

**Maternal Smoking During Pregnancy and Perceived U.S. Federal
Government Responsiveness in Adulthood: A Family Marker of Distrust
Across Two Generations**

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Abstract

Adults whose mothers smoked while pregnant with them see the federal government as less responsive. Using the National Longitudinal Survey of Youth 1979 and its Child and Young Adult study, I establish that association with a plan fixed in advance and ask what it reflects. Among 3,701 respondents born from 1979 through 1990, those whose mothers reported smoking during the pregnancy rated the government 0.21 categories lower on a five-point scale after adjustment (95% confidence interval 0.13 to 0.29). The difference is unlikely to follow the pregnancy: siblings from pregnancies with and without smoking did not differ that way, although the comparison detects a 137-gram birth-weight deficit. Nor does it follow smoking itself: children of mothers who smoked only outside pregnancy resembled those of never-smokers. It extends to distrust of other people, not to interest in politics, and the mothers show the same profile. So do smokers: in the parent generation, they rated the government 0.19 lower than never-smokers and 0.23 lower than their never-smoking siblings. A test planned before its data were obtained confirmed the adult association in the General Social Survey, 1977 through 1994: smokers expressed less confidence in the federal executive and less trust in people. Smoking through pregnancy appears to mark families sharing a distrustful outlook. Its source and transmission remain unidentified.

Keywords: maternal smoking during pregnancy; government responsiveness; political trust; smoking; sibling comparison

Introduction

Citizens differ widely in whether they believe government listens. Some of that variation follows current circumstances such as income, schooling, and health, and some appears to be set early, in the family and in childhood (Pacheco and Fletcher 2015; Holbein 2017; Akee et al. 2018). This paper starts from a marker recorded at the very beginning of life, the mother's cigarette smoking during pregnancy, and asks two questions. Is it associated with how her children view the federal government as adults? And if it is, what does the association reflect?

Smoking during pregnancy has an established biological effect on fetal growth (Knopik 2009) and has been linked to later cognitive, behavioral, and social outcomes that are themselves related to political engagement. That research carries a warning. When siblings whose mother smoked in one pregnancy but not in another are compared, most of those associations shrink or disappear, which suggests that smoking during pregnancy marks a kind of family more than it marks a harmful exposure (D'Onofrio et al. 2008; Gilman, Gardener, and Buka 2008; Kuja-Halkola et al. 2014). To my knowledge, no study has asked whether the same marker is related to any political attitude.

I use the National Longitudinal Survey of Youth 1979 (NLSY79) and its companion study of the children born to NLSY79 women. The mothers reported on their smoking during each pregnancy. In 2008 their adult children, the mothers themselves, and the men of the mothers' generation were all asked "How often does the federal government do what most Americans want it to do?" I treat the answer

as a measure of perceived federal government responsiveness. It is one specific perception and not a full measure of political trust or of external political efficacy.

The study has three parts, each governed by a written plan. The first is confirmatory: its design was fixed before any association between smoking and the outcome was estimated, and it compares 1,045 adults whose mothers reported smoking during the pregnancy with 2,656 whose mothers did not. The second is explanatory. Its plan was written once that association and a first sibling comparison were known, so everything in it is exploratory. The third is a replication in the General Social Survey, planned before those data were obtained, and confirmatory only for the association between adults' own smoking and trust; it carries no information about smoking in pregnancy or about the next generation.

Adults whose mothers reported smoking during the pregnancy rated the federal government as less responsive, by 0.21 categories on a five-point scale after adjustment (95% confidence interval 0.13 to 0.29), and measured socioeconomic background accounts for only about 22% of the unadjusted difference. The explanatory analyses narrow what that association reflects. A prenatal effect large enough to produce it is unlikely: children from pregnancies with smoking did not rate the government lower than their siblings, in a comparison that does detect the known effect of smoking on birth weight. Nor does it belong to smoking in general or to smoke in the childhood home: children of mothers who smoke, but who smoked in none of their pregnancies, answer like children of mothers who never smoked. It is a difference in trust, of government and of other people, and not in engagement with

politics, and the mothers who smoked in pregnancy show the same profile. So do smokers generally. Among 7,517 members of the parent generation, current smokers, men included, rated the government as less responsive than people who had never smoked, by as much between brothers and sisters as between unrelated people, and in the General Social Survey of 1977 through 1994, as the third plan predicted, adults who smoked expressed less confidence in the people running the federal executive branch and less trust in other people.

To my knowledge, this is the first study to relate smoking during pregnancy to a political attitude. With a prespecified design, it finds an association that marks families in which mother and adult child alike distrust government and other people without being less interested in politics. Measured pathways account for about a quarter of the difference, and how the outlook passes from one generation to the next is not shown.

Literature and Theory

Smoking During Pregnancy and Offspring Development

Maternal smoking during pregnancy is among the most studied early-life exposures. Its consequences for the pregnancy itself, including lower birth weight, are well established (Knopik 2009). It has also been linked to lower cognitive test scores and school achievement, conduct and attention problems, substance use, criminal conviction, and psychiatric illness (D'Onofrio et al. 2008; D'Onofrio et al. 2010a; D'Onofrio et al. 2010b; D'Onofrio et al. 2012; Quinn et al. 2017), and these

associations were long read as evidence that prenatal exposure to tobacco smoke harms the developing brain.

Quasi-experimental studies have changed that reading. Comparing siblings whose mother smoked in one pregnancy but not another holds constant everything the siblings share, and when that is done the associations largely disappear: in the children of the NLSY79 women, the data used in this paper, for conduct problems, cognitive scores, and adolescent substance use (D'Onofrio et al. 2008; D'Onofrio et al. 2012; Ellingson et al. 2014); in Swedish registers for school grades, intellectual performance in young men, criminal convictions, attention-deficit/hyperactivity disorder, and severe mental illness (D'Onofrio et al. 2010a; D'Onofrio et al. 2010b; Lundberg et al. 2010; Skoglund et al. 2014; Quinn et al. 2017); and in the U.S. Collaborative Perinatal Project (Gilman, Gardener, and Buka 2008). A design based on assisted conception likewise finds an association with attention problems only where mother and child are genetically related (Thapar et al. 2009). In several of these studies the association with birth weight persists, which indicates that the designs can detect a prenatal effect when one exists (Gilman, Gardener, and Buka 2008; Thapar et al. 2009; Kuja-Halkola et al. 2014). Two studies with other designs are compatible with a small intrauterine effect on early externalizing behavior (Brion et al. 2010; Dolan et al. 2016), but the balance of the literature suggests that, for psychological and social outcomes, smoking during pregnancy functions mainly as a marker of the family a child is born into (Knopik 2009; Kuja-Halkola et al. 2014).

Sibling comparisons have limits of their own. They remove confounding by whatever siblings share, but they are more sensitive than ordinary comparisons to confounders that siblings do not share and to error in the measurement of the exposure, and when an exposure is strongly correlated between siblings, even modest random error can weaken a within-pair estimate well below the corresponding unpaired one (Frisell et al. 2012). A within-family estimate that is smaller than a population estimate is therefore not, by itself, proof of family confounding, and a sibling comparison is most persuasive when it can be shown to recover an effect that is known to exist.

Women who continue to smoke during pregnancy are also a selected group among smokers. A systematic review of more than 50 studies, with meta-analyses of the factors reported most often, found that smokers who stopped during pregnancy had more schooling and higher socioeconomic status, were more often married or living with a partner, were less dependent on nicotine, drank less, and were less often depressed or under stress, and that women whose partners or other household members smoked were much less likely to stop (Riaz et al. 2018). Comparing women who smoked through pregnancy with all other women thus compares more than smokers with non-smokers.

Early-Life Roots of Political Orientations

Political scientists have increasingly looked to health and childhood circumstances to explain who participates in politics and how citizens regard government. Adults in poorer health vote less, and the relationship appears to have

developmental as well as contemporaneous components (Pacheco and Fletcher 2015; Gagné, Schoon, and Sacker 2020). Depressed mood predicts lower participation (Ojeda 2015), and cognitive functioning predicts turnout among older adults (Burden et al. 2017). A randomized childhood intervention that built self-regulation and social skills raised adult turnout by 7 to 9 percentage points (Holbein 2017), and an exogenous increase in household income during adolescence raised later voting among children from poorer families (Akee et al. 2018). Children also tend to adopt their parents' political views, more reliably when the household is politically engaged and parental cues are consistent (Jennings, Stoker, and Bowers 2001). Research on pregnancy smoking has not, to my knowledge, examined political orientations. The closest precedent I found is incidental: a study of health and voting in two British cohorts included maternal smoking during pregnancy among its early-life control variables without discussing it (Gagné, Schoon, and Sacker 2020).

Smoking, Trust, and Political Participation

A separate and smaller literature connects adults' own smoking to their relationship with politics and with other people. In a British birth cohort, smokers were 3 to 4 percentage points less likely to vote than non-smokers with similar health and backgrounds (Denny and Doyle 2007). In monthly surveys of adults in England from 2015 to 2020, people who said they would not vote had about twice the odds of being current smokers rather than never-smokers, compared with people who intended to vote for the governing Conservative party, after adjustment

for demographic characteristics, occupational grade, and alcohol use. The authors consider a direct effect of smoking on voting unlikely and point to a shared association with social disadvantage (Cox et al. 2021). In a United States telephone survey fielded around the 2012 election, daily smokers had about one-third the odds of non-smokers of being registered to vote and two and a half times the odds of saying that people cannot be trusted, and low trust in other people accounted for only a small part of the difference in registration (Zhou, Li, and Levinson 2021). In the same survey, daily smokers also reported lower trust in the justice system and in health care, and occasional smokers lower trust in the police, the justice system, and government. Those authors set out several causal accounts that their cross-sectional data could not separate: low trust may lead to smoking, smoking and the stigma now attached to it may erode trust and participation, or unmeasured factors may produce both.

Trust also runs in families. In German household panel data, children's trust in other people is strongly related to the trust reported independently by their parents, and spouses resemble each other in trust, which reinforces what children receive from each parent (Dohmen et al. 2006). If smoking and distrust go together in adults, and if trust is passed from parents to children, then a mother's smoking could predict her children's distrust without any exposure being involved. None of the studies above examines the next generation, and none asks about perceived government responsiveness.

Perceived Government Responsiveness

The outcome studied here is a single survey question about how often the federal government does what most Americans want. It belongs to the family of attitudes grouped under external political efficacy, the belief that government authorities and institutions respond to what citizens want, as distinct from internal efficacy, a person's sense of competence to understand and take part in politics (Oser, Feitosa, and Dassonneville 2023). External efficacy is conceptually and empirically distinct from political trust, although the two are correlated (Geurkink et al. 2020), and it is socially patterned: across 46 countries, people with more education and income report higher external efficacy (Oser, Feitosa, and Dassonneville 2023). The question used here is narrower than the construct. Conventional external efficacy items ask whether "people like me" have a say or whether officials care what such people think, and Kölln, Esaiasson, and Turper (2013) distinguish that generalized sense from perceived responsiveness, a more specific judgment about how representatives and institutions act on citizens' wishes. Because the NLSY item asks about one institution, refers to the public as a whole, and asks for a frequency, I describe the outcome as perceived federal government responsiveness.

Three Questions About One Association

An association between a mother's smoking during pregnancy and her adult child's view of government could reflect three different things. The first is exposure before birth: the same person, born to the same mother, would see the government

differently had she not smoked during that pregnancy. The second is growing up with a mother who smokes. Women who smoke while pregnant mostly continue afterward, so exposure before birth is accompanied by years of smoke in the home, by the example of a parent who smokes, and by a higher chance that the child will smoke. The third is that smoking during pregnancy is a marker and not a cause. Mothers who smoke in pregnancy differ from other mothers in schooling, income, partnership, and health, and perhaps in their outlook on government and on other people. If parents pass their outlook to their children, the children of these mothers would hold it whether or not she smoked.

The three make different predictions. An effect of exposure before birth should appear when siblings from pregnancies with and without smoking are compared. An effect of growing up with a mother who smokes should appear in children whose mothers smoked during their childhood whether or not she smoked while pregnant. A marker should be visible in the mothers themselves, and, if what it marks is tied to smoking, in smokers who were never pregnant. They also differ in what may be held constant. Characteristics fixed before the pregnancy are possible common causes of smoking and of the child's later views, and adjusting for them is appropriate. Circumstances specific to one pregnancy, such as a new partner or a fall in income, differ between siblings and are not removed by comparing siblings. Everything that follows the pregnancy (birth weight, the mother's later smoking, the political climate of the home, the child's own schooling and smoking) lies on a possible path from the pregnancy to the outcome, so such

measures are not baseline controls; they can show only what the association travels with, and that is how they are used here.

Hypothesis

H1. Adults whose mothers reported smoking cigarettes during the pregnancy rate the federal government as less responsive, on average, than adults whose mothers reported not smoking, after adjustment for family and maternal characteristics measured before or at the birth.

The hypothesis concerns an adjusted association and was fixed in advance. One secondary outcome, reported voting in the November 2006 national election, was specified at the same time on an exploratory basis. The analyses that address the three questions above were planned after H1 had been tested and carry no confirmatory hypothesis. The two predictions tested in the General Social Survey are stated with the methods.

Data and Measures

The NLSY79 and Its Child and Young Adult Study

The NLSY79 is a longitudinal survey of 12,686 men and women who were born from 1957 through 1964 and living in the United States when first interviewed in 1979. It combines a cross-sectional sample with oversamples of Black, Hispanic, and economically disadvantaged non-Black, non-Hispanic youth and a sample of young people serving in the military (Rothstein, Carr, and Cooksey 2019). Most of the military sample was dropped after 1984 and the economically disadvantaged oversample after 1990. Beginning in 1986, the biological children of the women in

the study were assessed every two years, and from 1994 those aged 15 and older were interviewed as Young Adults (National Longitudinal Surveys n.d.a). The public-use child file contains 11,551 children, each linked to the mother's own record. I use the public-use files for both generations (Bureau of Labor Statistics 2023, 2025).

Sample

The target population is children of NLSY79 women who were born from 1979 through 1990 and were aged 18 or older, the minimum age for the political questions, when interviewed in 2008. Births before 1979 are excluded because the mothers' reports about those pregnancies were all collected five or more years after the birth and because all such births were to mothers aged 21 or younger.

Table 1 shows how the analysis sample was reached. Of the 4,432 respondents asked the political questions, 180 answered "don't know" to the outcome item and 18 refused (4.5% combined), leaving 4,233 with a valid answer. The mother's smoking report could be classified for 4,031, and complete covariates leave an analysis sample of 3,701 respondents, the children of 2,282 mothers. They were aged 18 to 30 when interviewed (weighted mean 22.8), and 93% were interviewed by telephone. Children of the two dropped oversamples are absent from the 2008 round by design, and the sampling weights compensate for this. Among the 6,073 children born in 1979 through 1990 to mothers in the samples still being followed, 77% were interviewed in 2008. Cohort members who are and are not in the analysis sample differ little on characteristics fixed before or at the birth

(Appendix C): no standardized difference is larger than 0.13, and the share whose mothers smoked during the pregnancy is nearly identical in the two groups.

Table 1. Sample Flow and Characteristics of the Analysis Sample by Maternal Smoking During Pregnancy

	Mother smoked (n = 1,045)	Mother did not smoke (n = 2,656)	Std. difference	Missing (n)
<i>Panel A. Sample flow</i>				
Children of NLSY79 mothers on the public-use file	11,551			
Born 1979 to 1990	7,548			
Interviewed as a Young Adult in 2008	4,697			
Age 18 or older and asked the political questions	4,432			
Valid answer to the government-responsiveness item	4,233			
Classifiable report of smoking during the pregnancy	4,031			
Complete data on all covariates (analysis sample)	3,701			
<i>Panel B. Characteristics of the analysis sample</i>				
Age at 2008 interview (years)	23.31 (3.13)	22.57 (3.20)	+0.23	0
Female	46.8%	47.2%	-0.01	0
Hispanic	3.7%	9.6%	-0.24	0
Black	13.7%	17.2%	-0.10	0
Non-Black, non-Hispanic	82.6%	73.2%	+0.23	0
First-born	42.7%	49.6%	-0.14	0
Mother's age at the birth (years)	23.32 (3.56)	24.10 (3.54)	-0.22	0
Mother's highest grade completed before the birth	11.46 (1.71)	12.60 (2.09)	-0.60	0
Mother's AFQT percentile (1980)	37.25 (23.75)	47.96 (28.32)	-0.41	154
Maternal grandparents' highest grade completed	11.69 (2.45)	11.91 (3.22)	-0.08	155
Mother lived with both parents at age 14	70.5%	71.9%	-0.03	7
Mother married at last interview before the birth year	51.2%	67.3%	-0.33	19
Mother lived in the South before the birth	31.6%	35.7%	-0.09	45
Family below poverty line before the birth*	26.2%	14.2%	+0.30	299
Mother drank alcohol during the pregnancy*	51.0%	31.5%	+0.40	10

	Mother smoked (n = 1,045)	Mother did not smoke (n = 2,656)	Std. difference	Missing (n)
Mother's Rotter locus of control score (1979)*	9.02 (2.46)	8.56 (2.48)	+0.19	45
Mother's own answer to the same item, 2008 (1 to 5)*	2.19 (0.82)	2.44 (0.81)	-0.31	412
Perceived government responsiveness, 2008 (1 to 5)	2.18 (0.85)	2.45 (0.88)	-0.32	0

Note: Panel A gives the number of people remaining after each step, in the first data column. Panel B reports weighted means with standard deviations in parentheses, or weighted percentages, using the 2008 Young Adult sampling weight, for the 3,701 respondents in the analysis sample (2,282 mothers). The standardized difference is the weighted difference (smoked minus did not smoke) divided by the pooled standard deviation. "Missing" is the number of the 4,031 respondents with a valid outcome and classifiable exposure who lack that characteristic. Variables marked with an asterisk are not in the primary model and are summarized for respondents with non-missing values. AFQT = Armed Forces Qualification Test. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Maternal Smoking During Pregnancy

The exposure is the mother's own report. For each child she was asked whether she smoked cigarettes at all during the 12 months before the birth and, if so, how much she smoked on average during the pregnancy: less than one pack a day, one pack or more but less than two, or two or more packs, along with a code for not smoking during the pregnancy (Appendix A). The first question covers a period that begins about three months before conception, so a "yes" does not by itself establish smoking during pregnancy. I classify a respondent as exposed if the mother answered yes to the first question and reported any amount on the second, and as unexposed if she answered no to the first question or reported that she did not smoke during the pregnancy. Records with missing or contradictory answers are treated as unclassifiable and excluded (Appendix B).

By this definition, 1,045 respondents in the analysis sample (28% unweighted, 33% weighted) had mothers who reported smoking during the pregnancy: 762 less than a pack a day, 260 one to less than two packs, and 23 two

or more. Because the upper categories are sparse, the main analysis uses the binary measure. The unexposed group includes 125 respondents whose mothers smoked in the year before the birth but not during the pregnancy.

The variable is a maternal report. It does not measure fetal nicotine dose, the timing of smoking within the pregnancy, or other sources of tobacco smoke. Reports for respondents born in 1979 and 1980 were collected at least three years after the birth, and self-reports understate smoking, so some respondents classified as unexposed were exposed. Appendix B describes how the reports were collected and what is known about their accuracy.

Perceived Government Responsiveness

The primary outcome is the 2008 Young Adult item "How often does the federal government do what most Americans want it to do?" The answer choices were always, most of the time, about half the time, once in a while, and never, presented in randomized order (Center for Human Resource Research 2008). I reverse the original codes so that 1 means never and 5 means always. Most respondents chose the lower end of the scale: in the analysis sample the weighted mean is 2.36, the standard deviation is 0.88, and 55% answered "never" or "once in a while." The same question had been asked in 2006 of Young Adults aged 21 or older. Among 2,076 members of the analysis sample who answered in both years, the correlation between the two answers is 0.32, a figure that reflects real change over two years as well as the unreliability typical of single survey items. Random error of this kind makes estimates less precise but does not bias a difference in

means. For the secondary outcome, respondents old enough to vote in November 2006 chose among four statements, three describing not voting and the fourth reading "I am sure I voted in the national election held in November 2006." I code the fourth statement as 1 and the others as 0.

Covariates

The primary model adjusts for characteristics that could influence both a mother's smoking and her child's later political outlook and that were fixed before or at the birth: the respondent's sex, year of birth, and birth order; race and ethnicity, classified by the survey as Hispanic, Black, or non-Black, non-Hispanic; the mother's age at the birth; her highest grade completed, marital status, and region of residence as of her last interview before the year of the birth (the 1979 interview for respondents born in 1979); her percentile score on the Armed Forces Qualification Test, administered in 1980, after some of the births, and treated as a stable characteristic of the mother; the higher of her own parents' highest grades completed; and whether she lived with both parents at age 14. Characteristics of the respondent that arise after birth, such as schooling, employment, health, smoking, and interest in politics, are not controlled, because they could lie on a path between the exposure and the outcome. Sensitivity analyses add the mother's report of drinking alcohol during the same pregnancy, family poverty status before the birth, and her score on the Rotter locus of control scale in 1979, and, separately, the mother's own answer to the responsiveness question in 2008. That answer was

given long after the birth and is not a baseline characteristic, but it is the most direct available indicator of the political outlook that mother and child share.

Measures Used to Explain the Association

The explanatory analyses draw on parts of the two surveys that the primary analysis does not use. Appendix A defines each measure and gives its wording. They are the mother's own smoking outside pregnancy, reported in 1984, 1992, 1994, 1998, and 2008; whether siblings share a biological father, whether the father lived in the household, and the family's circumstances before each birth; each child's birth weight, used only to test whether the sibling comparison can detect an effect that smoking is known to have; six further political items from the 2008 interview, fixed as a list before any of them was analyzed; the mothers' own answers to the political questions in 2008 and the respondents' recollections of politics in the childhood home; and the respondent's own current smoking. Two of the six items concern trust (how much tax money the federal government wastes and how often other people can be trusted), three concern engagement (following politics, interest in government and politics, and how often politics seems too complicated to understand), and the sixth is reported voting in November 2006.

Combining a mother's own smoking history with her reports for all of her pregnancies separates four groups of respondents: those whose mothers never smoked; those whose mothers smoke but reported smoking in no pregnancy; those whose mothers smoked in another pregnancy but not in theirs; and those whose mothers smoked in their own.

The parent generation is observed directly. All NLSY79 respondents interviewed in 2008, men and women, were asked the responsiveness question and the smoking questions. Of these, 7,517 (3,687 men and 3,830 women) have a valid answer and a classifiable smoking status: never smoked 100 cigarettes, former smoker, or current daily or occasional smoker. Because the NLSY79 interviewed all eligible young people in each sampled household, 3,510 of them belong to 1,514 groups of brothers and sisters.

Descriptive Statistics

Panel B of Table 1 describes the analysis sample. Mothers who reported smoking during the pregnancy had completed about a year less schooling before the birth, scored lower on the Armed Forces Qualification Test, were less often married, were more often below the poverty line, and were more likely to report drinking during the pregnancy. Two rows at the bottom of the panel anticipate the results: the children of mothers who smoked rated the government as less responsive (mean 2.18 versus 2.45), and so did the mothers themselves when asked the same question in 2008 (mean 2.19 versus 2.44).

The General Social Survey

The replication uses the General Social Survey, a series of cross-sectional interviews with adults aged 18 or older living in households in the United States, conducted by NORC at the University of Chicago since 1972 (Davern et al. 2026). I use every survey in the cumulative file in which respondents were asked "Do you smoke?" There are 13, from 1977 through 1994, with 16,373 respondents who

answered, of whom 34% (weighted) said yes. From 1978 on, respondents who said no were asked "Have you ever smoked regularly?", which separates 3,155 former smokers from 6,263 people who never smoked regularly.

Three outcomes come from the same interviews. Confidence in the people running the executive branch of the federal government, and in those running Congress, was recorded as a great deal, only some, or hardly any, and I code each from 1 to 3 so that higher values mean more confidence. Trust in other people is the choice between "most people can be trusted" and "you can't be too careful in dealing with people," coded 1 and 0, with the volunteered answer "depends" set aside. The confidence items were asked in all 13 surveys and the trust item in 12 (Appendix A gives the wording, and Table D7 the number of respondents by year). These are not the NLSY79 question: they ask about confidence in officeholders and not about how often the government does what the public wants, and the trust question offers two answers where the NLSY79 question offers five.

Methodology

Design and Estimand

This is an observational cohort study. The quantity estimated is the difference in mean perceived responsiveness in 2008 between young adults whose mothers did and did not report smoking during the pregnancy, in the population that the weighted sample represents, holding the baseline covariates fixed. It is an adjusted association. It would equal the effect of prenatal exposure only if, given the covariates, mothers who smoked and mothers who did not were otherwise

comparable in everything that shapes their children's political views, which is not a credible assumption.

Prespecification

Three written plans govern the analysis, and all three are included with the replication materials. The first set out the sample, the coding of the exposure and the outcome, the covariates, the primary model, the sensitivity analyses, and the rules for interpretation, and was fixed before any association between smoking and the outcome was estimated. Two analyses were added to it after its results were seen: a group of checks on the sibling comparison and an analysis of the answer "never". The second plan was written after those results were known. It defines the three questions, classifies every additional measure by when it was collected and what role it can play, lists the analyses, and states in advance how each pattern of results would be read. The third plan was written after the analyses of the second had been seen and before any General Social Survey data had been obtained. None of the plans was registered with an external registry. Appendix E summarizes all three and lists every departure. Throughout the paper, "prespecified" refers to the first plan only. Everything reported from the section on the sibling comparison onward is exploratory, however it was planned, with one exception: the test under the third plan is confirmatory for the association between adults' own smoking and trust, and for nothing else.

Primary Model

For respondent i born to mother j , the primary model is

$$Y_{ij} = \alpha + \beta S_{ij} + \mathbf{X}_{ij}'\boldsymbol{\gamma} + \varepsilon_{ij}$$

where Y is perceived government responsiveness on the 1 to 5 scale, S equals 1 if the mother reported smoking during the pregnancy, and X is the vector of covariates listed above, with birth year, race and ethnicity, birth order, and region entered as sets of indicators and the remaining covariates entered linearly. The coefficient β is the adjusted mean difference, and a negative value is the direction predicted by H1.

I analyze the five-category outcome with a linear model because the mean difference is directly interpretable in the units of the scale, because inference with cluster-robust standard errors does not depend on the distribution of the outcome in a sample of this size, and because the same specification carries over to the sibling comparison. An ordered logit model is reported as a check. Three models are estimated on the same 3,701 respondents: an unadjusted model; a model adding sex, birth year, race and ethnicity, birth order, and the mother's age at the birth; and the primary model, which adds the mother's schooling, test score, marital status, and region and the two measures of her family of origin.

Weights, Clustering, and Missing Data

Estimates are weighted by the 2008 Young Adult sampling weight (National Longitudinal Surveys n.d.c). Because weighting is not always preferable in regression analysis (Solon, Haider, and Wooldridge 2013), I also report an unweighted estimate. Nearly half of the mothers in the analysis sample have more than one child in it (1,084 of 2,282), so standard errors are clustered on the mother

(Cameron and Miller 2015) and, as a check, on the mother's 1979 household. The primary analysis uses respondents with complete data. Of the 4,031 respondents with a valid outcome and a classifiable exposure, 330 (8%) lack at least one covariate, most often the mother's test score or her parents' schooling, and a sensitivity analysis multiply imputes the missing covariates. Appendix D gives the details.

Sensitivity Analyses and the Sibling Comparison

The first plan fixed the following checks: alternative codings of the exposure; unweighted estimation; household-level clustering; an ordered logit model; multiple imputation; two birth-cohort restrictions; two sets of additional covariates; the same item asked in 2006, analyzed alone and pooled with the 2008 answers; a comparison of siblings; and a calculation of how strong an unmeasured confounder would need to be to account for the primary estimate (Cinelli and Hazlett 2020).

The sibling comparison adds an indicator for each mother to the model, so that the coefficient on smoking is estimated only from differences between children of the same mother. It is unweighted, includes mothers with at least two children who have a valid outcome and exposure, and adjusts for the characteristics that differ between siblings: sex, birth order, birth year, and the mother's schooling and marital status before each birth. Only mothers who smoked in some pregnancies and not others contribute to the estimate. The design removes confounding by anything that is constant for a mother but not by circumstances that changed between pregnancies; it assumes that one child's exposure does not affect a sibling's

outcome, rests on families that may differ from others, and is less precise and more affected by misclassification of the exposure than a comparison across families (Lahey and D'Onofrio 2010; Frisell et al. 2012; D'Onofrio et al. 2013; Kuja-Halkola et al. 2014).

Explanatory Analyses

The second plan organized the further analyses around the three questions, and each is described with its results. Three features apply throughout. The sibling comparison is re-estimated under alternative outcomes, restrictions, and covariates, and with birth weight as the outcome, to learn whether the design can detect an effect that is known to exist. The primary model and the sibling model are applied to each of the six further political items, and all six are reported. And where measures collected after the birth are added to the primary model, the results are described as the part of the difference that accompanies each measure, not as mediation.

In the parent generation, the 2008 answer is regressed on smoking status with the 2008 sampling weight and standard errors clustered on the 1979 household, adjusting for characteristics fixed early in life (birth year, race and ethnicity, test score, parents' schooling, and family structure at 14). A second model adds schooling, family income, marital status, and region in 2008, which may be consequences as well as causes of smoking. Men are reported separately, because nothing about their data had been examined when the plan was written and

because pregnancy is not involved, and brothers and sisters are compared with an indicator for each sibship.

Replication in the General Social Survey

The third plan specifies a linear regression of each outcome on an indicator for current smoking, with indicators for survey year and with age, age squared, sex, race, years of schooling, and region, using the weight that the survey's documentation recommends and standard errors robust to heteroskedasticity. A second model adds family income and marital status, which may be consequences of smoking as well as causes. The plan makes two predictions for the first model: current smokers report lower confidence in the executive branch than adults who do not smoke, and they are less likely to say that most people can be trusted. Each prediction is supported if its 95% confidence interval excludes zero in the predicted direction. If the first failed and the second held, the finding on government would count as not replicated and the finding on trust as replicated; if both failed, the adult association found in the NLSY79 was to be regarded as specific to that cohort or period. Confidence in Congress is reported alongside, and as a secondary prediction former smokers were expected to resemble people who never smoked. No engagement item was asked consistently in these surveys, so the plan includes no test of engagement. Its variable names and years had to be confirmed in the codebook before smoking was related to any outcome; the two corrections this produced are listed in Appendix E.

Interpretation Rules

The first plan set a threshold of 0.10 response categories, roughly one-ninth of a standard deviation, below which a difference would be treated as substantively small. It also specified that statistical significance would not be the criterion of success, that an imprecise estimate including zero would be described as inconclusive, and that adjusted differences would be described as associations. The second plan added that the sign of the sibling estimate would be treated as established only if it held in the 2006 answers, in the subsets with well-timed reports and a shared father, and with the circumstances of each pregnancy controlled, and that no estimate would be described as a causal effect of smoking. The third plan's rule is the one stated in the preceding section.

Results

Main Estimates

Table 2 reports the main estimates. Without adjustment, respondents whose mothers reported smoking during the pregnancy rated the federal government as less responsive by 0.27 response categories (95% confidence interval 0.20 to 0.35). Demographic adjustment leaves the difference essentially unchanged at 0.27, and adding the mother's schooling, test score, marital status, region, and family of origin reduces it to 0.21 (95% confidence interval 0.13 to 0.29). The full set of covariates thus accounts for about 22% of the unadjusted difference.

Table 2. Maternal Smoking During Pregnancy and Perceived Federal Government Responsiveness in 2008

	(1) Unadjusted	(2) Demographic	(3) Primary
Difference, smoked minus did not smoke	-0.273	-0.266	-0.214
Standard error	(0.039)	(0.039)	(0.040)
95% confidence interval	-0.349, -0.198	-0.343, -0.189	-0.293, -0.135
Difference in standard deviation units	-0.31	-0.30	-0.24
Adjusted mean, mother did not smoke	2.45	2.45	2.44
Adjusted mean, mother smoked	2.18	2.19	2.22
Sex, birth year, race and ethnicity, birth order, mother's age at the birth	No	Yes	Yes
Mother's schooling, AFQT, parents' schooling, family structure at 14, marital status, region	No	No	Yes
R-squared	0.021	0.040	0.057
Respondents	3,701	3,701	3,701
Mother smoked / did not smoke	1,045 / 2,656	1,045 / 2,656	1,045 / 2,656
Mothers (clusters)	2,282	2,282	2,282

Note: Weighted least squares estimates using the 2008 Young Adult sampling weight; standard errors clustered on the mother. The outcome is the answer to "How often does the federal government do what most Americans want it to do?" coded 1 (never) to 5 (always); its weighted standard deviation in the analysis sample is 0.88. A negative difference means that respondents whose mothers reported smoking during the pregnancy rated the government as less responsive. Adjusted means set every respondent to each exposure status in turn and average over the weighted sample. Model 3 is the prespecified primary model. Estimates are adjusted associations and do not identify an effect of prenatal exposure.

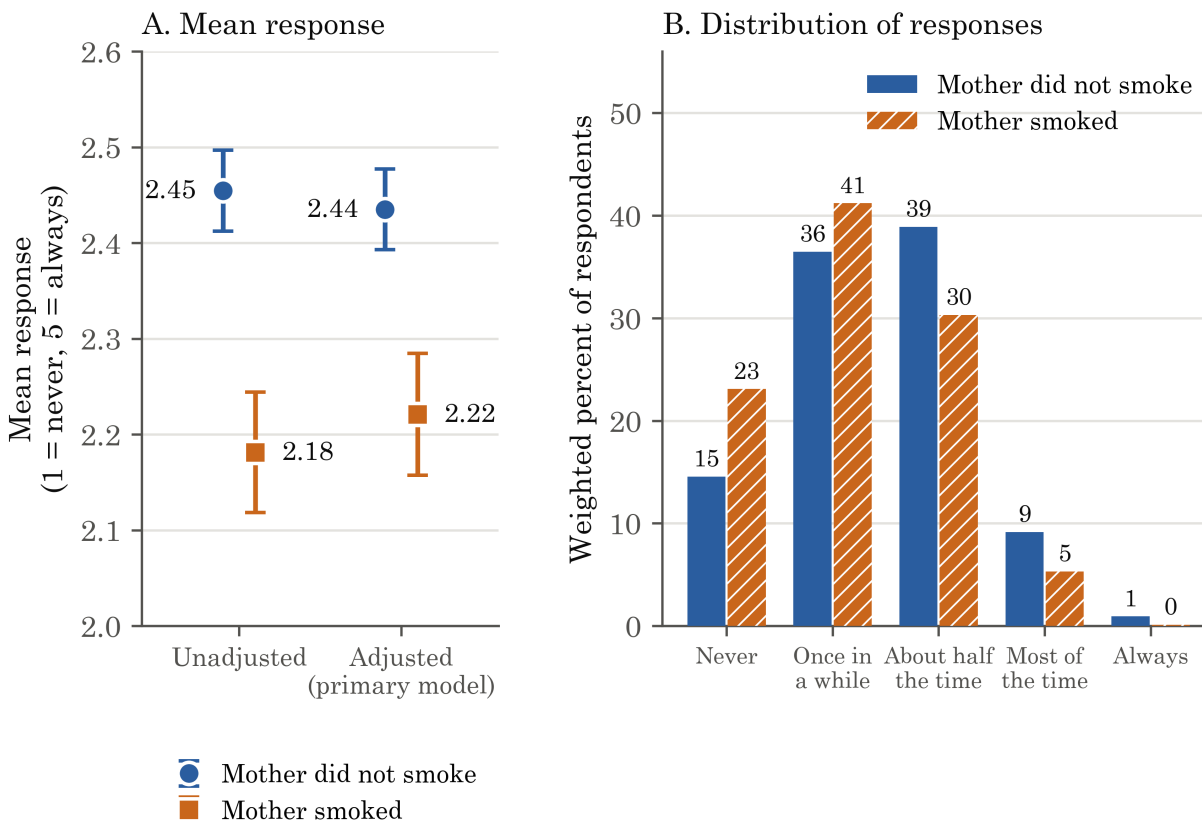
The adjusted difference corresponds to 0.24 standard deviations of the outcome. It is about twice the threshold the analysis plan set for a substantively small difference, and the lower limit of its confidence interval lies above that threshold. Under the plan's rules this is an adjusted association of at least small size in the hypothesized direction, and H1 is supported.

Figure 1 shows the result on the response scale. In the primary model the adjusted mean is 2.44 for respondents whose mothers did not smoke and 2.22 for those whose mothers did (Panel A). Panel B shows where the difference comes from. Among respondents whose mothers smoked, 23% said the federal government never does what most Americans want, compared with 15% of the others, and 5% said it

does so most of the time or always, compared with 10%. The ordered logit model summarizes the same shift: the odds of giving a more favorable answer are 37% lower for respondents whose mothers smoked (odds ratio 0.63; 95% confidence interval 0.53 to 0.75).

Because the difference is concentrated in the lowest category, I also analyzed the answer "never" on its own, an analysis added after the results were seen (Table D3). Before rounding, the weighted shares are 23.1% and 14.5%, so respondents whose mothers smoked were 59% more likely to give that answer. With the primary covariates the difference is 6.2 percentage points (95% confidence interval 2.7 to 9.7), and the adjusted shares are 21.5% and 15.3%, a relative difference of 41%.

Figure 1. Perceived Federal Government Responsiveness in 2008 by Maternal Smoking During Pregnancy



Note: Panel A shows model-based mean responses with 95% confidence intervals from the unadjusted model and the primary model in Table 2 (n = 3,701); the vertical axis covers only part of the 1 to 5 scale. Panel B shows the weighted percentage of respondents choosing each answer to "How often does the federal government do what most Americans want it to do?" Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Two further observations help in reading these estimates. First, the covariates are only weakly related to the outcome. The primary model explains about 6% of the variance in perceived responsiveness, and the coefficient on the mother's schooling is close to zero (Appendix D). For the two background measures most strongly related to the outcome, a difference of two standard deviations corresponds to about 0.13 response categories for the mother's test score and 0.13 for her parents' schooling, less than the difference associated with smoking during the pregnancy. Second, item nonresponse was not higher among the exposed: 3.8%

of respondents whose mothers smoked answered "don't know" or refused, compared with 4.6% of the others.

Comparisons Across Families

Table 3 and Figure 2 report the prespecified sensitivity analyses. Those that continue to compare children of different mothers all agree with the primary estimate. Across those rows of the table, which cover the sample without covariate restrictions, alternative codings of the exposure, unweighted estimation, household-level clustering, multiple imputation, two birth-cohort restrictions, additional covariates, and the answers to the same question in 2006, the estimates range from 0.17 to 0.27 response categories in absolute value, and every confidence interval excludes zero.

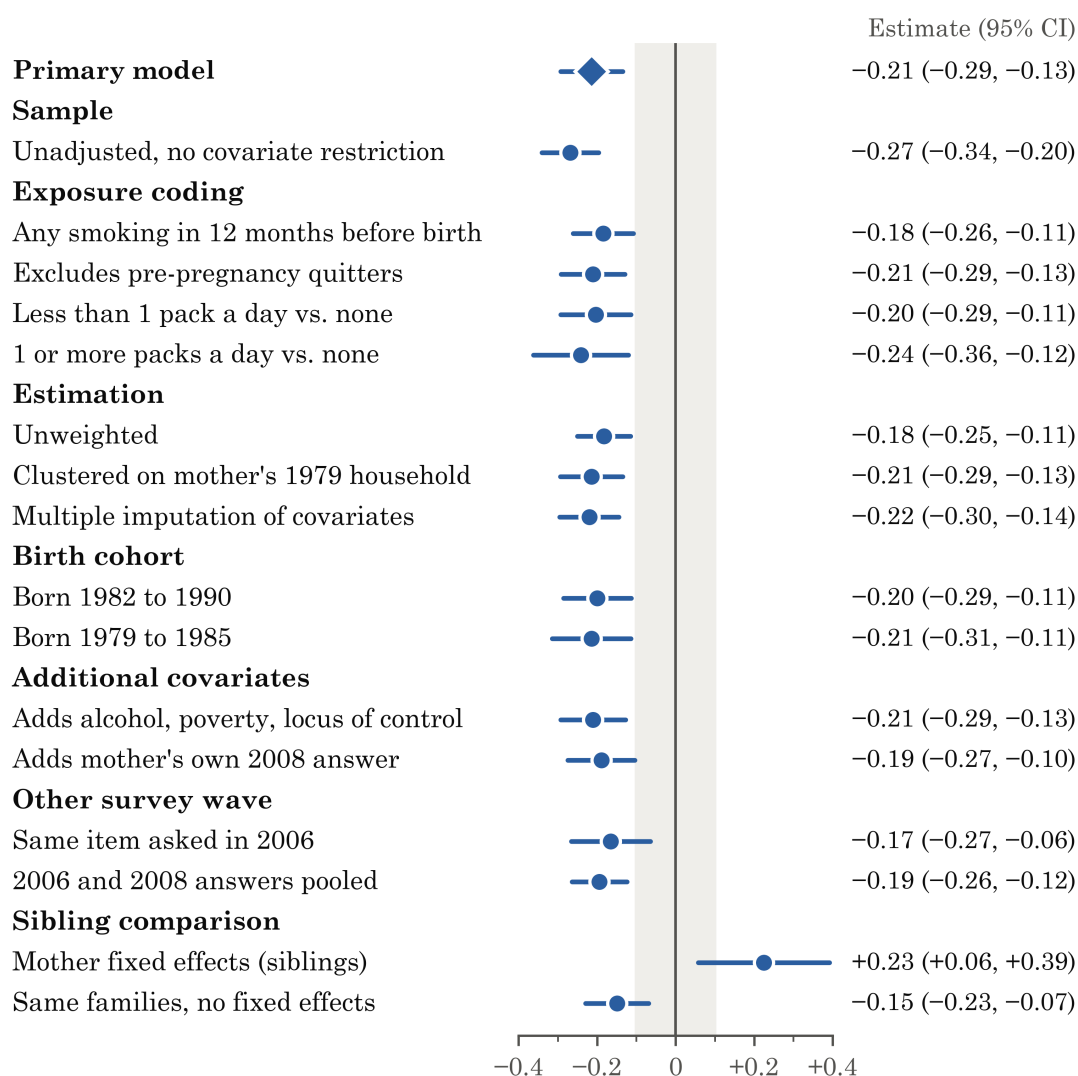
Table 3. Sensitivity Analyses for the Association Between Maternal Smoking During Pregnancy and Perceived Government Responsiveness

Analysis	Difference	SE	95% CI	N	Mothers
Primary model (Table 2, model 3)	-0.214	(0.040)	-0.293, -0.135	3,701	2,282
<i>Sample</i>					
Unadjusted, no covariate restriction	-0.268	(0.037)	-0.340, -0.196	4,031	2,473
<i>Alternative exposure coding</i>					
Exposure: any smoking in the 12 months before the birth	-0.184	(0.039)	-0.262, -0.107	3,701	2,282
Exposure: women who quit before pregnancy dropped from reference group	-0.211	(0.041)	-0.292, -0.130	3,576	2,231
Exposure level: less than 1 pack a day vs. none	-0.203	(0.046)	-0.293, -0.114	3,701	2,282
Exposure level: 1 or more packs a day vs. none	-0.241	(0.062)	-0.362, -0.120	3,701	2,282
<i>Estimation and missing data</i>					
Unweighted	-0.182	(0.035)	-0.250, -0.114	3,701	2,282
Standard errors clustered on mother's 1979 household	-0.214	(0.040)	-0.293, -0.135	3,701	2,011
Multiple imputation of missing covariates (20 imputations)	-0.220	(0.038)	-0.295, -0.145	4,031	2,473

Analysis	Difference	SE	95% CI	N	Mothers
<i>Birth-cohort restrictions</i>					
Born 1982 to 1990 (smoking reported within about 2 years)	-0.199	(0.044)	-0.286, -0.113	2,853	1,967
Born 1979 to 1985 (age 22 or older in 2008)	-0.214	(0.051)	-0.314, -0.114	2,266	1,638
<i>Additional covariates</i>					
Adds alcohol in pregnancy, poverty, and mother's locus of control	-0.210	(0.042)	-0.293, -0.127	3,429	2,177
Adds mother's own 2008 answer to the same item	-0.189	(0.044)	-0.275, -0.104	3,341	2,041
Primary model on the same subsample (comparison)	-0.210	(0.044)	-0.296, -0.125	3,341	2,041
<i>Other survey wave</i>					
Same item asked in 2006 (born 1979 to 1985)	-0.165	(0.051)	-0.266, -0.065	2,324	1,673
2006 and 2008 answers pooled	-0.194	(0.036)	-0.264, -0.124	6,025	2,373
<i>Sibling comparison</i>					
Mother fixed effects (sibling comparison), unweighted	0.225	(0.085)	0.058, 0.392	2,722	1,175
Same families without fixed effects, unweighted (comparison)	-0.149	(0.041)	-0.229, -0.069	2,722	1,175
<i>Ordinal model (odds ratio scale)</i>					
Ordered logit, odds ratio for a more responsive answer	0.63		0.53, 0.75	3,701	2,282

Note: Each row is a separate model. Unless stated, models use the primary covariates, the 2008 Young Adult sampling weight, and standard errors clustered on the mother, and estimates are differences in mean response (1 to 5 scale) between respondents whose mothers did and did not report smoking during the pregnancy. N is the number of respondents. The household-clustered row has 2,011 household clusters. The pooled row has 6,025 person-wave observations from 3,949 people. The mother fixed-effects model compares siblings; it is identified by 148 mothers who smoked in some pregnancies and not others (363 children) and adjusts for sex, birth order, birth year, and the mother's schooling and marital status before each birth. SE = standard error; CI = confidence interval.

Figure 2. Primary and Prespecified Sensitivity Estimates of the Difference in Perceived Government Responsiveness



Difference in mean response: mother smoked minus did not smoke
(response categories on the 1 to 5 scale, with 95% confidence interval)

Note: Points are estimated differences in mean response on the 1 to 5 scale (mother smoked during the pregnancy minus did not smoke) with 95% confidence intervals, from the models in Table 3. The shaded band marks differences smaller than 0.10 response categories, the threshold set in the analysis plan for a substantively small difference. The ordered logit model and the comparison row for the subsample with the mother's answer are omitted. All estimates except the mother fixed-effects model compare children of different mothers. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Three of the checks bear on interpretation. Splitting the exposed by amount gives -0.20 for less than a pack a day and -0.24 for a pack or more; the intervals overlap almost entirely, so the data do not show a gradient with amount.

Respondents born from 1982 through 1990, for whom nearly all smoking reports were collected within about two years of the birth, give -0.20 , and the 2006 answers of those born from 1979 through 1985 give -0.17 (95% confidence interval -0.27 to -0.06). Adding indicators for the month of interview, a check made later because the 2008 interviews ran from January 2008 into early 2009, leaves the estimate at -0.22 . The robustness value of Cinelli and Hazlett (2020) for the primary estimate is 10%: an omitted confounder would need to explain about 10% of the remaining variation in both maternal smoking and perceived responsiveness to reduce the estimate to zero. As a benchmark, the mother's schooling and test score together explain 7.2% of the remaining variation in smoking but only 0.5% of the remaining variation in the outcome.

The secondary outcome gives a weaker result (Table D4). Among the 2,978 respondents old enough to vote in November 2006, 33% of those whose mothers smoked during the pregnancy said they were sure they had voted, compared with 38% of the others (-5.3 percentage points; 95% confidence interval -10.0 to -0.6). With the full covariates the difference is -3.5 points, with an interval (-8.3 to 1.2) that includes zero. This result is inconclusive.

The Sibling Comparison

The prespecified sibling comparison gives a different answer from every comparison across families. The model includes 2,722 respondents from 1,175 mothers with two or more children in the sample. In 148 of those families the mother reported smoking in at least one pregnancy and not in at least one other,

and these families, with 363 children, identify the estimate. Within families, respondents from pregnancies in which the mother smoked rated the government as *more* responsive than their siblings, by 0.23 response categories (standard error 0.085; 95% confidence interval 0.06 to 0.39). When the same 2,722 respondents are analyzed without the mother indicators, the estimate is -0.15 (95% confidence interval -0.23 to -0.07). In a model that separates the two sources of variation, the coefficient on a mother's average exposure across her children is -0.23 and the coefficient on each child's deviation from that average is $+0.22$; the difference between them is 0.45 (95% confidence interval 0.26 to 0.64).

A descriptive comparison shows where this comes from. Among respondents in families with two or more children in the sample, those whose mothers never reported smoking in pregnancy have a mean answer of 2.40, and those whose mothers reported smoking in every pregnancy have a mean of 2.17. In the discordant families, the siblings from pregnancies without smoking have a mean of 2.15, as low as the children of mothers who always smoked, and their siblings from pregnancies with smoking have a mean of 2.35.

Table 4. The Sibling Comparison Under Alternative Outcomes, Restrictions, and Covariates

Model	Estimate	SE	95% CI	Informative mothers	n
<i>Prespecified sibling model</i>					
2008 answer	0.23	0.09	0.06, 0.39	148	2,722
<i>Other measures of the outcome</i>					
2006 answer	0.04	0.15	$-0.25, 0.33$	81	1,305
Mean of each respondent's available answers	0.14	0.08	$-0.02, 0.30$	174	3,004

Model	Estimate	SE	95% CI	Informative mothers	n
<i>Timing and source of the mother's reports</i>					
All reports within two years of the birth	0.10	0.12	-0.13, 0.32	78	1,690
All reports from the same survey instrument	-0.06	0.16	-0.37, 0.26	42	983
Reports from different instruments	0.33	0.10	0.14, 0.53	106	1,739
<i>Direction of the change in smoking</i>					
Smoked in earlier pregnancies only	0.21	0.13	-0.05, 0.47	67	2,512
Smoked in later pregnancies only	0.06	0.14	-0.21, 0.34	61	2,498
Mixed pattern	0.63	0.19	0.25, 1.01	20	2,430
<i>Father and circumstances of each pregnancy</i>					
Siblings who report the same biological father	0.24	0.10	0.04, 0.43	102	2,146
Adds poverty, income, weeks worked, health limitation, father in household, alcohol	0.19	0.10	-0.01, 0.39	114	2,247
Same respondents, prespecified covariates	0.18	0.10	-0.02, 0.38	114	2,247
Adds indicators for month of interview	0.21	0.09	0.04, 0.38	148	2,722
<i>Check of the design: birth weight in grams</i>					
Across families, same respondents	-203	31	-265, -142		2,634
Within families, same respondents	-137	61	-256, -17	141	2,591
Within families, all children born 1979 to 1990	-177	43	-261, -93	286	4,875

Note: Each row is a model with an indicator for every mother, estimated without weights, with standard errors clustered on the mother. Except where stated, the outcome is perceived government responsiveness (1 to 5) and the covariates are sex, birth order, birth year, and the mother's schooling and marital status before the birth. The estimate is the difference between siblings from pregnancies with and without reported smoking. Informative mothers are those whose children in the model differ in exposure. Only the first row was prespecified. Survey instruments are the 1983 report on the youngest child, the 1986 retrospective report on older children, and the report collected at the first interview after each later birth. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Table 4 examines how far this result can be trusted. Three things are clear. First, the positive sign is not stable. With the 2006 answers the within-family estimate is +0.04 (-0.25 to 0.33), and with each respondent's mean across the two years, which uses the most families (174) and the most reliable measure of the outcome, it is +0.14 (-0.02 to 0.30). It is +0.10 where all of a family's reports were collected within two years of the birth and -0.06 (-0.37 to 0.26) where they all came

from the same survey instrument. The positive estimate comes from families whose reports were collected with different instruments (+0.33) and, within those, disproportionately from 20 mothers with a mixed pattern of smoking across three or more pregnancies. The contrast between the two instrument groups is +0.39 (0.02 to 0.76), which is suggestive at most, given the number of subsets examined. Under the rule set in advance, the sign is not established, and I describe the within-family difference as not negative.

Second, nothing measured about the individual pregnancies explains the result. Restricting the comparison to siblings who report the same biological father leaves it at +0.24 (102 mothers). Within discordant families, the pregnancies with smoking were somewhat less favorable in other respects: the child's father was less often in the household at the first interview that recorded it (by 9 percentage points), the mother more often drank during the pregnancy, and family income before the birth was somewhat lower. Adding these and the other circumstances of each pregnancy to the model changes the estimate from +0.18 to +0.19 among the respondents with complete data. Month of interview, birth order entered in more detail, and indicators for each birth year make no difference.

Third, the comparison can detect an effect of smoking when there is one. Among the same respondents, children from pregnancies with smoking weighed 203 grams less at birth across families and 137 grams less than their own siblings (95% confidence interval 17 to 256). Among all children born from 1979 through 1990 the within-family deficit is 177 grams, and it is larger for a pack or more a day than for

less. The within-family estimate for birth weight is 0.67 to 0.80 of the across-family estimate. Most of the reported differences between a mother's pregnancies are therefore real differences in exposure. This matters because reported exposure is strongly correlated between siblings (0.72), which is the condition under which misreporting weakens within-family estimates most (Frisell et al. 2012). If the within-family design retains for political attitudes the same share of an effect that it retains for birth weight, a pregnancy-specific deficit equal to the across-family difference would appear as about -0.14 . The observed 2008 estimate lies 4.3 standard errors above that value and the two-year mean 3.6 standard errors above it.

The sibling evidence is thus weaker than its headline estimate suggests and stronger than a single subset suggests. The reversal of sign should not be given weight. What the sibling data do show, in the full set of informative families and with either measure of the outcome, is that a pregnancy-specific deficit of the size seen across families is very unlikely. In the small group of families with reports from a single instrument the interval is too wide to say even that.

Pregnancy, Childhood, or Mother

If the difference is unlikely to belong to the pregnancy, the next question is what it does belong to. Table 5 and Panel A of Figure 3 classify respondents by the mother's smoking over all of her pregnancies and outside them.

The result is not what a simple family-marker account predicts. If smoking during pregnancy stood for having a mother who smokes, children of other mothers

who smoke should resemble the exposed. They do not. The 794 respondents whose mothers smoke, but who reported smoking in none of their pregnancies, have an adjusted mean 0.03 categories above that of respondents whose mothers never smoked (95% confidence interval -0.06 to 0.12), and 14% of them answered "never," as did 14% of the reference group and 23% of the exposed. The exposed differ from them by -0.25 (-0.35 to -0.15). The narrower comparisons in Panel B agree. Respondents whose mothers smoked in the year before their birth but stopped for the pregnancy differ from those whose mothers did not smoke that year by $+0.01$ (-0.14 to 0.17), and respondents whose mothers smoked during their childhood but in no pregnancy differ from children of never-smokers by 0.00 (-0.12 to 0.13). Smoke in the home during childhood, without smoking in pregnancy, carries no difference of the size in question.

Table 5. Perceived Government Responsiveness by the Mother's Smoking In and Outside Pregnancy

Group or contrast	n	Mean	% "never"	Adjusted difference	95% CI
<i>Panel A. Respondents grouped by the mother's smoking history</i>					
Mother never smoked (reference)	1,607	2.47	14	0	
Mother smokes, but smoked in no pregnancy on file	794	2.48	14	0.03	$-0.06, 0.12$
Mother smoked in another pregnancy, not this one	255	2.30	22	-0.10	$-0.24, 0.05$
Mother smoked in this pregnancy	1,045	2.18	23	-0.21	$-0.30, -0.13$
<i>Panel B. Other contrasts</i>					
This pregnancy minus smoker, no pregnancy with smoking				-0.25	$-0.35, -0.15$
This pregnancy minus another pregnancy				-0.12	$-0.26, 0.03$
Smoked in the year before the birth but stopped for the pregnancy, vs no smoking in that year	125			0.01	$-0.14, 0.17$
Smoked during the pregnancy vs stopped for it				-0.23	$-0.39, -0.07$

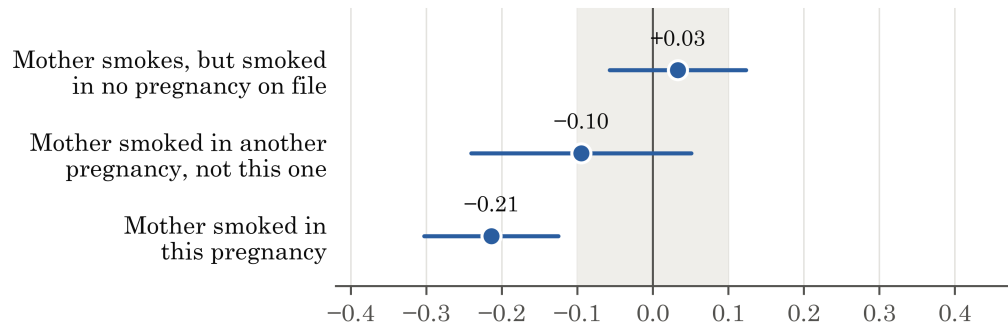
Group or contrast	n	Mean	% "never"	Adjusted difference	95% CI
Mother has smoked, but was not smoking at any interview during the respondent's childhood, vs never smoked	363			0.06	-0.06, 0.17
Mother smoked during the respondent's childhood but in no pregnancy, vs never smoked	410			0.00	-0.12, 0.13
Mother smoked in this pregnancy but not in 2008, vs neither	307			-0.24	-0.36, -0.12
Mother smokes in 2008 but did not in this pregnancy, vs neither	273			-0.11	-0.25, 0.03

Note: Analysis sample (n = 3,701). Means and percentages are weighted. Adjusted differences come from weighted linear models with the primary covariates of Table 2 and standard errors clustered on the mother. A mother is classed as a smoker if she reported having smoked 100 cigarettes or reported current smoking at the 1984, 1992, 1994, 1998, or 2008 interview. Pregnancy reports cover all of her children on the file. In Panel B, n is the size of the first-named group where it is not shown in Panel A. Childhood refers to interviews at which the respondent was aged 0 to 17. These analyses were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

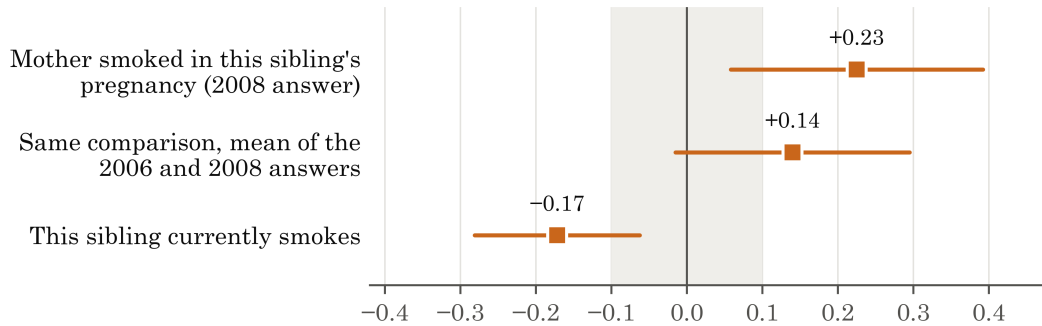
Taken alone, these comparisons across families would point back to the pregnancy, since they show a difference exactly where the mother smoked while pregnant and nowhere else. The siblings are what count against that. Respondents who were not themselves exposed, but whose mothers smoked in another pregnancy, fall between the two extremes (-0.10 relative to children of never-smokers; -0.24 to 0.05; unweighted -0.14), and within families the exposed do not fall below the unexposed. The pattern that fits both sets of results is that the difference attaches to a kind of mother: one who smokes during her pregnancies, as distinct both from mothers who do not smoke and from mothers who smoke but not while pregnant. Within such a family, which pregnancy she smoked in appears not to matter.

Figure 3. Where the Difference Lies: Across Mothers, Not Across a Mother's Pregnancies

A. Across families: difference from respondents whose mothers never smoked



B. Within families: difference between siblings



Difference in mean response on the 1 to 5 scale (negative: government seen as less responsive)

Note: Points are differences in mean response on the 1 to 5 scale with 95% confidence intervals; the shaded band marks differences smaller than 0.10. Panel A: respondents grouped by the mother's smoking history, each compared with respondents whose mothers never smoked (primary covariates, weighted; Table 5). Panel B: models with an indicator for every mother (Tables 4 and 7). The third row is the difference between a sibling who currently smokes and one who does not, from a model that also includes the mother's smoking in each pregnancy. None of these estimates was prespecified except the first row of Panel B. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

The mother's later behavior does not appear to matter either. Among respondents whose mothers smoked in their pregnancy, those whose mothers had stopped smoking by 2008 (307 respondents) differ from the reference group by -0.24 (-0.36 to -0.12), as much as those whose mothers still smoked (-0.22). When pregnancy smoking and the mother's smoking in 2008 are entered together, the coefficients are -0.19 and -0.05 .

What Kind of Attitude

Table 6 applies the primary model to the six further items fixed in advance, and Figure 4 displays them in standard deviation units.

Table 6. Maternal Smoking During Pregnancy and Seven Political Items

Outcome (higher values as labeled)	n	Across families	95% CI	In SD	Within families	95% CI
Federal government does what most Americans want (primary outcome)	3,701	-0.21	-0.29, -0.13	-0.24	0.23	0.06, 0.39
Federal government wastes less tax money*	2,861	-0.16	-0.26, -0.06	-0.17	-0.05	-0.29, 0.18
Other people can be trusted	3,697	-0.15	-0.24, -0.06	-0.15	0.13	-0.11, 0.36
Follows politics	3,693	0.00	-0.11, 0.10	0.00	-0.03	-0.27, 0.21
Interested in government and politics*	2,904	0.00	-0.11, 0.12	0.00	0.01	-0.28, 0.29
Politics is less often too complicated to understand	3,690	0.03	-0.08, 0.14	0.03	0.04	-0.20, 0.28
Reports voting in November 2006 (proportion)	2,978	-0.035	-0.083, 0.012	-0.07	-0.018	-0.123, 0.086

Note: "Across families" is the coefficient on maternal smoking during the pregnancy from the primary model of Table 2 applied to each outcome (weighted, standard errors clustered on the mother). "In SD" divides it by the weighted standard deviation of the outcome. "Within families" is the prespecified sibling model applied to each outcome. The six items below the first row were fixed as a list before any of them was analyzed. Items are coded so that higher values mean more favorable views or more engagement.

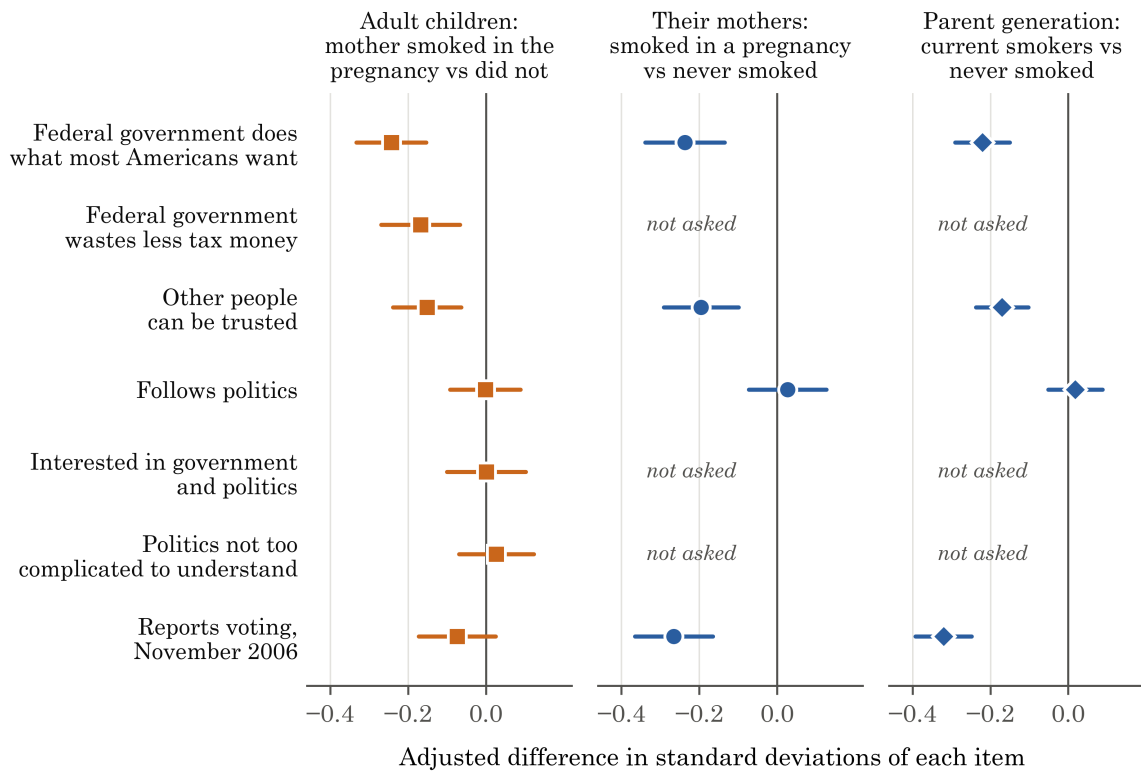
*Asked of respondents aged 21 or older. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

The items divide by content. Respondents whose mothers smoked during the pregnancy more often said that the federal government wastes tax money and less often said that other people can be trusted, by 0.17 and 0.15 standard deviations, with intervals that exclude zero. On the three engagement items there is no difference at all: 0.00 for following politics, 0.00 for interest in government and politics, and +0.03 for finding politics understandable, each with a narrow interval around zero. Reported voting, as already noted, is lower by 3.5 percentage points with an interval that includes zero. Under the reading fixed before the analysis, this

is the pattern of general distrust, of government and of people, and not the pattern of disengagement from politics. Within families, none of the six items shows a difference between siblings by exposure.

The mothers show the same profile in their own 2008 answers (Table D6). With the primary covariates, mothers who smoked during the pregnancy rated the federal government as less responsive by 0.21 categories (0.12 to 0.31), almost exactly the difference seen in their children, trusted other people less (-0.16), and followed politics just as closely (0.00), although they were 8.0 percentage points less likely to report voting in November 2006. Respondents' recollections of the childhood home point the same way: those whose mothers smoked in the pregnancy recalled as much political talk at home and a mother who followed politics as closely, although they were somewhat more often unable to say which party each parent had favored. What distinguishes these families is not how much attention they pay to politics. It is what they expect of government and of other people.

Figure 4. The Same Profile in Adult Children, Their Mothers, and Smokers of the Parent Generation



Note: Points are adjusted differences divided by the weighted standard deviation of each item, with 95% confidence intervals. Items are coded so that higher values mean more favorable views or more engagement. Left: respondents whose mothers smoked during the pregnancy compared with those whose mothers did not (primary model; Table 6). Center: mothers who smoked in at least one pregnancy compared with mothers who never smoked, in their own 2008 answers. Right: all NLSY79 respondents, men and women, who smoked in 2008 compared with those who had never smoked. The center and right panels adjust for birth year, race and ethnicity, test score, parents' schooling, and family structure at age 14. Three items were not asked of the parent generation. The comparisons were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Smokers' Own Views in Two Generations

If smoking in pregnancy marks an outlook held by the mother, the outlook should be visible in people who smoke whether or not a pregnancy is involved. Table 7 reports the test.

Table 7. Smokers' Own Perceptions of Federal Government Responsiveness in Two Generations

Comparison	Estimate	SE	95% CI	n
<i>Panel A. Parent generation (NLSY79 respondents), 2008: current smokers vs never smoked</i>				
Men, baseline covariates	-0.13	0.04	-0.22, -0.05	3,363
Women, baseline covariates	-0.26	0.04	-0.34, -0.18	3,586
All, baseline covariates	-0.19	0.03	-0.25, -0.13	6,949
All, adding schooling, income, marital status, region in 2008	-0.14	0.03	-0.20, -0.07	6,015
All, former smokers vs never smoked	-0.05	0.03	-0.10, 0.00	6,949
Men, smoked in 1992 vs did not	-0.11	0.04	-0.19, -0.03	3,075
Women, smoked in 1992 vs did not	-0.19	0.04	-0.26, -0.12	3,342
Brothers and sisters compared (sibship fixed effects)	-0.23	0.05	-0.33, -0.12	3,510
<i>Panel B. The mothers' own answers, 2008 (reference: mothers who never smoked)</i>				
Smokes, but smoked in no pregnancy on file	-0.09	0.04	-0.17, -0.01	3,589
Smoked in at least one pregnancy	-0.20	0.04	-0.28, -0.11	3,589
Smoked in a pregnancy, holding 2008 smoking status constant	-0.04	0.05	-0.14, 0.07	2,957
Smokes in 2008, holding pregnancy smoking constant	-0.26	0.06	-0.37, -0.14	2,957
<i>Panel C. Adult children, 2008: respondent currently smokes vs does not</i>				
Across families, primary covariates	-0.24	0.04	-0.32, -0.16	3,697
Siblings compared (mother fixed effects)	-0.17	0.06	-0.28, -0.06	2,719
Siblings compared, with the mother's smoking in each pregnancy	-0.17	0.06	-0.28, -0.06	2,719

Note: The outcome in every row is the answer to "How often does the federal government do what most Americans want it to do?" (1 never to 5 always), asked of both generations in 2008. Panels A and B use the 2008 NLSY79 weight and standard errors clustered on the 1979 household; baseline covariates are birth year, race and ethnicity, test score, parents' schooling, and family structure at age 14, with sex in the pooled models. Sibship models are unweighted, include sex and birth year, and use respondents interviewed with a brother or sister in 1979. Panel C uses the specifications of Tables 2 and 3. Current smokers smoke daily or occasionally. These analyses were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

In the parent generation it is. Among men, who were never pregnant and whose data had not been examined when the analysis was planned, current smokers rated the federal government as less responsive than men who had never smoked by 0.13 categories with the baseline covariates (95% confidence interval 0.05 to 0.22). Among women the difference is 0.26 (0.18 to 0.34), and for all 6,949 respondents with complete covariates it is 0.19 (0.13 to 0.25), or 0.22 standard

deviations. Among men, 23% of current smokers said the government never does what most Americans want, compared with 12% of those who never smoked; among women the figures are 25% and 10%. Former smokers resemble people who never smoked (-0.05 ; -0.10 to 0.00). The difference is also present when smoking is measured long before the attitude: men who smoked in 1992 rated the government lower in 2008 by 0.11 and women by 0.19. Adding schooling, income, marital status, and region in 2008 reduces the estimate for all respondents to -0.14 (-0.20 to -0.07); for men alone the reduced estimate, -0.07 , has an interval that includes zero (-0.17 to 0.03).

The comparison of brothers and sisters is the most informative. Of 1,514 sibships with a valid answer from at least two members, 549 include both a current smoker and someone who is not. Within sibships, current smokers rated the government lower than siblings who had never smoked by 0.23 categories (0.12 to 0.33), the same as the estimate for these respondents when sibships are ignored (-0.23). Having grown up in the same household does nothing to reduce the difference. The parent generation also repeats the profile of Table 6. Current smokers trusted other people less (-0.16 ; 0.17 standard deviations) and followed politics just as closely ($+0.02$), though they were much less likely to report having voted (15.1 percentage points; Table D5).

Panel B of Table 7 connects this to the mothers. Mothers who smoked in at least one pregnancy rated the government lower than mothers who never smoked by 0.20, and mothers who smoke but did not smoke in a pregnancy by 0.09. The

reason pregnancy smokers stand out is that most of them were still smoking in 2008 (63%, against 8% of other mothers). With smoking status in 2008 held constant, having smoked in a pregnancy is unrelated to the mother's own answer (-0.04 ; -0.14 to 0.07), while smoking in 2008 is associated with a difference of -0.26 . For the mothers, then, the attitude goes with being a smoker now. For their children it goes with the mother having smoked during her pregnancies, whether or not she smokes now.

In the younger generation the respondent's own smoking tells the same story as in the older one. Respondents who currently smoke rated the government lower by 0.24 across families and by 0.17 compared with their own siblings (95% confidence interval 0.06 to 0.28; 422 informative families). Panel B of Figure 3 sets this beside the sibling comparison for exposure before birth. Within the same families, in the same model, the sibling who smokes sees the government as less responsive, and the sibling whose mother smoked while carrying them does not.

What Travels With the Difference

Table 8 asks how much of the difference between respondents whose mothers did and did not smoke in the pregnancy accompanies characteristics measured after the birth.

Each accounts for a little. Mothers and their adult children do answer alike: each additional category in the mother's answer is associated with 0.10 of a category in her child's (standard error 0.02). Yet adding the mother's answer reduces the difference by 10%, and adding all four of her political answers by 12%. A single

survey item is a noisy indicator of a parent's outlook, but if the mother's answer is assumed to be only as reliable as the two-year stability of the item among respondents (0.32), which overstates the noise because some change over two years is real, the corrected difference is still -0.13 (-0.23 to -0.03), a reduction of 37%. The respondent's recollections of politics at home remove nothing. Years of childhood spent in poverty and the share of childhood with the father in the household are both related to smoking in pregnancy, but adding them and the mother's depressive symptoms in 1992 moves the estimate only from -0.21 to -0.20 . The respondent's own schooling and own smoking each reduce it by about an eighth; children of mothers who smoked in pregnancy were 12.8 percentage points more likely to smoke themselves, and a difference remains among respondents who have never smoked (-0.13), although its interval reaches zero (-0.27 to 0.01). With the respondent's smoking, the mother's answer and trust in other people, and the mother's smoking in 2008 all added, the difference is -0.16 (-0.25 to -0.06), 26% smaller than without them.

Table 8. The Difference Associated With Maternal Smoking During Pregnancy When Later-Measured Characteristics Are Added

Characteristics added to the primary model	n	Primary model	With addition	% smaller
<i>Political outlook of the home</i>				
Mother's own answer to the same item, 2008	3,341	-0.21	-0.19	10
Same, corrected for unreliability (assumed reliability 0.32)	3,341	-0.21	-0.13	37
Mother's answer, attention to politics, vote, and party, 2008	3,039	-0.21	-0.18	12
Respondent's recollection of politics at home*	2,572	-0.20	-0.21	-2
<i>Family circumstances during childhood</i>				
Years in poverty, father's presence, mother's depressive symptoms	3,624	-0.21	-0.20	6

Characteristics added to the primary model	n	Primary model	With addition	% smaller
<i>The respondent in 2008</i>				
Own schooling	3,624	-0.21	-0.19	12
Own current smoking	3,331	-0.21	-0.19	12
<i>The mother in 2008</i>				
Mother currently smokes	3,331	-0.21	-0.18	15
<i>Combined</i>				
Own smoking, mother's answer and trust in people, mother's smoking in 2008	3,331	-0.21	-0.16	26

Note: Each row re-estimates the primary model of Table 2 on respondents with the listed measures and then adds them. All of the added characteristics were measured after the birth, so the rows describe how much of the difference travels with each of them and are not estimates of mediation. The reliability of 0.32 is the two-year correlation of the item among respondents and is a lower bound, so the corrected row is an upper limit on what the mother's answer can account for. *Asked once, in 2006 or 2008, of respondents aged 21 or older: how often adults at home talked about politics, how often the mother followed politics, and whether the respondent could say which party she favored. These analyses were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

About three-quarters of the difference, then, is not accounted for by anything measured here, and the upper limit set by the reliability correction leaves well over half.

Replication in the General Social Survey

The last analysis asks whether the adult pattern reported above appears in different data (Table 9). Under the third plan it is confirmatory, for adults' own smoking only.

Both predictions are supported. In the 13 surveys from 1977 through 1994, adults who smoked reported less confidence in the people running the executive branch of the federal government than adults who did not, by 0.09 points on the three-point scale in the first model (95% confidence interval 0.06 to 0.12; $n = 15,268$), or 0.14 standard deviations. They were 3.6 percentage points less likely to say that most people can be trusted (1.6 to 5.6; $n = 13,393$; 12 surveys). Before adjustment, 37% of smokers and 44% of other adults gave the trusting answer.

Under the plan's rule, the adult association of smoking with lower trust in government and in other people, which the NLSY79 analyses found by exploration, is replicated. Adding family income and marital status leaves the difference in confidence at 0.09 and reduces the difference in trust to 2.2 points, with an interval that comes close to zero (0.1 to 4.3). Coding the answer "depends" as one-half changes nothing.

Table 9. Replication in the General Social Survey, 1977 to 1994: Adults' Own Smoking, Confidence in Federal Institutions, and Trust in Other People

Outcome and model	Estimate	SE	95% CI	n
<i>Panel A. Current smokers vs all others: the two predictions</i>				
Confidence in the executive branch (1 to 3), first model	-0.091	0.014	-0.118, -0.064	15,268
Adding family income and marital status	-0.088	0.014	-0.116, -0.060	14,057
Most people can be trusted (proportion), first model	-0.036	0.010	-0.056, -0.016	13,393
Adding family income and marital status	-0.022	0.011	-0.043, -0.001	12,318
"Depends" coded 0.5 instead of missing, first model	-0.036	0.010	-0.055, -0.016	13,914
<i>Panel B. Reported alongside: confidence in Congress</i>				
Confidence in Congress (1 to 3), first model	-0.065	0.013	-0.090, -0.040	15,277
<i>Panel C. Former and never smokers separated, first model (reference: never smoked regularly)</i>				
Confidence in the executive branch: current smokers	-0.121	0.016	-0.152, -0.090	13,480
Confidence in the executive branch: former smokers	-0.076	0.018	-0.112, -0.040	13,480
Most people can be trusted: current smokers	-0.030	0.011	-0.052, -0.008	13,063
Most people can be trusted: former smokers	0.013	0.013	-0.012, 0.039	13,063
<i>Panel D. Checks added after the planned models, first model</i>				
Confidence in the executive branch, nine census divisions	-0.090	0.014	-0.117, -0.064	15,268
Confidence in the executive branch, clustered standard errors	-0.091	0.014	-0.118, -0.064	15,268
Confidence in the executive branch, unweighted	-0.094	0.011	-0.117, -0.072	15,268

Outcome and model	Estimate	SE	95% CI	n
Most people can be trusted, nine census divisions	-0.035	0.010	-0.055, -0.015	13,393
Most people can be trusted, clustered standard errors	-0.036	0.010	-0.056, -0.016	13,393
Most people can be trusted, unweighted	-0.040	0.009	-0.057, -0.023	13,393

Note: Weighted linear models (weight WTSSPS) with heteroskedasticity-robust standard errors. The estimate is the difference between adults who answered yes to "Do you smoke?" and the comparison group. Confidence items are coded 1 hardly any, 2 only some, 3 a great deal. Trust is coded 1 for "most people can be trusted" and 0 for "can't be too careful," so its estimates are differences in proportions. The first model includes indicators for survey year, age, age squared, sex, race, years of schooling, and census region. Confidence items were asked in 13 surveys from 1977 through 1994; trust and the question that separates former from never smokers were asked in 12 (not in 1977). Panels A to C follow the third analysis plan, which was written before any General Social Survey data were obtained, and Panel A contains its two confirmatory tests. Panel D was added afterward; clustering is on the survey's primary sampling units. Source: General Social Survey 1972-2024 cumulative file, Release 3a.

Two results qualify the parallel with the NLSY79. First, the difference is not specific to the executive branch. Smokers also reported less confidence in Congress (0.07; 0.04 to 0.09), so what these surveys show is lower confidence in federal institutions generally. Second, the secondary prediction about former smokers held for trust and failed for confidence. Compared with adults who never smoked regularly, former smokers were no less trusting of other people (+1.3 points; -1.2 to 3.9), but they reported less confidence in the executive branch (0.08; 0.04 to 0.11), a difference 63% as large as that for current smokers (0.12). In the NLSY79, by contrast, former smokers answered the responsiveness question much as never-smokers did. The three checks added after the planned models (nine census divisions in place of four regions, standard errors clustered on the survey's sampling units, and no weights) leave both estimates essentially unchanged.

Discussion

Interpretation

Adults whose mothers reported smoking while pregnant with them see the federal government as less responsive than other adults do. The difference, about one-fifth of a response category or one-quarter of a standard deviation, is modest in absolute terms but not trivial for a single attitude item, it was predicted in advance, and it is larger than the difference associated with a two-standard-deviation change in any of the maternal background measures in the model.

The further analyses support four statements about what it reflects, with different degrees of confidence. First, the sibling evidence weighs against a prenatal effect large enough to account for it. Siblings from pregnancies with and without smoking do not differ in the direction such an effect requires, in a design that recovers two-thirds or more of the across-family difference in birth weight, although this rests on fewer than 200 families, a smaller prenatal effect cannot be ruled out, and the positive sign of the within-family estimate is not stable and should not be interpreted. Second, it appears not to be an effect of smoke in the childhood home, because children whose mothers smoked during their childhood but not while pregnant show no difference. Third, it is specific. It is absent among children of mothers who smoke outside pregnancy and is reduced by only about a fifth by the mother's schooling, test score, marital status, and family background, and barely at all by poverty before the birth, poverty during childhood, or the father's presence, so it is not a general mark of disadvantage. What it attaches to is the family of a

woman who smokes during her pregnancies. Such women differ from other smokers in the ways reviewed above and also in how adequate they judge their prenatal care to be (Riaz et al. 2018), and the present data add that they and their adult children share a particular outlook. Fourth, that outlook is distrust, not disengagement, and it goes with smoking itself. Smokers show it in the parent generation, men as well as women, and between brothers and sisters raised together, and the sibling who smokes shows it in the younger generation. In the General Social Survey, too, adults who smoked had less confidence in federal institutions and less trust in other people. Whatever links smoking to distrust therefore operates at the level of the person and not only at the level of the family, does not require a pregnancy, and is not confined to this cohort or to 2008.

The most plausible reading is that smoking during pregnancy identifies, more sharply than smoking in general does, mothers who hold this outlook and families in which it is shared, and that the children acquire it from the family and not from the womb. That reading is consistent with every result above. It is not demonstrated by them. The route from mother to child is not observed, and the data establish the pattern more firmly than they identify what in these families produces it.

What Remains Unidentified

Three things are not established.

The first is the direction of the relationship between smoking and distrust in adults. People who distrust institutions may be less inclined to accept advice to stop

smoking. Smoking, which by 2008 was heavily taxed, restricted, and stigmatized, may itself estrange smokers from government and from other people. Or a common cause may produce both. The comparison of brothers and sisters removes what siblings share and leaves all three possibilities standing. Both the parent-generation analyses and the General Social Survey relate smoking to an attitude measured in the same interview, or measured only once, so neither the persistence of the difference when smoking is measured sixteen years before the attitude nor the General Social Survey chooses among them, an impasse Zhou, Li, and Levinson (2021) also reach with cross-sectional data. The one new clue is that former smokers in the General Social Survey shared part of current smokers' lower confidence in the federal executive, which would not be expected if the difference were only a passing accompaniment of smoking at the time of the interview. That result was not predicted and does not appear in the NLSY79, and I do not lean on it.

The second is what lies behind the outlook and how it reaches the next generation. The mother's own answer to the same question accounts for a tenth of the difference as measured and at most a little over a third after a generous correction for unreliability. The mother's current smoking does not explain most of it (Table 8), and the difference is as large where she had stopped smoking by 2008, by which time her own answers differed little from those of mothers who never smoked. That is hard to reconcile with simple inheritance of the mother's current views. It suggests that what the children carry was formed in the household of their childhood, perhaps by the mother's outlook at that time, perhaps by a father who is

almost unobserved in these data, perhaps by a shared disposition or a lasting circumstance that the surveys do not measure. The data cannot distinguish these.

The third is why the difference is absent among children of mothers who smoke but did not smoke in pregnancy, when those mothers themselves rate the government somewhat lower than mothers who never smoked. One possibility is that the smaller difference among these mothers, passed on incompletely, is too small to detect in their children. Another is that stopping for a pregnancy is itself a sign of responsiveness to official and medical advice, so that the two groups of smoking mothers differ in exactly the disposition at issue. The second possibility is a conjecture: no measure of the mothers' trust before their pregnancies exists to test it.

Relation to Prior Research

The findings match what has been found for conduct problems, cognitive performance, and adolescent substance use in these same families, where associations seen across families largely vanish when siblings are compared (D'Onofrio et al. 2008; D'Onofrio et al. 2012; Ellingson et al. 2014). D'Onofrio and colleagues (2008) also observed that unexposed children whose mothers smoked in other pregnancies had more conduct problems than unexposed children in general, the configuration reported here, and Thapar and colleagues (2009) concluded from a different design that statistical adjustment does not necessarily remove inherited confounding. The present results extend that lesson to a political attitude and add a

refinement: among children of mothers who smoke, the marker is confined to those whose mothers smoked while pregnant.

They also extend the literature on smoking and political life. Earlier studies found that smokers vote less or less often intend to vote (Denny and Doyle 2007; Cox et al. 2021) and trust other people less (Zhou, Li, and Levinson 2021). Here current smokers also perceive the federal government as less responsive, while following politics as closely as anyone. The difference holds between siblings, and a second national survey, taken one to three decades earlier with different questions, shows the same lower trust in government and in other people. Trust has been shown to pass from parents to children (Dohmen et al. 2006), and that is the simplest way to connect the two generations, although the present data do not show the transmission directly.

For research on the early-life origins of political behavior, the study is a caution with a positive side. The association reported here was specified in advance, survived adjustment for family background, held in every prespecified check that compared different families, and passed a formal sensitivity analysis, and it is nevertheless unlikely to reflect a direct effect of prenatal exposure. Studies that link childhood health or prenatal conditions to political outcomes by covariate adjustment alone may overstate what the early condition contributes, and designs that compare siblings or exploit interventions (Holbein 2017; Akee et al. 2018) offer a stronger basis. The positive side is that a marker which is probably not a cause

can still be informative. Followed up, this one led to a pattern of distrust shared by parents and children that standard measures of family background do not record.

Limitations

Several limitations should be kept in view. First, only the primary analysis and the replication of the adult association are confirmatory. The explanatory analyses were planned in writing before they were run, and all six related outcomes are reported, but the plan was written with the main result known, and further checks were added after its analyses had been seen (Appendix E). Many estimates are reported, and individual contrasts between subsets, such as the dependence of the sibling estimate on the source of the smoking reports, may be chance.

Second, the sibling comparison is imprecise and comes from a selected group. It rests on 148 mothers in the 2008 answers and 174 with both years, it is unweighted, and mothers whose smoking varied across pregnancies had somewhat less schooling than other mothers in the sample. It assumes that one sibling's exposure does not affect another's outcome. A small pregnancy-specific deficit cannot be ruled out.

Third, the exposure is self-reported, coarse, and partly recalled. Mothers underreport smoking, the amount categories are broad, and there is no information on timing within pregnancy. Some mothers classed as smokers who did not smoke in pregnancy may have smoked and not reported it. If so, the absence of a difference among their children would be harder, not easier, to explain as an effect of exposure, but it would blur the distinction between the two groups of smoking

mothers. The birth-weight results indicate that reports of smoking in particular pregnancies are mostly accurate.

Fourth, the measures are thin. The outcome is a single question about one institution, asked in 2008, a year of unusually low public regard for the federal government, and its two-year stability is low. The other items used here are also single questions, and two of them were asked only of respondents aged 21 or older. The measures of the political outlook of the home are late or retrospective: the mother's answers were given in 2008, and the respondent's recollections were collected alongside the outcome. Fathers are nearly absent from the data, and nothing is known about smoking by others in the household.

Fifth, the analyses of adults' own smoking cannot establish whether smoking or distrust came first, for the reasons given above.

Sixth, follow-up was incomplete. About three-quarters of the cohort members still being followed were interviewed in 2008, and about one in twenty of those asked gave no substantive answer. Included and excluded cohort members were similar on characteristics measured before the birth, and the weights adjust for differential interview rates, but selection on unmeasured characteristics cannot be excluded.

Seventh, only one finding has been tested in independent data: the association between adults' own smoking and lower trust, replicated in the General Social Survey with questions about confidence in officeholders and not about responsiveness, no measure of engagement with politics, and a correspondence with

the NLSY79 that is not exact, since the lower confidence extends to Congress and, in part, to former smokers. The association with maternal smoking during pregnancy, the sibling comparisons, the contrast between mothers who smoked in and outside pregnancy, and the profile of distrust without disengagement have not been replicated.

Finally, the findings describe particular people at particular times: children born from 1979 through 1990 to a national cohort of American women born from 1957 through 1964, with a mean maternal age of about 24, observed at ages 18 to 30; their parents' generation at ages 43 to 51 in 2008; and adults interviewed in the General Social Survey from 1977 through 1994. The prevalence and social patterning of smoking during pregnancy may differ in later cohorts, and the results should not be assumed to hold for them, for older adults, for other countries, or for other political attitudes.

Conclusion

Is maternal smoking during pregnancy associated with how offspring perceive government responsiveness as adults? In this national cohort, yes. Adults whose mothers reported smoking during the pregnancy rated the federal government as less responsive in 2008, by about one-fifth of a response category after adjustment for family background, a difference robust to a prespecified set of alternative analyses. The evidence weighs against a prenatal effect large enough to explain it: children from pregnancies with smoking did not rate the government lower than their unexposed siblings, in a comparison that does detect the effect of

smoking on birth weight. The difference is confined to the families of women who smoked while pregnant and absent where the mother smoked only at other times. It is a difference in trust, of government and of other people, and not in interest in politics. The mothers show it themselves, and so do smokers at large: in two generations, people who smoke see the federal government as less responsive than people who do not, including their own brothers and sisters, and in a second national survey adults who smoked had less confidence in the federal executive and less trust in other people. Smoking during pregnancy is best understood as a marker of families that share a distrustful outlook. What lies behind that outlook, whether a disposition, lasting circumstances, or something these surveys do not measure, is not identified. Neither is how it passes from parent to child, or why smoking and distrust go together. The replication covers adults' own smoking only, and the findings about pregnancy and about the next generation await independent data of their own.

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Appendix A. Questionnaire Wording

The following wording is taken from the NLSY79 Young Adult 2008 questionnaire (Center for Human Resource Research 2008), from the NLSY79 and NLSY79 Child and Young Adult public-use codebooks, and, for the last entry, from the cumulative codebooks of the General Social Survey (Smith et al. 2019; Davern et al. 2026).

Definitions used in the explanatory analyses. *The mother's smoking outside pregnancy.* Independently of the pregnancy questions, NLSY79 respondents were asked about their own smoking in 1984 (whether and how recently they had smoked) and in 1992, 1994, 1998, and 2008 (whether they had smoked 100 cigarettes in their lives and whether they now smoked daily, occasionally, or not at all). A mother is classed as a smoker if she ever reported 100 cigarettes or current smoking, and as having smoked during a respondent's childhood if she reported current smoking at an interview held when that respondent was aged 0 to 17. *Siblings, fathers, and each pregnancy.* From 2006 onward, Young Adults were asked of each sibling whether the two shared a biological father. From 1984 onward, the file also records for each child and survey year whether the child's father lived in the mother's household. Poverty status, family income, weeks worked, and whether health limited the mother's work are taken from her annual interviews, each measured before the birth in question. *Other political items.* The waste and interest items were asked only of respondents aged 21 or older. *The political outlook of the home.* In 2008 the mothers answered the responsiveness question and four others

from the same module (attention to politics, reported voting in November 2006, party identification, and trust in other people). Respondents aged 21 or older were asked once, in 2006 or 2008, how often the adults in their household had talked about politics when they were growing up, how often their mother and their father or father figure had followed politics, and which party each had favored. These recollections are available for respondents born from 1979 through 1987 (2,896 with complete covariates). *The respondent's own smoking.* Respondents who reported smoking within the 30 days before the 2008 interview are classed as current smokers.

Introduction to the political questions (asked of Young Adults aged 18 or older). "Now we'd like to ask a few questions about your political involvement. These questions are sponsored by the National Science Foundation in conjunction with the American National Election Studies. As usual, you may refuse to answer any question."

Primary outcome, item YASR-80 (variable Y2262600 in 2008; Y1945900 in 2006). "How often does the federal government do what most Americans want it to do? [Always, most of the time, about half the time, once in a while, or never? (or reversed)]" Codes on the file: 1 always; 2 most of the time; 3 about half the time; 4 once in a while; 5 never; -1 refusal; -2 don't know. The order of the answer choices was randomly assigned. In 2006 the item was asked of Young Adults who would be 21 or older by December 31, 2006.

Secondary outcome, item YASR-77 (variable Y2262100 in 2008), asked of respondents old enough to vote in November 2006. "In talking to people about elections, we often find that a lot of people were not able to vote because they were sick or they just didn't have time or for some other reason. Which of the following statements best describes you: One, I did not vote in the national election held in November 2006. Two, I thought about voting in the national election held in November 2006, but didn't. Three, I usually vote, but didn't vote in the national election held in November 2006. Or four, I am sure I voted in the national election held in November 2006."

Other political items, Young Adult 2008. YASR-85B (Y2263300, age 21 or older): "How much tax money do you think is wasted by the federal government? [A great deal, a lot, a moderate amount, a little, or none? (or reversed)]" YASR-76C and YASR-84 (Y2261900 and Y2262900, each asked of a random half): "Generally speaking, how often can you trust other people? [Always, most of the time, about half the time, once in a while, or never? (or reversed)]" YASR-79 (Y2262500): "How often do you follow what's going on in politics?" with the same answer choices. YASR-85C (Y2263400, age 21 or older): "How interested are you in information about what's going on in government and politics? [Extremely interested, very interested, moderately interested, slightly interested, or not interested at all? (or reversed)]" YASR-81 (Y2262700): "How often is politics so complicated that you don't really understand what's going on?" with the frequency answer choices.

Recollections of the childhood home, Young Adult 2006 and 2008

(asked once, age 21 or older). YASR-89: "When you were growing up, how often did you hear the adults in your household talking about politics? [Extremely often, very often, moderately often, once in a while, or never? (or reversed)]" YASR-90: "When you were growing up, did your mother think of herself mostly as [a Democrat, a Republican (or reversed)], an Independent, or what?" YASR-91: "How often did she follow what was going on in politics?" YASR-92 and YASR-93 repeat the two questions for "your father, stepfather, or someone else who was most like a father to you when you were growing up."

Sibling's father, Young Adult 2006 to 2020 (item Q2-35H, asked once for each sibling). "Do you share a biological father with [name of sibling]?"

Respondent's own smoking, Young Adult 2008 (item YASR-21, variable Y2247800). "When was the most recent time you smoked cigarettes?" Respondents answering "within the past month (30 days)" are classed as current smokers.

Exposure, mother's fertility interview (compiled on the child file as C0320400 and C0320500). Gate item, 1984 wording: "Did you smoke tobacco cigarettes at all during the 12 months before [(1st child/2nd child) was born/your pregnancy loss]?" Intensity item: "On the average, how many cigarettes did you smoke during (your/that) pregnancy? Did you smoke 2 or more packs a day? Did you smoke 1 pack or more but less than 2 packs a day, or less than 1 pack a day?" In

1983 the gate item referred to the youngest child ("...during the 12 months before (youngest child) was born?").

NLSY79 respondents' own smoking. 1984 (R1394800, R1394900): "About how old were you when you first tried a cigarette?" and "When was the most recent time you had a cigarette?" 1992, 1994, 1998, and 2008 (for example R3914200 and R3914400 in 1992; T2074600 and T2074900 in 2008): "Have you smoked at least 100 cigarettes in your entire life?" and "Do you now smoke daily, occasionally or not at all?"

NLSY79 respondents' political items, 2008. ATT-POL-80 (T2184400): the same government-responsiveness question, with the same answer choices. ATT-POL-79 (T2184300): "How often do you follow what's going on in politics?" ATT-POL-84 (T2184500): "Generally speaking, how often can you trust other people?" ATT-POL-77 (T2183900): the same voting question as YASR-77. ATT-POL-78 (T2184000): "Generally speaking, do you usually think of yourself as a Democrat, a Republican, an Independent, or what?"

General Social Survey items, 1977 through 1994. SMOKE: "Do you smoke?" Codes on the file: 1 yes; 2 no. EVSMOKE, asked from 1978 of respondents who answered no: "Have you ever smoked regularly?" Codes on the file: 1 yes; 2 no. CONFED and CONLEGIS: "I am going to name some institutions in this country. As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?" The two institutions used here are "Executive branch of the federal

government" and "Congress." Codes on the file: 1 a great deal; 2 only some; 3 hardly any; "don't know" is a separate code. TRUST: "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" Codes on the file: 1 most people can be trusted; 2 can't be too careful; 3 other or depends, a volunteered answer. Table D7 lists the survey years for each item.

Appendix B. Exposure Coding and Timing of the Mother's Report

Table B1. Classification of Maternal Smoking During Pregnancy from the Two Survey Items

Smoked in the 12 months before the birth	Amount smoked during the pregnancy	Classification	All children on file (n)	Born 1979 to 1990 with valid outcome (n)
Yes	Less than 1 pack a day	Exposed	2,103	822
Yes	1 or more but less than 2 packs	Exposed	796	283
Yes	2 or more packs a day	Exposed	88	24
Yes	Did not smoke during the pregnancy	Unexposed	356	134
No	Not asked, or did not smoke	Unexposed	6,915	2,768
Yes	Missing	Unclassifiable, excluded	20	9
No	An amount was reported	Contradictory, excluded	4	2
Invalid skip or refused	Any	Unclassifiable, excluded	1,092	191
No pregnancy record	None	Unclassifiable, excluded	177	0
Total			11,551	4,233

Note: Unweighted counts. The alternative codings in Table 3 are as follows. "Any smoking in the 12 months before the birth" classifies all "yes" answers to the first item as exposed. "Women who quit before pregnancy dropped" removes the fourth row from the unexposed group. The exposure-level rows contrast the first row, and the second and third rows combined, with the unexposed group.

Table B2. Analysis Sample by Birth Year: Exposure and Timing of the Mother's Report

Birth year	N	Mother smoked (n)	Mother smoked (%)	Median years from birth to report	Reported within 2 years (%)
1979	243	77	31.7	4	0
1980	287	92	32.1	3	0
1981	318	107	33.6	2	87
1982	357	116	32.5	1	97
1983	330	97	29.4	1	100
1984	339	96	28.3	1	100
1985	392	107	27.3	1	98
1986	304	85	28.0	2	99
1987	344	91	26.5	1	99
1988	301	76	25.2	0	99
1989	374	81	21.7	1	99
1990	112	20	17.9	0	100

Note: Unweighted. The year of the mother's report is approximated from the first maternal interview after the birth, whether the child was her youngest in 1983, and whether the child was covered by the 1986 retrospective update.

Two features of the mother's report matter for interpretation. First, the questions entered the survey in 1983, when each mother was asked about her youngest child, were asked about each new pregnancy from 1984 onward, and were asked retrospectively in 1986 for older children who had been missed (Bureau of Labor Statistics 2025; National Longitudinal Surveys n.d.b). Reports for respondents born in 1979 and 1980 were collected at least three years after the birth, while 99% of reports for those born from 1982 onward were collected within about two years (Table B2). Second, self-reports understate smoking. In one validation study, self-reported prevalence among pregnant women was 24% when a cotinine assay indicated 30% (Shipton et al. 2009). Long-term recall of smoking in pregnancy appears fairly accurate: 95.6% of cotinine-confirmed smokers recalled it an average of 14.5 years later, though recall of the amount was less consistent among heavier smokers (Pickett et al. 2009).

Appendix C. Sample Flow and Comparison of Included and Excluded Cohort Members

Table C1. Sample Flow by the Mother's Original NLSY79 Sampling Group, Births 1979 to 1990

Sampling group	Born 1979 to 1990	Interviewed 2008	Asked political items	Valid outcome	Exposure classified	Analysis sample
Cross-sectional	3,549	2,671	2,517	2,404	2,300	2,134
Supplemental: Black	1,435	1,171	1,102	1,061	1,001	916
Supplemental: Hispanic	1,089	840	798	753	717	638
Supplemental: economically disadvantaged non- Black, non-Hispanic (dropped after 1990)	1,111	0	0	0	0	0
Military (dropped after 1984)	364	15	15	15	13	13
Total	7,548	4,697	4,432	4,233	4,031	3,701

Note: Unweighted counts. Each column applies the step named in addition to those to its left.

Table C2. Included and Excluded Members of the Fielded 1979 to 1990 Birth Cohort

Characteristic	Included (n = 3,688)	Excluded (n = 2,385)	Std. difference	Excluded with data (n)
Female (%)	49.8	46.3	+0.07	2,385
Hispanic (%)	21.9	25.4	−0.08	2,385
Black (%)	34.0	30.3	+0.08	2,385
Non-Black, non-Hispanic (%)	44.1	44.4	−0.01	2,385
Mother's age at the birth (years)	23.46	23.94	−0.13	2,385
Mother's highest grade completed before the birth	11.90	11.67	+0.10	2,385
Mother's AFQT percentile	35.18	33.10	+0.08	2,072
Maternal grandparents' highest grade completed	10.92	10.90	0.00	2,149
Mother lived with both parents at 14 (%)	64.5	60.8	+0.07	2,370
Mother married before the birth year (%)	52.2	51.1	+0.02	2,308
Mother smoked during the pregnancy (%)	28.1	27.2	+0.02	2,025
Mother drank alcohol during the pregnancy (%)	32.6	29.2	+0.07	2,050

Note: Unweighted. The fielded cohort is the 6,073 children born 1979 to 1990 to mothers in the cross-sectional, supplemental Black, and supplemental Hispanic samples. Reasons for exclusion: not interviewed in 2008 (1,391); interviewed but under 18 (265); don't know or refused (199); smoking report not classifiable (200); missing covariate (330). The standardized difference is included minus excluded, divided by the standard deviation in the fielded cohort.

Appendix D. Supplemental Models

Table D1. Full Coefficients of the Primary Model

Term	Coefficient	SE	95% CI
Mother smoked during the pregnancy	-0.214	(0.040)	-0.293, -0.135
Female	0.023	(0.034)	-0.044, 0.090
Hispanic (reference: Black)	0.113	(0.057)	0.003, 0.224
Non-Black, non-Hispanic (reference: Black)	0.081	(0.049)	-0.015, 0.178
Second-born (reference: first-born)	-0.064	(0.041)	-0.144, 0.015
Third-born or later	0.005	(0.052)	-0.096, 0.106
Mother's age at the birth (years)	-0.002	(0.009)	-0.020, 0.017
Mother's highest grade completed before the birth	0.011	(0.012)	-0.012, 0.034
Mother's AFQT percentile	0.002	(0.001)	0.001, 0.004
Maternal grandparents' highest grade completed	0.022	(0.007)	0.008, 0.036
Mother lived with both parents at 14	0.024	(0.040)	-0.054, 0.102
Mother married before the birth year	0.036	(0.042)	-0.046, 0.117
Northeast (reference: North Central)	-0.045	(0.054)	-0.151, 0.061
South	0.072	(0.044)	-0.015, 0.158
West	0.036	(0.054)	-0.071, 0.143
Birth-year indicators (1980 to 1990; reference 1979)	Included		
Intercept	1.776	(0.192)	1.400, 2.152

Note: Weighted least squares; standard errors clustered on the mother; outcome coded 1 (never) to 5 (always). Coefficients on covariates are shown for completeness and are not interpreted.

Estimation details. The 2008 Young Adult sampling weight is derived from the mother's 1979 sampling weight and adjusts for the oversampling of minority families and for differences in interview rates (National Longitudinal Surveys n.d.c). Because the goal is a population average and families were sampled at different rates, the weighted estimate is primary. The survey's own documentation cautions against treating weighted regression as a default (National Longitudinal Surveys n.d.d), and the unweighted estimate uses the same covariates, which include race and ethnicity, the variable on which oversampling was based. The original sampling strata and primary sampling units are not released on the public-use file (National Longitudinal Surveys n.d.d). Because the NLSY79 sampled all

eligible youth in a household, some mothers are sisters and some respondents are cousins, which is why the standard errors are re-estimated with clustering on the mother's 1979 household. In the sensitivity analysis for missing data, covariates are multiply imputed by chained equations with predictive mean matching (20 imputations), using the outcome, the exposure, the other covariates, and the logarithm of the sampling weight, and the estimates are combined with Rubin's rules. This assumes that covariates are missing at random given those variables. Outcomes and exposure are not imputed.

Table D2. Post Hoc Checks of the Sibling Comparison (Not Prespecified)

Check	Estimate	SE	95% CI	Discordant mothers
Raw within-family difference in means, exposed minus unexposed siblings	0.204	(0.088)		148
Prespecified fixed-effects model	0.225	(0.085)	0.058, 0.392	148
Fixed effects, no covariates	0.216	(0.085)	0.050, 0.382	149
Fixed effects, sex and birth-year indicators	0.221	(0.085)	0.054, 0.389	149
Fixed effects, prespecified covariates with birth-year indicators	0.230	(0.086)	0.062, 0.398	148
Fixed effects, adds alcohol during the pregnancy	0.219	(0.086)	0.050, 0.387	148
Fixed effects, same item asked in 2006	0.042	(0.148)	-0.248, 0.331	81
Fixed effects, 2006 and 2008 answers pooled	0.144	(0.079)	-0.012, 0.299	174
Fixed effects, reported voting in November 2006 (proportion)	0.009	(0.052)	-0.093, 0.110	126
Raw within-family difference, mother smoked in earlier pregnancy only	0.221	(0.132)		67
Raw within-family difference, mother smoked in later pregnancy only	0.052	(0.139)		61
Raw within-family difference, mother mixed	0.608	(0.202)		20

Note: All models unweighted with standard errors clustered on the mother. A within-family permutation test of the prespecified model (5,000 random reassignments of exposure among siblings in discordant families) gives a two-sided p-value of 0.014. Dropping one discordant family at a time, the prespecified estimate ranges from 0.208 to 0.239. These checks were added after the prespecified result was seen and are exploratory.

Table D3. Post Hoc Analysis of the Answer "Never" (Not Prespecified)

Model	Difference (pct. points)	SE	95% CI	N	Ratio of shares
Unadjusted	+8.5	(1.8)	5.1, 12.0	3,701	1.59
Demographic covariates	+8.2	(1.8)	4.7, 11.6	3,701	1.56
Primary covariates	+6.2	(1.8)	2.7, 9.7	3,701	1.41
Mother fixed effects (sibling comparison), unweighted	-11.2	(4.1)	-19.1, -3.2	2,722	
Same families without fixed effects, unweighted	+4.5	(1.8)	0.9, 8.0	2,722	

Note: Linear probability models for answering "never" (1) versus any other answer (0) to the government-responsiveness item, with standard errors clustered on the mother. The first three rows use the analysis sample, the 2008 Young Adult sampling weight, and the covariate sets of Table 2; differences are smoked minus did not smoke. The ratio is the model-based share for respondents whose mothers smoked divided by the share for the others. The weighted shares are 23.1% and 14.5%. The sibling model is the prespecified one with the binary outcome and is identified by 148 mothers; among their children the unweighted share is 16.2% for the 185 from pregnancies with smoking and 25.8% for the 178 from pregnancies without. This analysis was added on October 12, 2026, after all prespecified results had been seen, and is exploratory.

Table D4. Secondary Outcome: Reported Voting in the November 2006 National Election

Model	Difference (pct. points)	SE	95% CI	N	Mothers
(1) Unadjusted	-5.3	(2.4)	-10.0, -0.6	2,978	1,972
(2) Demographic	-5.9	(2.4)	-10.6, -1.1	2,978	1,972
(3) Prespecified covariates	-3.5	(2.4)	-8.3, 1.2	2,978	1,972
Logistic regression, prespecified covariates (odds ratio)	0.85		0.67, 1.06	2,978	1,972

Note: Linear probability models, weighted, with standard errors clustered on the mother; N is the number of respondents. The outcome is 1 if the respondent chose "I am sure I voted" and 0 if the respondent chose one of three statements indicating not voting; it was asked only of respondents old enough to vote in November 2006. The weighted share reporting a vote is 33.0% among respondents whose mothers smoked during the pregnancy and 38.3% among the others. Differences are smoked minus did not smoke. This is a single exploratory outcome.

Table D5. Smoking and Political Items in the Parent Generation, and Estimates by Race and Ethnicity

Group or model	Estimate	SE	95% CI	n
<i>Weighted mean answer and share answering "never", by sex and smoking status in 2008</i>				
Men, never smoked	2.48		12%	1,446
Men, former smoker	2.38		16%	1,125
Men, current smoker	2.20		23%	1,116
Women, never smoked	2.49		10%	1,730
Women, former smoker	2.40		13%	1,150
Women, current smoker	2.14		25%	950

Group or model	Estimate	SE	95% CI	n
<i>Current smokers vs never smoked, other items (all respondents, baseline covariates)</i>				
Other people can be trusted (1 to 5)	-0.16	0.03	-0.23, -0.10	6,928
Follows politics (1 to 5)	0.02	0.04	-0.06, 0.10	6,940
Reports voting in November 2006 (proportion)	-0.151	0.017	-0.184, -0.117	6,910
<i>Current smokers vs never smoked, government responsiveness, further specifications</i>				
Men, unadjusted	-0.28	0.04	-0.36, -0.19	3,687
Women, unadjusted	-0.34	0.04	-0.42, -0.27	3,830
Men, adding 2008 circumstances	-0.07	0.05	-0.17, 0.03	2,915
Women, adding 2008 circumstances	-0.22	0.04	-0.30, -0.13	3,100
Men, daily smokers	-0.15	0.05	-0.25, -0.06	2,340
Men, occasional smokers	-0.13	0.08	-0.29, 0.04	2,340
Women, daily smokers	-0.26	0.05	-0.35, -0.17	2,501
Women, occasional smokers	-0.24	0.08	-0.39, -0.09	2,501
Men, smoker at every interview from 1992 to 2008	-0.13	0.05	-0.24, -0.03	1,934
Women, smoker at every interview from 1992 to 2008	-0.23	0.05	-0.33, -0.14	2,184
Sibships of brothers only	-0.17	0.13	-0.41, 0.08	765
Sibships of sisters only	-0.21	0.14	-0.48, 0.07	680
<i>By race and ethnicity</i>				
Parent generation, current vs never smoked, Non-Black, non-Hispanic	-0.20	0.04	-0.27, -0.12	3,540
Parent generation, current vs never smoked, Black	-0.13	0.05	-0.24, -0.03	2,120
Parent generation, current vs never smoked, Hispanic	-0.19	0.08	-0.34, -0.04	1,289
Adult children, mother smoked in the pregnancy, Non-Black, non-Hispanic	-0.23	0.05	-0.33, -0.13	1,630
Adult children, mother smoked in the pregnancy, Black	-0.10	0.06	-0.22, 0.02	1,259
Adult children, mother smoked in the pregnancy, Hispanic	-0.12	0.09	-0.31, 0.06	812

Note: Parent-generation models use the 2008 NLSY79 weight, baseline covariates (birth year, race and ethnicity, test score, parents' schooling, family structure at age 14, and sex where pooled), and standard errors clustered on the 1979 household. In the first panel the "Estimate" column is the weighted mean answer and the "95% CI" column is the weighted share answering "never." The last three rows use the primary model of Table 2 within each group. These analyses were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Table D6. Markers of the Political Outlook of the Home

Marker	n	Difference by pregnancy smoking	95% CI	Association with respondent's answer	95% CI
<i>Reported by the mother in 2008</i>					
Mother's own answer to the same item, 2008 (1 to 5)	3,341	-0.21	-0.31, -0.12	0.10	0.06, 0.14
Mother's trust in other people, 2008 (1 to 5)	3,419	-0.16	-0.27, -0.05	0.03	-0.01, 0.07
Mother follows politics, 2008 (1 to 5)	3,427	0.00	-0.13, 0.14	0.02	-0.01, 0.05
Mother reports voting in November 2006	3,430	-0.080	-0.136, -0.023	0.050	-0.030, 0.131
Mother names no party, 2008	3,152	0.023	-0.041, 0.086	-0.087	-0.168, -0.005
<i>Recalled by the respondent (asked once, age 21 or older)</i>					
Adults at home talked about politics (1 to 5)	2,896	0.01	-0.09, 0.12	0.07	0.03, 0.11
Mother followed politics (1 to 5)	2,579	0.02	-0.11, 0.14	0.06	0.02, 0.10
Father or father figure followed politics (1 to 5)	2,365	-0.06	-0.21, 0.09	0.05	0.02, 0.09
Cannot say which party mother favored	2,908	0.057	0.010, 0.104	-0.025	-0.113, 0.064
Cannot say which party father favored	2,906	0.083	0.034, 0.131	-0.042	-0.131, 0.046

Note: The third column is the coefficient on maternal smoking during the pregnancy with the marker as the outcome and the primary covariates of Table 2. The fifth column is the coefficient on the marker in the primary model for perceived government responsiveness, one marker at a time. Items scored 1 to 5 are coded so that higher values mean more favorable views or more engagement; the others are proportions. Weighted; standard errors clustered on the mother. These analyses were not prespecified. Source: NLSY79 and NLSY79 Child and Young Adult public-use files.

Table D7. General Social Survey: Respondents With Valid Answers to Each Item, by Survey Year

Year	Interviewed	Smoking item	% who smoke	Ever smoked regularly	Confidence in executive	Trust in people
1977	1,530	1,524	42	not asked	1,477	not asked
1978	1,532	1,531	39	873	1,479	1,528
1980	1,468	1,467	41	850	1,416	1,461
1983	1,599	1,597	37	996	1,545	800
1984	1,473	1,467	37	908	954	1,461
1986	1,470	1,466	33	949	1,427	1,466
1987	1,819	1,814	32	1,183	1,750	1,808
1988	1,481	995	34	608	960	990
1989	1,537	1,033	30	667	984	1,030
1990	1,372	897	32	588	869	898
1991	1,517	1,016	31	677	990	1,013
1993	1,606	1,055	27	756	1,020	1,052
1994	2,992	511	28	363	1,961	1,995
Total	21,396	16,373	35	9,418	16,832	15,502

Note: Unweighted counts of respondents with a substantive answer, for every survey year in which the smoking item was asked. The percentage who smoke is unweighted; the weighted figure for all years is 34%. "Ever smoked regularly" was asked of respondents who said they did not smoke. From 1988 the smoking item was asked of about two-thirds of each sample, and in 1994 of a smaller subsample. In 1984 the confidence items were asked on two of three questionnaire forms, and in 1983 the trust item was asked of half the sample. The counts in the last two columns are of all respondents and not only those asked the smoking item. Source: General Social Survey 1972-2024 cumulative file, Release 3a.

Appendix E. Analysis Plans and Deviations

Three plans were written. None was registered with an external registry. All three, with their recorded hashes and a dated log of deviations, are included with the replication materials.

The first plan (October 10, 2026) was written after the survey documentation had been reviewed and the eligible sample counted, and before any association between maternal smoking and an outcome was estimated. It fixed the sample, the coding of the exposure and the outcome (analyzed as a mean difference, with "don't know" and refusals excluded), the covariates, the weighted primary model with standard errors clustered on the mother, the sensitivity analyses reported in Table 3 together with the multiple imputation and the robustness value, the secondary outcome (labeled exploratory), and the interpretation rules, each as described in the Data and Measures and Methodology sections. *Not planned:* subgroup analyses, other political outcomes, or mediation analyses.

Departures from the first plan. (1) *Added after the results were seen:* the checks of the sibling comparison reported in Table D2. (2) *Clarification:* the plan cited 149 exposure-discordant mothers from the feasibility count; requiring complete data on the sibling model's covariates leaves 148. (3) *Clarification:* the comparison of included and excluded cohort members in Table C2 is unweighted, because cohort members who were not interviewed in 2008 have no 2008 weight. (4) *Added after the results were seen:* the analysis of the answer "never" as a binary outcome reported in Table D3.

The second plan (October 12, 2026) was written after the results above were known and before any of its analyses were run. It states the three questions, the assumed relations among the variables, the timing and role of each additional measure, the analyses reported in Tables 4 through 8, the fixed list of six related outcomes, the analysis of the parent generation, and the reading that each pattern of results would receive. Its analyses depart from the first plan's statement that no other political outcomes and no subgroup analyses were planned. All of them are exploratory.

Additions to the second plan, made after its analyses had been seen.

(1) The month of the 2008 interview as a covariate. (2) The calculation of how far misreported exposure could weaken the within-family estimate, calibrated on birth weight. (3) The classification of mothers by their pregnancy reports in the parent-generation analysis, and the three other political items asked of that generation. (4) The six related outcomes by whether the mother smoked in any pregnancy, and the association of each marker of the home with the respondent's answer. (5) Own smoking and pregnancy smoking entered together within families. (6) The mother's smoking in 2008, for respondents and for the mothers' own answers. (7) The sequence of Table 8, including family circumstances during childhood and the respondent's schooling. (8) Estimates by race and ethnicity in both generations (Table D5). (9) Birth weight within families by the source of the smoking reports. (10) Mothers who smoked in the year before the birth but stopped for the pregnancy.

Two results that the second plan did not anticipate. The plan paired "children of mothers who smoke outside pregnancy resemble the unexposed" with a negative within-family estimate, as joint evidence for a source specific to the pregnancy. The data show the first without the second, and the paper reports the configuration as found. The plan's rule for the sign of the sibling estimate was applied as written: the positive sign does not hold in the 2006 answers or where reports came from one instrument, so it is described as not negative.

The third plan (October 12, 2026) was written after the analyses of the second plan had been seen and before any General Social Survey data had been downloaded, tabulated, or viewed. Its hash was recorded that day and verified on October 13, 2026, before the data were downloaded. It specified the data (the General Social Survey cumulative file, all years in which the smoking item was asked), the exposure (current smoker versus not, with former and never smokers separated where the survey allows), the outcomes (confidence in the executive branch primary, trust in other people second, and confidence in Congress reported alongside), the two models, the predictions, and the reading rule described in the Methodology section. *Stated limits:* no information on smoking in pregnancy or on the next generation, and no means of establishing the direction of the relationship.

Corrections and additions to the third plan (October 13, 2026). The plan required that its variable names and years be confirmed in the codebook before any cross-tabulation. Each variable was read in the codebooks and tabulated on its own by year, and the following were logged before smoking was related to any

outcome. (1) *Confirmed*: the smoking item was asked in 13 surveys from 1977 through 1994, and the two confidence items in all of them. (2) *Correction of years*: the trust item and the item on past smoking were not asked in 1977, so the test of the second prediction and the comparison of former with never smokers use 12 surveys. (3) *Coding*: the confidence items are stored with 1 for "a great deal" and were reversed to match the plan. (4) *Correction of a variable*: in the release used (Release 3a), the region variable holds the four census regions and not the nine divisions it formerly held, and the planned models use the four regions. (5) *Details the plan left open*: the post-stratification weight WTSSPS, which also accounts for the 1987 oversample of Black respondents; HC1 standard errors; the logarithm of family income in constant dollars; and "don't know" treated as missing. After the planned models had been run, three checks were added: the first model with the nine census divisions, with standard errors clustered on primary sampling units, and without weights (Table 9, Panel D). The reading rule was applied to the planned first model only.

Appendix F. Data Sources and Reproducibility

All data are public-use files distributed without charge. The NLSY79 files are distributed by the U.S. Bureau of Labor Statistics through the National Longitudinal Surveys website. The NLSY79 Child and Young Adult file for 1979 through 2020 (release version 532) and the NLSY79 file for 1979 through 2022 were downloaded from nlsinfo.org on October 10, 2026. The General Social Survey cumulative file for 1972 through 2024 (Release 3a, July 2026) and its codebooks were downloaded from gss.norc.org on October 13, 2026. No restricted or geocoded data were used, and no identifying information is included in the project files. Mothers and children were linked by the public identification codes supplied on the files.

The analysis was carried out in Python 3.9 with the `pandas`, `numpy`, `scipy`, `statsmodels`, `patsy`, and `matplotlib` libraries. The replication materials contain the scripts that extract the variables from the downloaded files, construct the analysis files, estimate every model, and produce every table and figure in this paper, together with a description of the data sources, variable dictionaries listing the official reference number and coding of each variable, the three analysis plans, and the log of deviations. The General Social Survey replication is a single script that reads the downloaded archive. The primary estimates were re-derived from the downloaded files with independently written code, and all agreed.

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