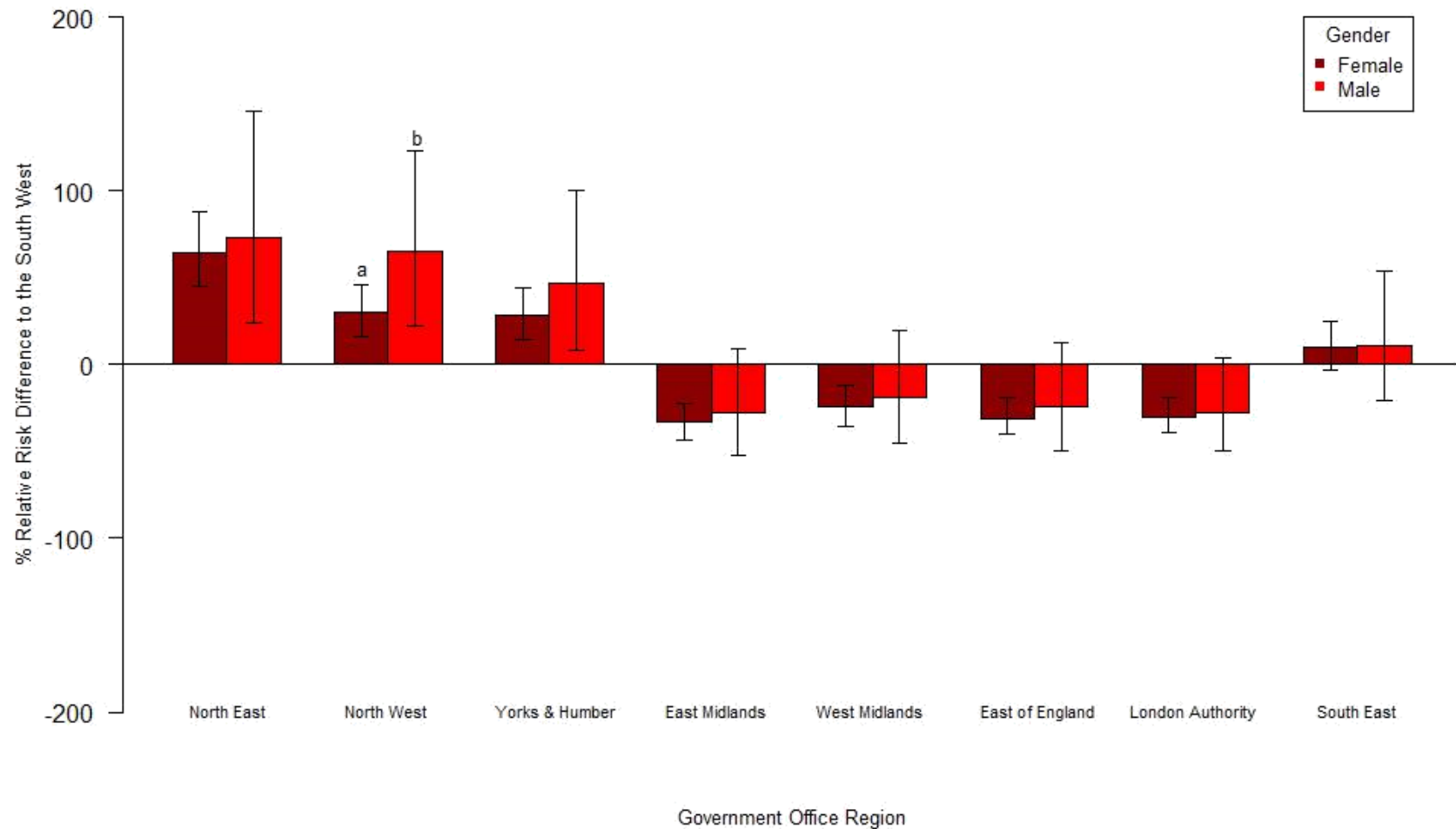


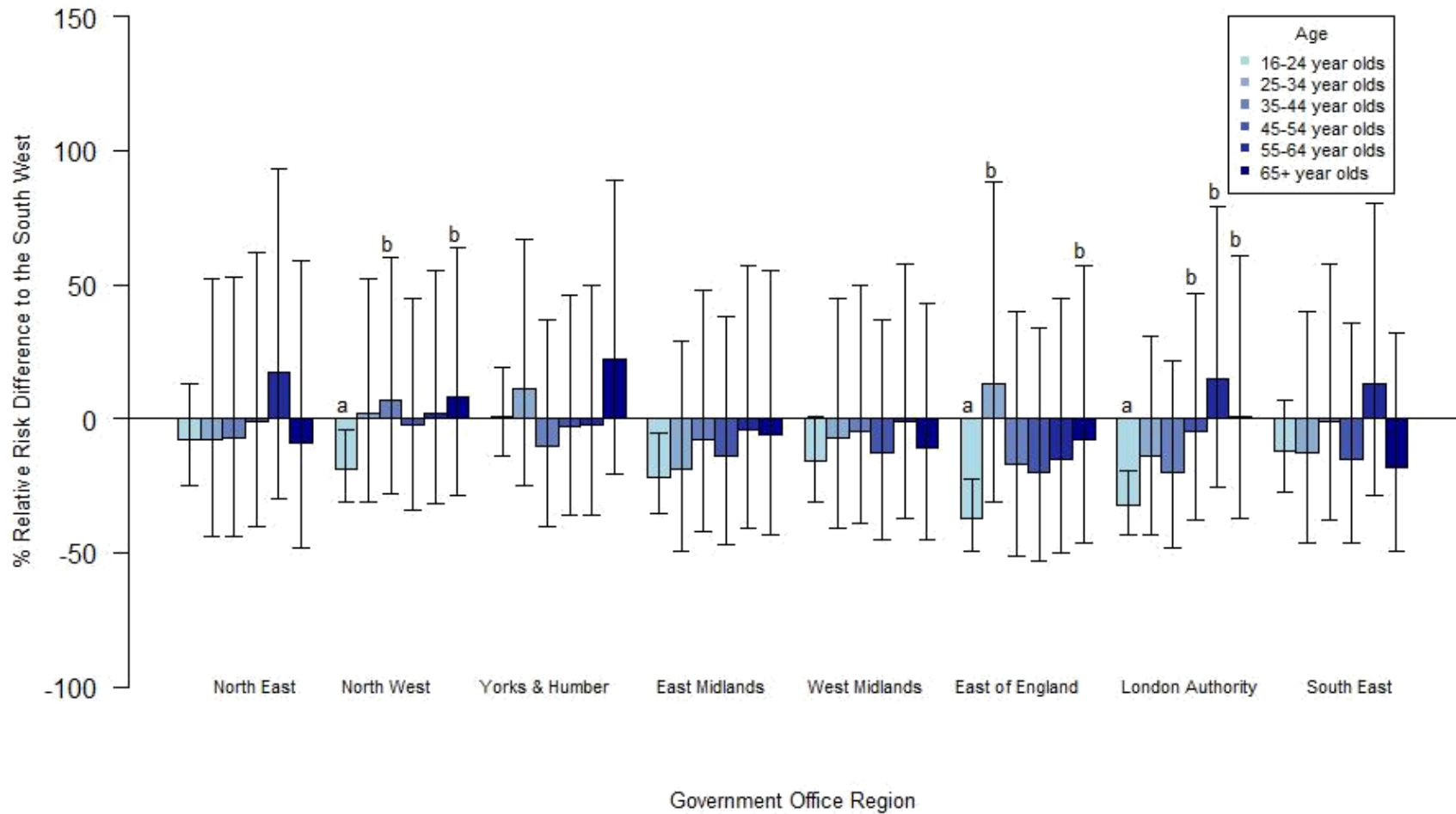
Supplementary Figure 1: Moderation effect of gender on the association between Government Office Region and smoking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of smoking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of smoking for subgroup 'a' is significantly different to subgroup 'b'



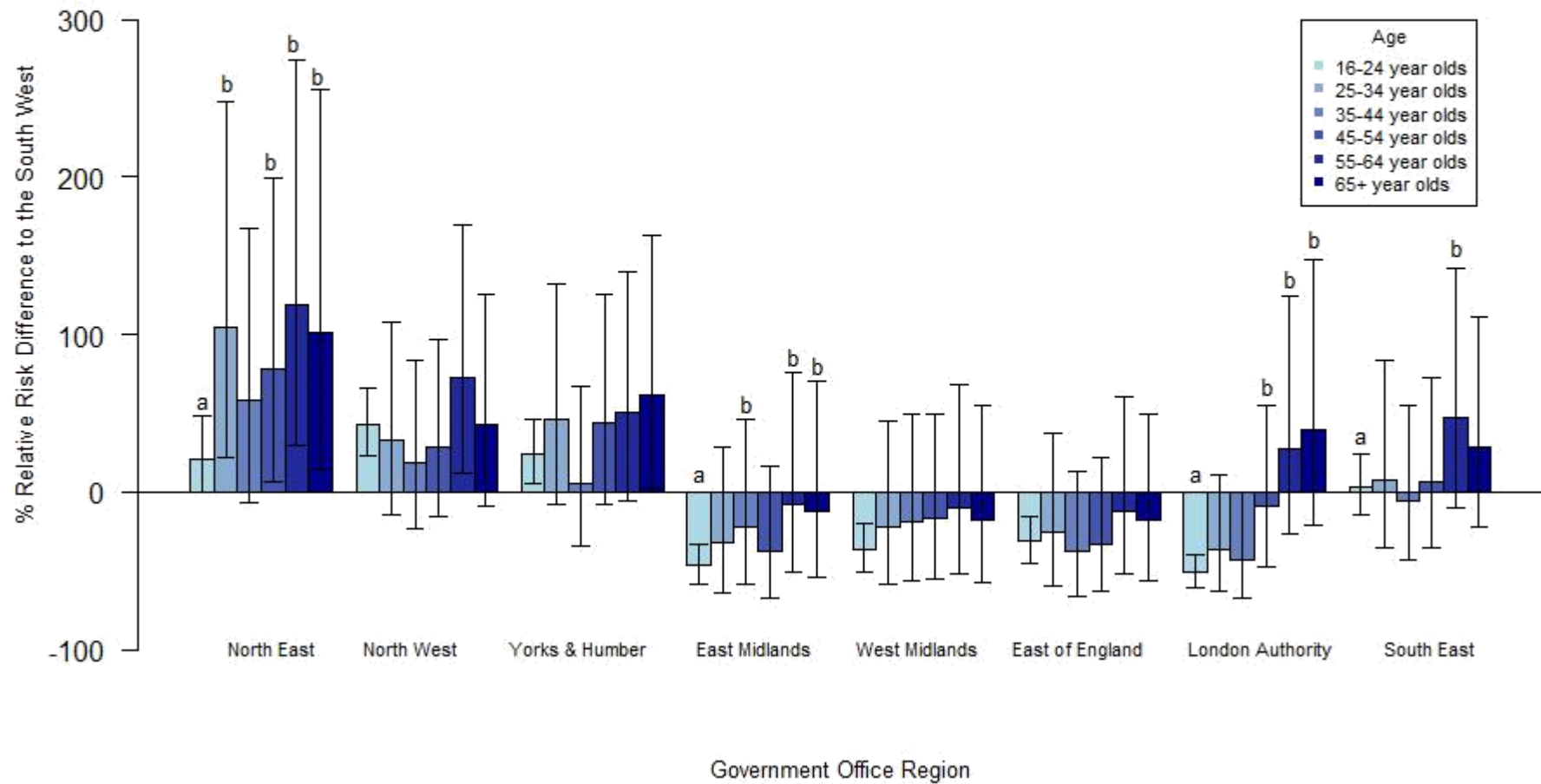
Supplementary Figure 2: Moderation effect of gender on the association between Government Office Region and high-risk drinking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of high-risk drinking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of high-risk drinking for sub-group 'a' is significantly different to subgroup 'b'



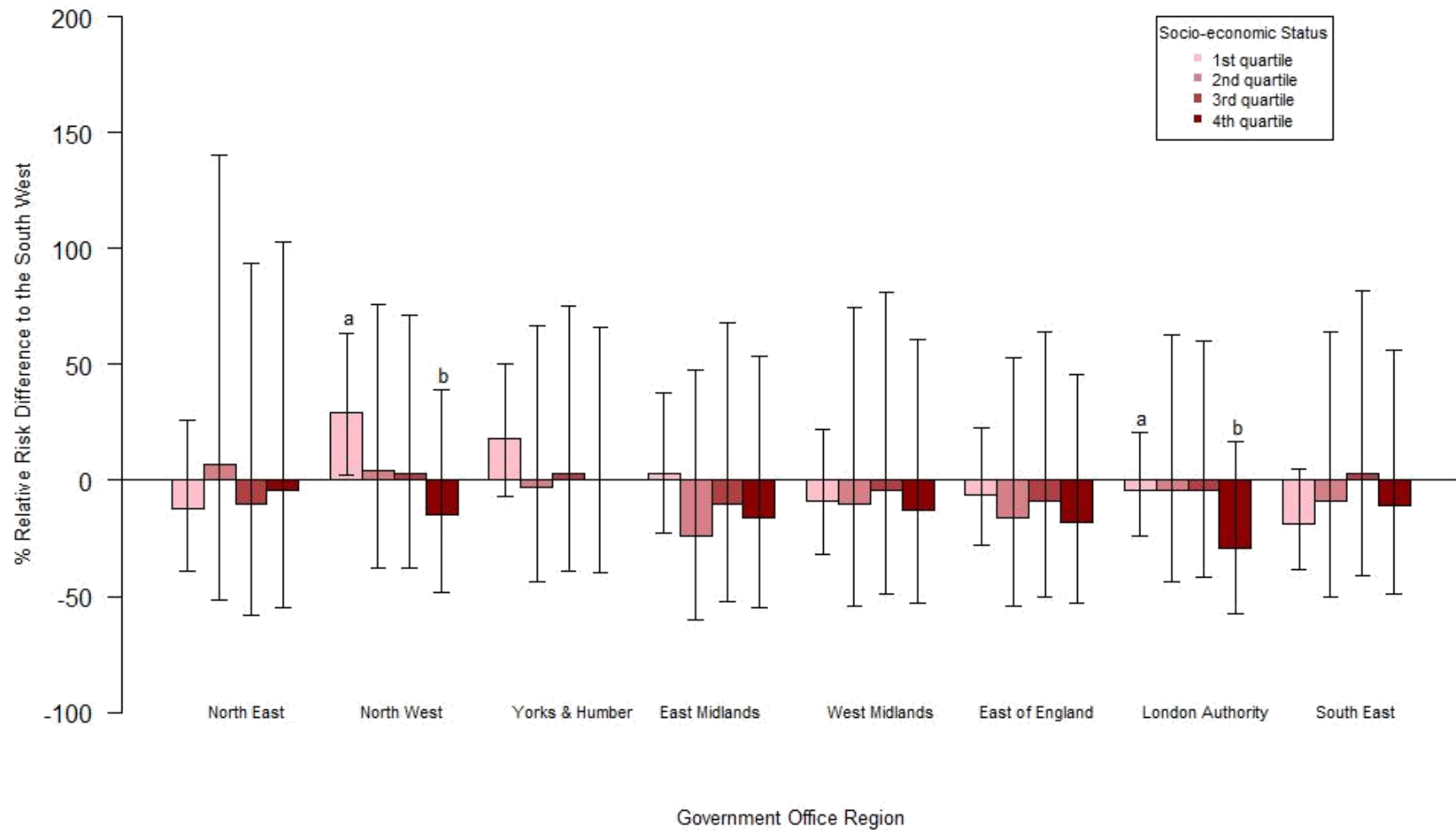
Supplementary Figure 3: Moderation effect of age on the association between Government Office Region and smoking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of smoking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of smoking for subgroup 'a' is significantly different to subgroup 'b'



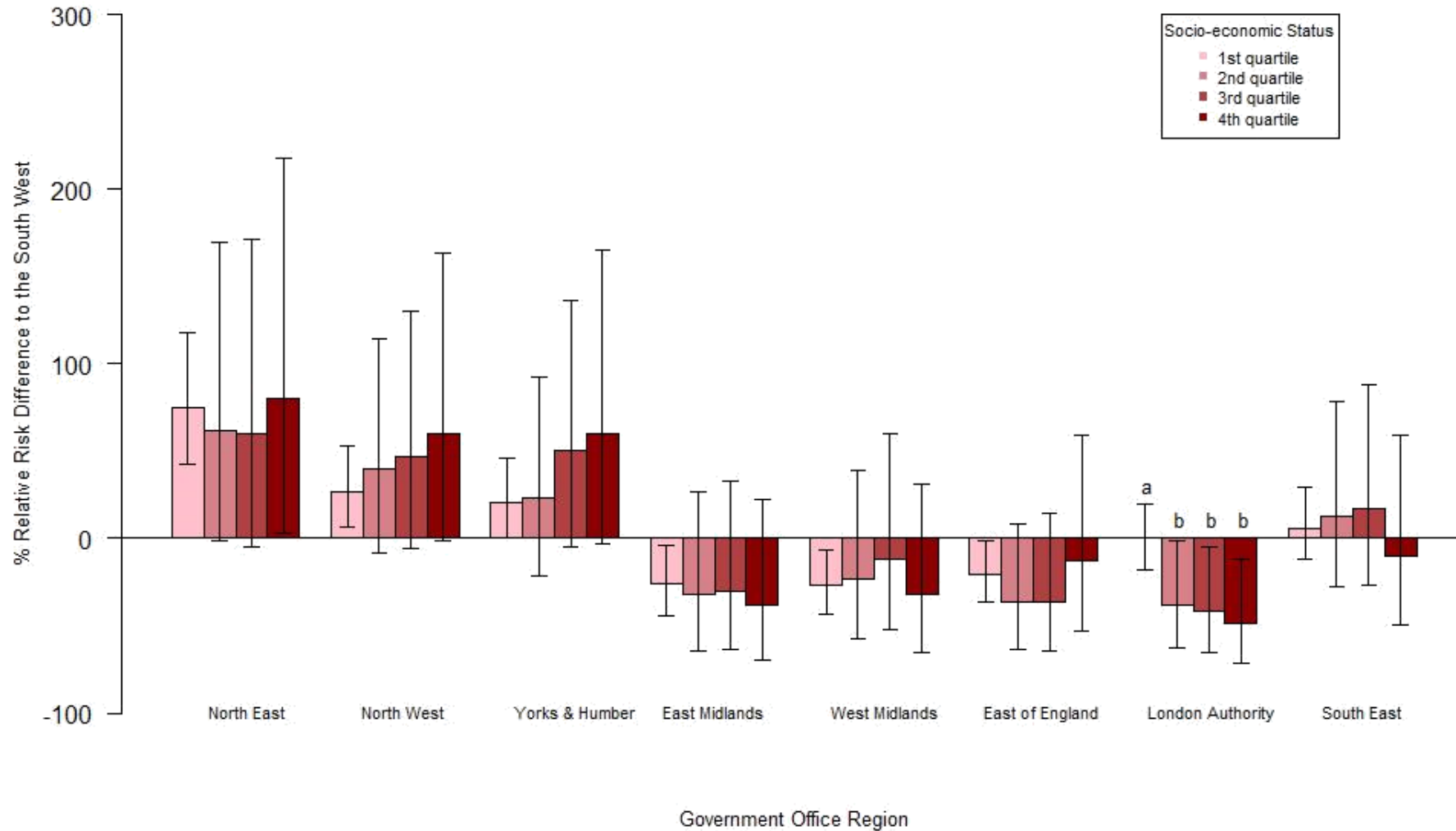
Supplementary Figure 4: Moderation effect of age on the association between Government Office Region and high-risk drinking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of high-risk drinking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of high-risk drinking for sub-group 'a' is significantly different to subgroup 'b'



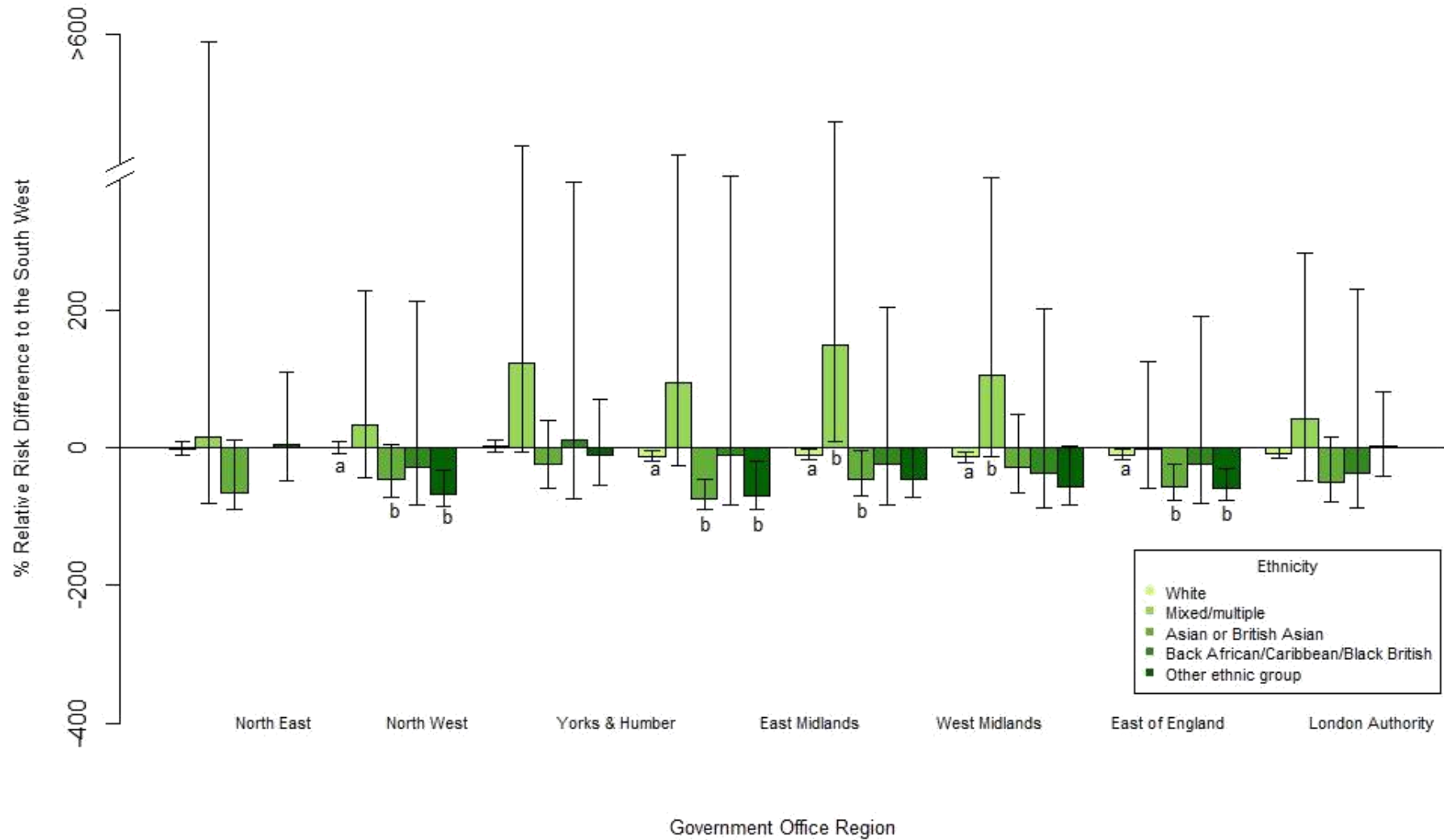
Supplementary Figure 5: Moderation effect of socio-economic status on the association between Government Office Region and smoking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of smoking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of smoking for sub-group 'a' is significantly different to subgroup 'b'



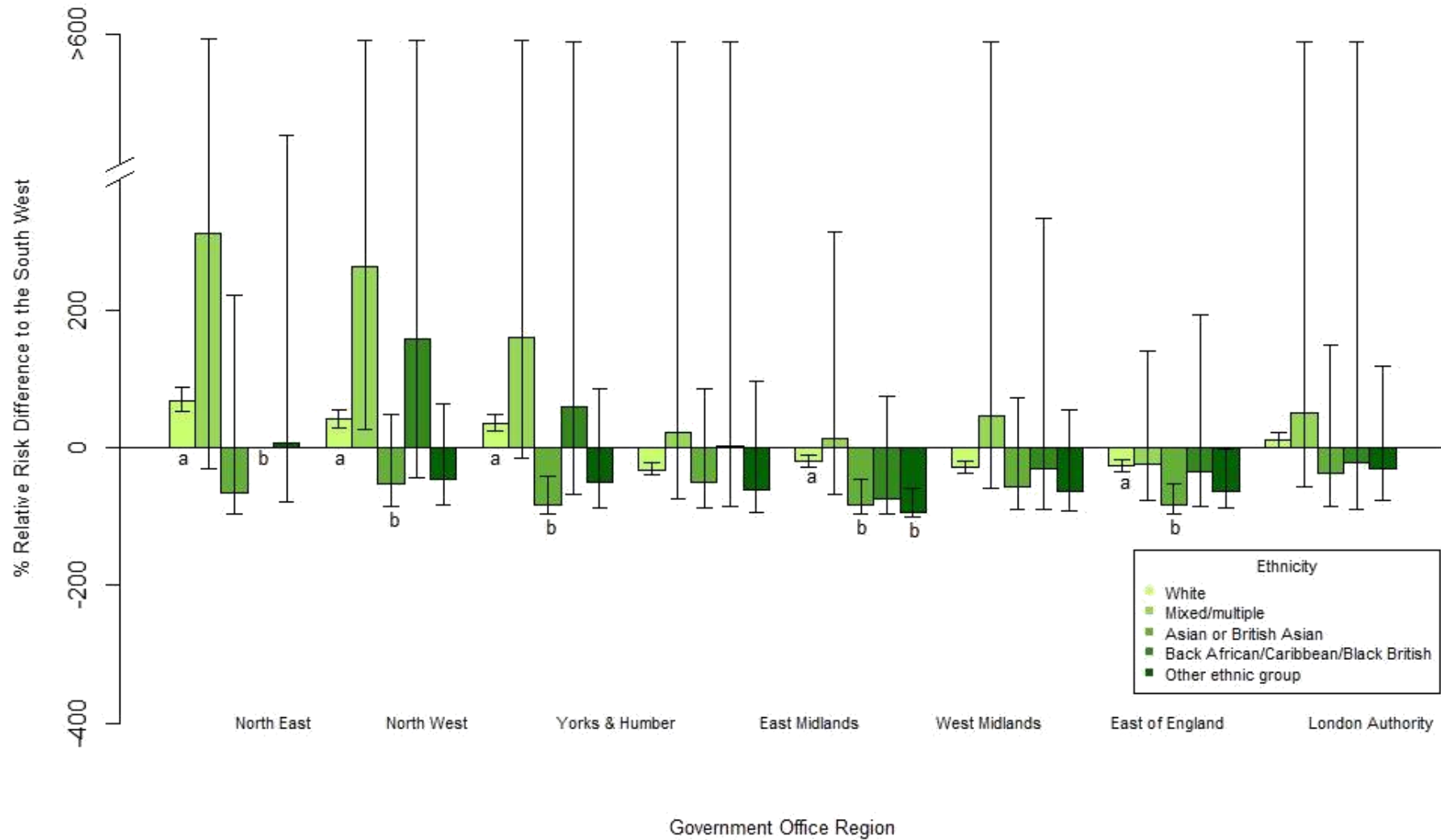
Supplementary Figure 6: Moderation effect of socio-economic status on the association between Government Office Region and high-risk drinking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of high-risk drinking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of high-risk drinking for sub-group 'a' is significantly different to subgroup 'b'



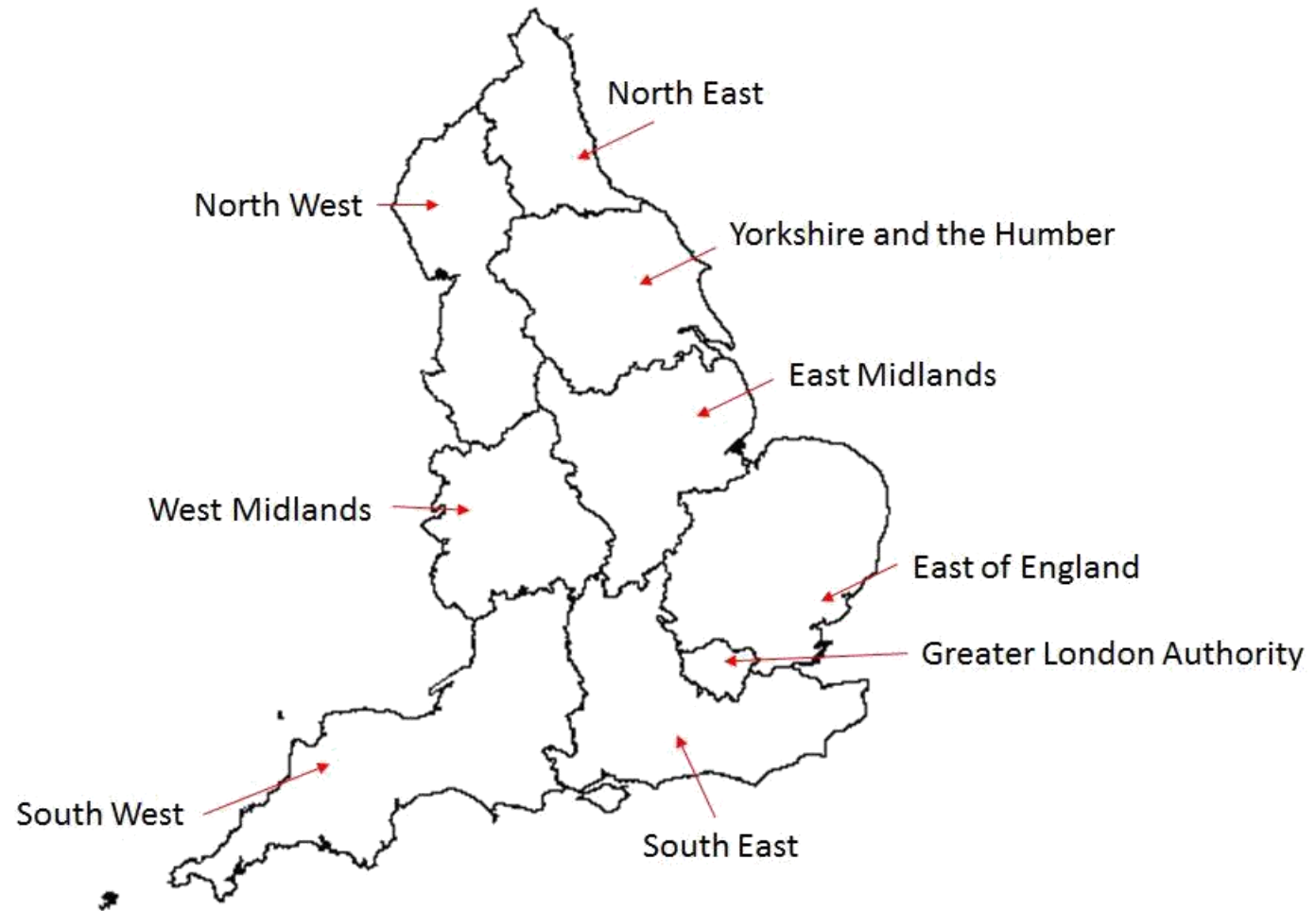
Supplementary Figure 7: Moderation effect of ethnicity on the association between Government Office Region and smoking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of smoking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of smoking for subgroup 'a' is significantly different to subgroup 'b'



Supplementary Figure 8: Moderation effect of ethnicity on the association between Government Office Region and high-risk drinking

Note: Bars reflect 95% confidence intervals; Confidence intervals which do not straddle 0 indicate a significantly different risk of high-risk drinking in that region relative to the South West for the subgroup under investigation; 'a' and 'b' reflect a significant interaction effect at $p < 0.05$ i.e. the relative risk difference of high-risk drinking for subgroup 'a' is significantly different to subgroup 'b'



Supplementary Figure 9: Government Office Regions in England