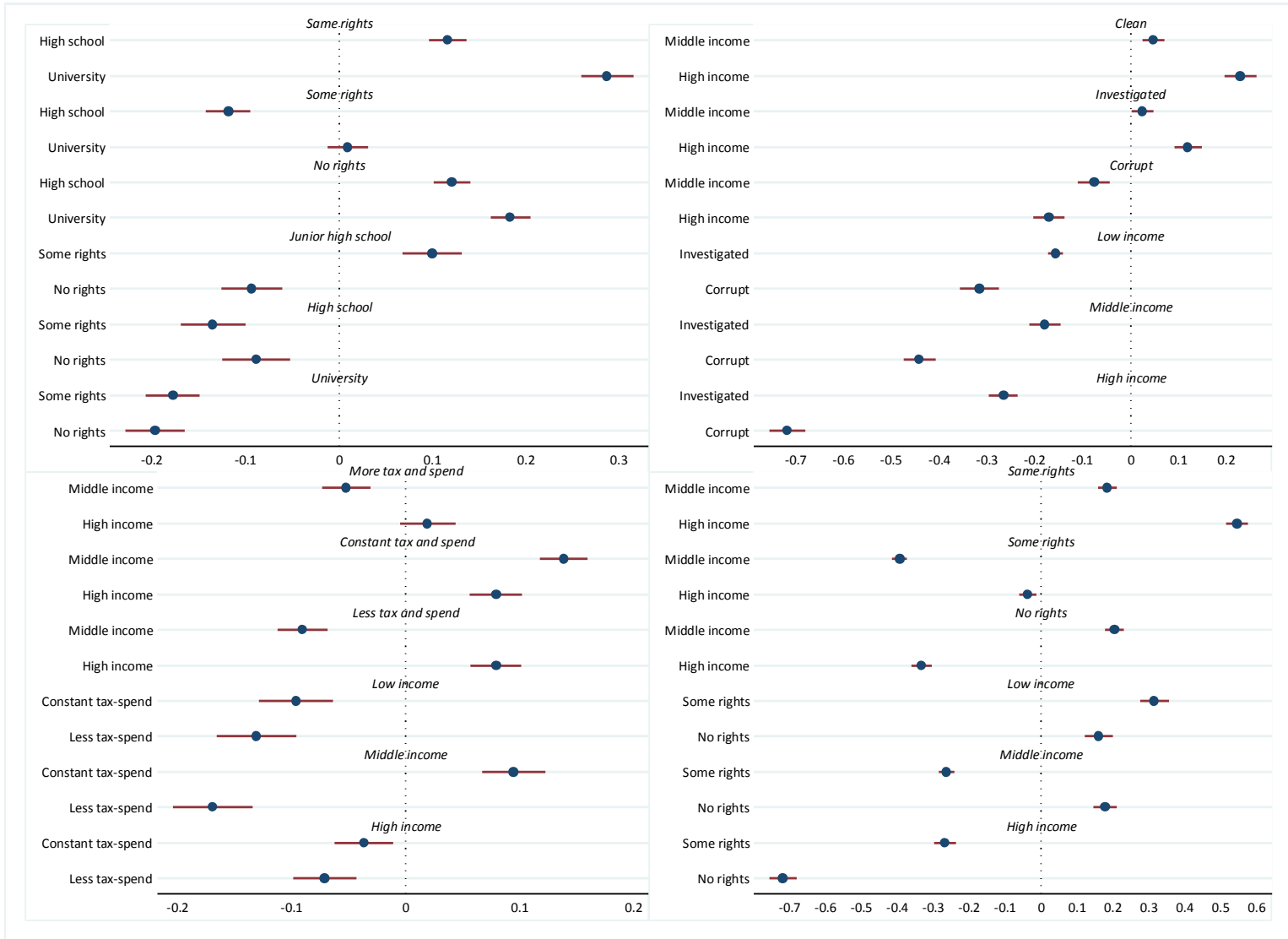
Consider now the competency form (limiting the analysis of the effect of holding a university degree compared to a junior high school diploma). Candidates proposing full recognition of rights are rewarded of their university education more than any other candidate (see left panel of third row of Figure A12 and bottom row of Figure A13). University education increases the probability of being chosen by between 40.3 and 16 percentage points, compared to 29.8 and 5.6 percentage points for a candidate opposing such recognition. An F-test for the joint significance of the interaction terms rejects the null hypothesis that the effects of university education are identical across profiles (p -value ≈ 0.000). However, the competency form is not fully supported. Candidates

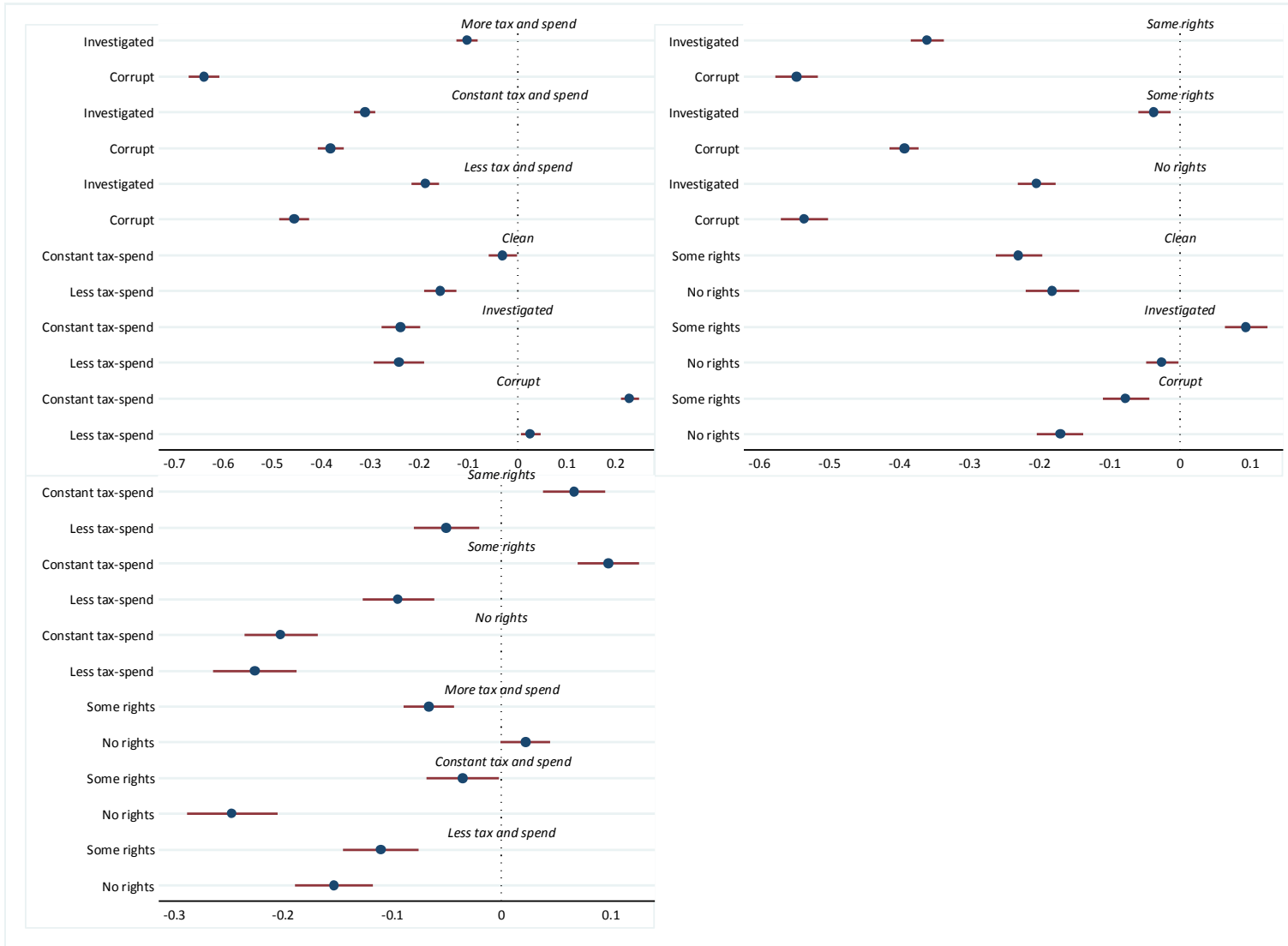
supporting some recognition are less rewarded of their university education than candidates objecting to any right; and a university education increases the probability of being selected more for candidates proposing spending cuts than for other candidates (see left panel of second row of Figure A12 and bottom row of Figure A13).³ These results, especially the former, are indeed peculiar but they need to be taken with due caution because we do not know whether these estimates, based on simple linear regressions and developed for a randomized design, are more accurate than those of a conditional logit which is commonly used for limited dependent variables and a fractional factorial design like ours.

³ The left panel of the fifth row of Figure A12 also suggests that the penalty from being corrupt is much higher if the candidate support more than less spending (F-test p -value ≈ 0.000), supporting the (inverse of the) competency form. However the penalty is smaller if the candidate supports constant rather than less spending.

FIGURE A12 Average marginal component effects and average component interaction effects from separate linear regressions

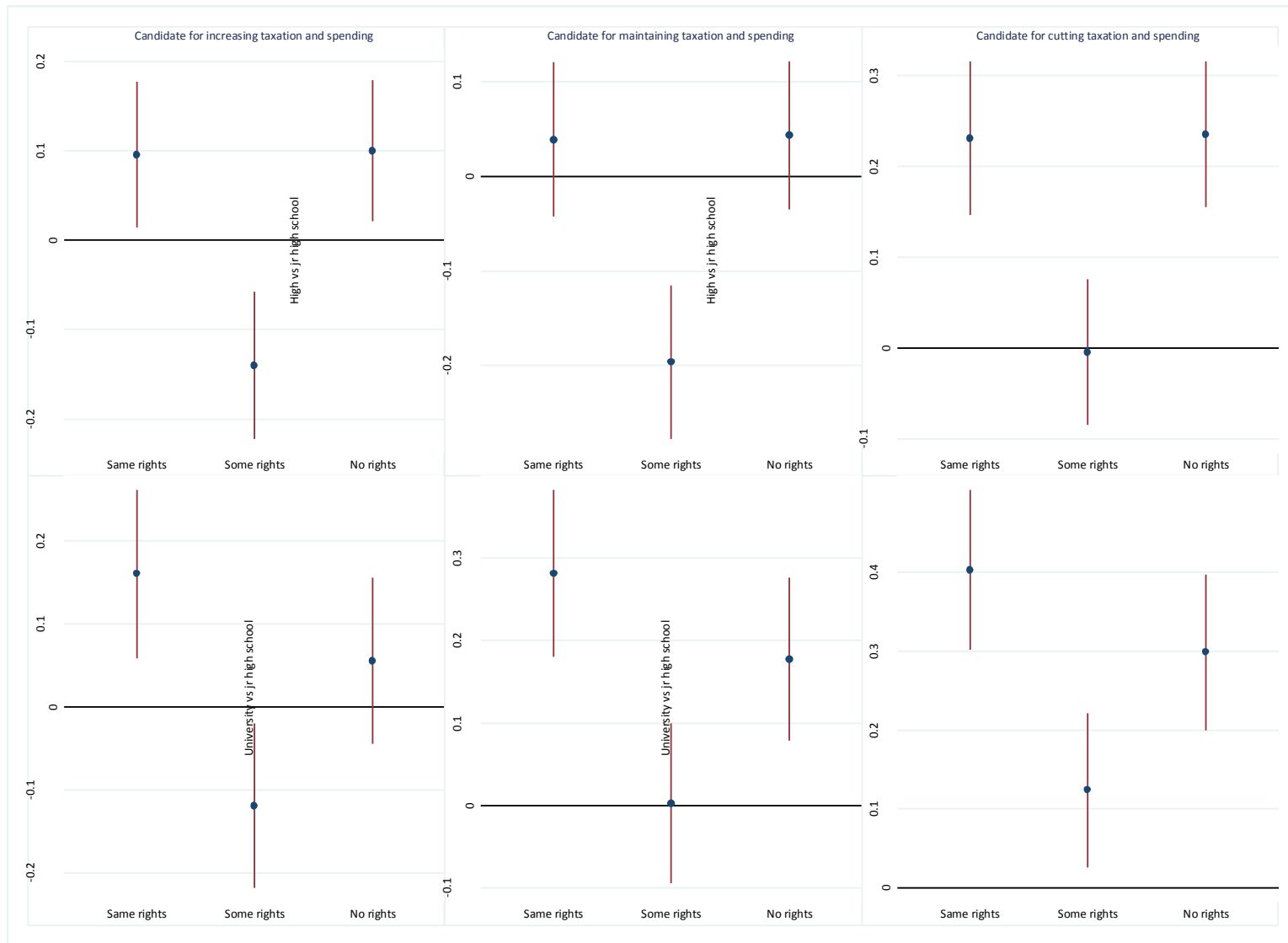


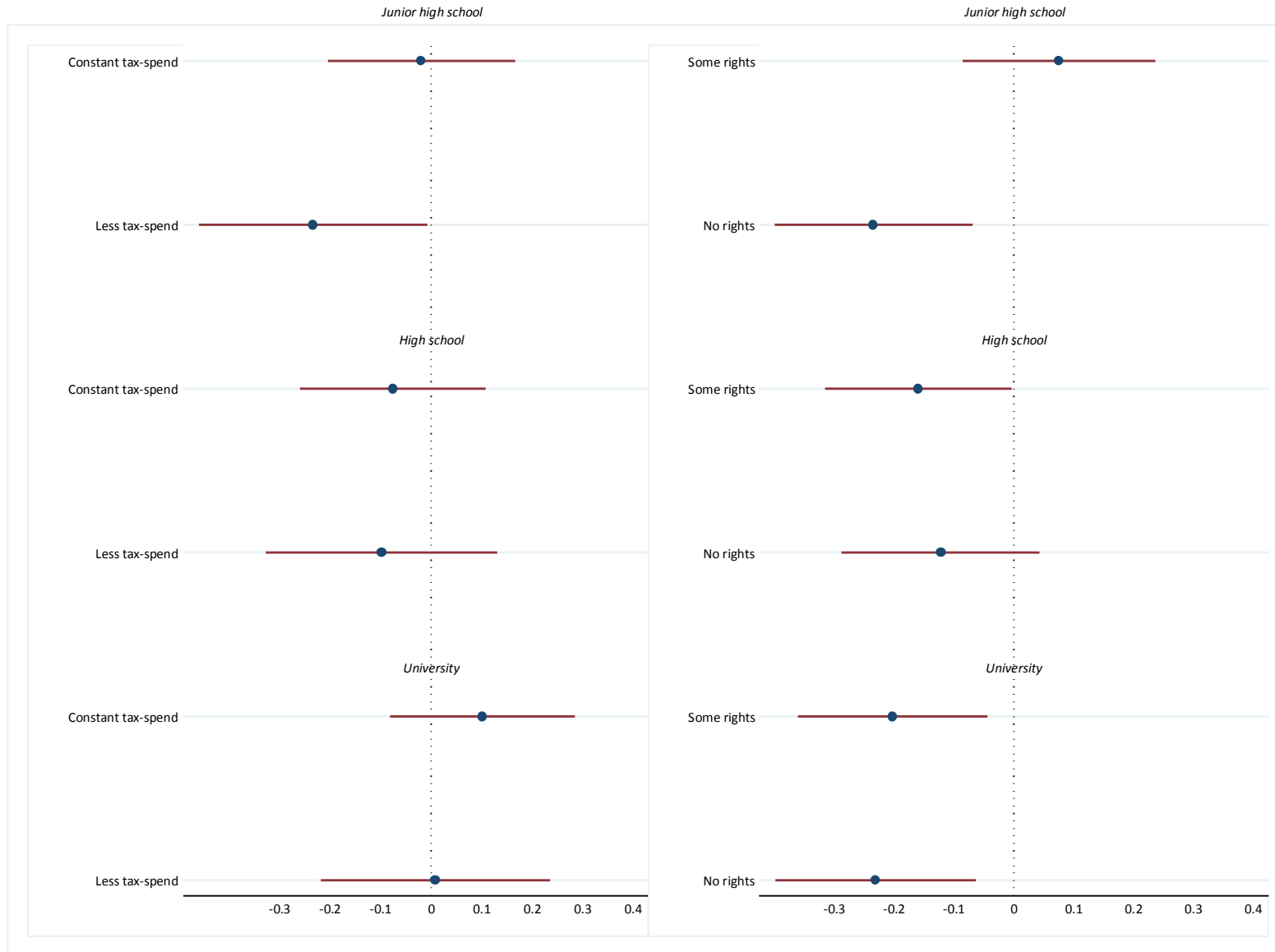




Note: Regressions control for respondents' characteristics and standard errors are clustered by respondent. Reference attributes: junior high school diploma, low income, clean, more taxation and spending, same rights to same sex-couples.

FIGURE A13 Average component interaction effects from a single linear regression





Note: The regression includes socio-demographic characteristics interacting with candidate attributes. Standard errors are clustered by respondent.