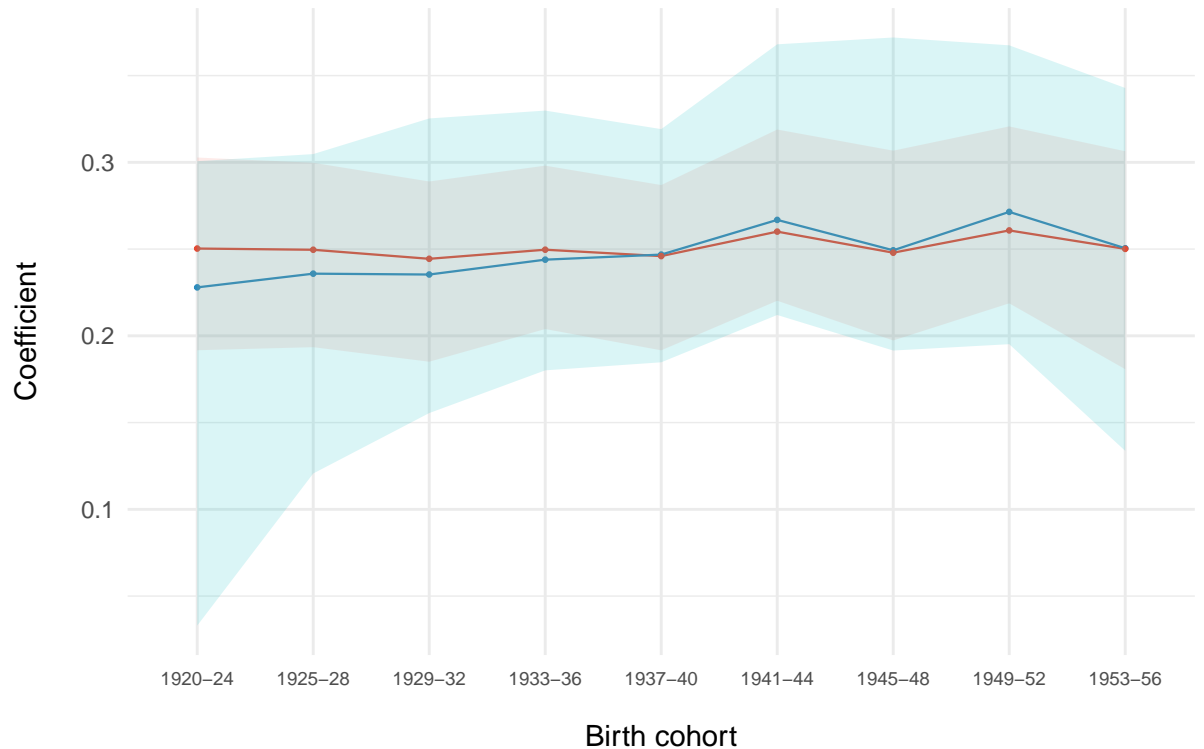Random coefficient model adjusting for PCAs, gender, age first interview, and household random effects