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Keywords: media influence; religious broadcasting; electoral behavior

JEL Codes: D72, L82, Z12

*Trinity College Dublin. I am grateful to Tianyi Wang for helpful advice and to Benjamin Olken for generously sharing the ITM software. All errors are my own.

1 Introduction

The entanglement of religion and politics in the United States has grown increasingly pronounced over the past five decades. While religious leaders have long intervened in public debates, the late twentieth century witnessed a marked transformation: a growing segment of evangelical Christians began to align with the Republican Party, culminating in the emergence of a self-conscious and institutionally embedded "religious right". This shift, initially catalysed by figures such as Jerry Falwell and the Moral Majority in the 1980s (Buccione and Knight, 2024), has since evolved into a durable feature of American electoral politics. Its influence was vividly on display during the January 6 Capitol riot, where Christian nationalist symbols and rhetoric were prominently featured among the rioters. Recent scholarship has explored how elite religious endorsements, voter identity, and single-issue activism contributed to this realignment. Yet, the role of religiously infused media institutions in sustaining and expanding the political power of conservative Christians remains incompletely understood.

This paper examines the political consequences of Salem Communications, a major Christian-conservative radio network that grew rapidly in the decades following Reagan's presidency. Unlike earlier evangelical movements, which relied on televangelism and denominational outreach, Salem constructed a vertically integrated national media apparatus fusing religious content with partisan commentary. Between 1994 and 2005, Salem expanded from 18 to over 100 stations, capitalising on deregulatory changes in broadcasting, particularly the repeal of the Fairness Doctrine in 1987 and the Telecommunications Act of 1996. Branded channels such as "The Patriot" and "The Answer" enabled Salem to target audiences already primed by Christian teaching programs and deliver coordinated political messaging.

I study whether, and to what extent, this expansion altered political behaviour. Specifically, I test whether counties exposed to Salem broadcasts experienced higher Republican vote share in presidential elections compared to otherwise similar counties without such exposure. To identify causal effects, I exploit two sources of variation. First, I leverage the staggered rollout of Salem-owned stations across space and time, which generated variation in initial exposure windows across counties. Second, and more critically, I isolate quasi-random variation in signal strength generated by local topography. Using the Irregular Terrain Model, a professional radio propagation algorithm, I estimate the actual signal power received by each county in each year as a function of distance, transmitter strength, and elevation-induced signal loss. I then construct a counterfactual signal measure assuming

flat terrain and condition on this predicted free-space exposure to purge endogenous variation from station location choices. The resulting identification strategy isolates variation in received signal strength that is plausibly exogenous to underlying political, demographic, or religious characteristics. I combine this with a long panel of U.S. counties from 1980 to 2020 and implement both difference-in-differences and staggered event-study designs to estimate the short-run and persistent effects of exposure to partisan religious broadcasting.

My analysis combines several novel data sources. I digitise monthly station ownership records from *Broadcasting and Cable Magazine* and merge them with engineering records from the Federal Communications Commission that report station location, effective radiated power, and antenna height. I use these parameters to estimate county-level signal coverage using the Irregular Terrain Model, a professional radio propagation algorithm validated in prior economic research (Wang, 2021). These broadcast data are linked to county-level presidential election returns from 1980 to 2020 and to measures of religious adherence from the Longitudinal Religious Congregations and Membership File. The resulting panel enables a granular analysis of both short-run and long-run effects across counties with differing demographic and religious profiles.

I find that increased exposure to Salem's broadcasts led to a statistically significant and persistent rise in Republican presidential vote share. In the initial expansion period from 1992 to 1996, a one standard deviation increase in terrain-adjusted signal strength raised Republican vote share by approximately 0.8 percentage points, with effects concentrated in counties with high evangelical Protestant populations. Event-study estimates reveal that these shifts emerged immediately following first exposure and persisted over subsequent presidential elections, with no evidence of pre-trends or anticipatory effects. Extending the panel through 2020, I show that early-treated counties exhibit long-run partisan realignment, with elevated Republican support persisting through at least five election cycles. While aggregate effects attenuate modestly over time, they remain especially pronounced in ideologically receptive counties. These findings suggest that exposure to Salem's religious-conservative programming not only shaped short-run vote choices but produced durable changes in political preferences. The estimated persuasion rate, approximately 3 percent of listeners, places the effect within the lower range of influential media interventions,[1] yet its persistence and demographic specificity suggests lasting political consequences of ideologically targeted religious broadcasting.

[1]For comparison, DellaVigna and Kaplan (2007) estimate that exposure to Fox News persuaded 11.6% of viewers in newly treated markets. Other studies report persuasion rates ranging from 6% to 20% (e.g., Enikolopov et al., 2011; DellaVigna et al., 2014; Adena et al., 2015).

This paper makes several contributions to the literatures on media influence, religious mobilisation, and electoral behaviour. First, I contribute to a growing body of work examining how religious media institutions influence political preferences and behaviour. While previous studies have shown that individual religious leaders or organisations can shift voter allegiances, such as the Moral Majority's endorsement of Ronald Reagan over Jimmy Carter in 1980 (Buccione and Knight, 2024), this paper shifts focus to the institutional media infrastructure that helped sustain and scale such mobilisation in the decades that followed. In contrast to earlier work emphasising the role of elite endorsements, televangelism, or candidate religiosity, I study a deregulation-enabled, profit-driven radio network that fused conservative theology with partisan messaging over a much longer period.

Second, I add to the literature on media effects in political settings by introducing new evidence on religiously affiliated broadcast infrastructure. Whereas much of the existing work focuses on state-sponsored or secular commercial media, such as Nazi radio in Germany (Adena et al., 2015), Mediaset in Italy (Durante et al., 2019), or Fox News in the U.S. (DellaVigna and Kaplan, 2007), I show that religious commercial broadcasters can operate with parallel persuasive power. Relatedly, I extend insights from Wang (2021), who studies the influence of a charismatic Catholic radio demagogue in the 1930s, by focusing on the institutionalisation of that model: a corporate media network with national reach, formal syndication agreements, and programmatic alignment with electoral goals.

Third, this paper contributes to the study of how deregulation and market structure shape political outcomes. Salem's expansion was facilitated by the repeal of the Fairness Doctrine in 1987 and the Telecommunications Act of 1996, both of which loosened content neutrality requirements and ownership caps. I provide new evidence on how these regulatory changes allowed ideologically motivated actors to reshape local media environments and voter behaviour over time. In doing so, the paper complements research on the long-run consequences of media deregulation (Prat and Strömberg, 2013), while emphasising the distinct role of religious content and religious audiences in these dynamics. While not the central focus of the paper, the findings suggest that structural shifts in media policy can have broader implications for the political information environment.

Finally, this paper contributes to the broader literature on single-issue voters and political mobilisation. Like previous work showing how intense preferences on issues like abortion or gun rights can shape turnout and candidate support (Bouton et al., 2021), I show that religiously grounded media messaging can catalyse political engagement in ways responsive to theological identity. This dynamic is especially salient in areas with high evangelical ad-

herence, where listeners were primed to respond to narratives that link politics with spiritual stakes.

Taken together, these contributions advance our understanding of how institutional media networks can fuse religious and political messaging, mobilise partisan constituencies, and reshape the U.S. electoral landscape in the post-Fairness Doctrine era. The remainder of the paper proceeds as follows. Section 2 provides historical context on evangelical mobilisation and the rise of Salem Communications. Section 3 describes the construction of the dataset. Section 4 outlines the empirical strategy, including the radio signal model and identification approach. Section 5 presents the main findings and robustness checks and Section 6 concludes.

2 Background

2.1 Salem: Christian Radio and Conservative Politics

Salem Media Group is a publicly traded media conglomerate specialising in Christian and conservative content. Founded in 1974 by Edward Atsinger III and Stuart Epperson Sr., the company grew from a small religious broadcaster into one of the largest owners of AM radio stations in the United States. As of 2023, Salem owned 103 stations in 36 markets, including 63 in 23 of the top 25 U.S. media markets, comprising 33 FM and 70 AM stations.[2] These stations operate under three principal formats: Christian Teach and Talk (CTT), Conservative News Talk, and Christian Contemporary Music.

From its inception, Salem's founders have operated at the nexus of ministry and politics. Both men served on the Council for National Policy (CNP), a private network of Christian conservatives and Republican donors, where they championed a vision of the United States as a "Christian nation" and opposed secular influences they deemed morally corrosive.[3] Epperson, named one of Time magazine's 25 most influential evangelicals in 2005, played a central role in articulating this worldview.[4] In the mid-1980s, he twice ran unsuccessfully for Congress as the Republican nominee in North Carolina's fifth district. Meanwhile, Atsinger co-founded the Allied Business PAC in the early 1990s, which spent over $9 million support-

[2]See Ballotpedia, "Salem Media Group," https://ballotpedia.org/Salem_Media_Group.

[3]SPLC, "Council for National Policy," 2016 - https://www.splcenter.org/resources/hatewatch/council-national-policy-behind-curtain/

[4]See https://content.time.com/time/specials/packages/completelist/0,29569,1993235,00.html

ing conservative candidates and was instrumental in the Republican capture of the California State Assembly in 1994.[5]

It was during this period that Salem began pioneering a strategy of co-locating Christian teaching with conservative political talk, using religious programming as a gateway to promote partisan content and build a cohesive, ideologically aligned audience. In 1995, the company formally announced its shift from an exclusively religious format to one that explicitly incorporated conservative political radio.

This transformation was not only ideological but also operational. According to its 2004 Annual Report, Salem reprogrammed nearly all acquired stations with explicitly Christian and conservative content, and required several years of local promotion to build new listener bases. Though Salem publicly described its audience as "Christian and family-themed," its programming consistently aligned with the theological and political worldview of white evangelical Protestants, a group central to the company's revenue model and ideological strategy.[6] To deepen market penetration, Salem pursued a cluster strategy in major cities, operating multiple stations per market, each aimed at a different segment of the evangelical audience, whether through sermons, news talk, or contemporary Christian music. This clustering allowed Salem to bundle audiences for advertisers, cross-promote ideologically aligned content, and embed itself in local evangelical communities. It also partnered with churches and religious organisations, hosted pastor appreciation events and Christian music festivals, and maintained block programming renewal rates exceeding 90 percent annually.

This capacity to mobilise evangelical audiences was evident even prior to Salem's national expansion. In 1988, KKLA-FM, a Salem-owned Christian talk station in Los Angeles, played a role in coordinating evangelical protest against the film *The Last Temptation of Christ*. Host John Stewart used his broadcast to organise rallies that ultimately brought more than 25,000 protesters to the gates of Universal Studios, a moment he later described as the first time many evangelicals realised they could act collectively in the public square.[7] This episode shows how Salem stations functioned not only as ideological platforms, but as infrastructure for religious mobilisation capable of activating coordinated protest around a Christian nationalist worldview.

By the 2010s, Salem's political interventions extended beyond broadcasting. It co-sponsored and helped moderate Republican primary debates in 2015, 2016, and 2023, and internal

[5]Los Angeles Times, 1997.https://www.latimes.com/archives/la-xpm-1993-07-08-mn-11197-story.html
[6]Salem Communications, 2004 Annual Report, SEC Form 10-K.
[7]Orange County Register, "Recalling the Time Local Christians Took on Hollywood," August 15, 2008.

reports reveal that company executives pressured radio hosts to portray Donald Trump more favourably during his presidential campaigns.[8] In one high-profile incident, longtime conservative radio host Craig Silverman was fired mid-broadcast after criticising Trump, an act he described as politically motivated censorship.[9] These episodes reflect Salem's commitment to shaping partisan loyalties, not just through ideology but through direct editorial control.

Salem's national expansion was catalysed by two regulatory turning points. First, the repeal of the Fairness Doctrine in 1987 lifted the requirement for broadcasters to present opposing views on controversial issues. Second, the Telecommunications Act of 1996 eliminated limits on station ownership, paving the way for rapid consolidation. Between 1994 and 2005, Salem expanded from 18 stations to more than 100.[10] Unlike commercial broadcasters reliant on advertisers, Salem's revenue model has long been sustained by paid religious programming, which insulates its operations from commercial backlash and enables long-term ideological consistency.[11]

Regarding content, Salem promotes a distinctly Christian nationalist worldview. Internal strategy documents highlight the coherence of this programming vision. According to its 2003 Annual Report, the company viewed Christian teaching and conservative news talk as complementary vehicles for advancing "conservative views and family values".[12] The report emphasised that Christian teaching served as both "a learning resource and personal support," helping listeners navigate issues ranging from parenting to their "religious legal rights in education and the workplace". In this framing, Salem's stations function not merely as broadcasters but as platforms for religious and political instruction. News and talk formats were selected for their ideological alignment with Christian teaching, reinforcing a shared worldview across different program genres. As the company put it, this strategy positioned Salem to "improve upon its leadership position in religious and family-themes radio".

Salem's existing syndicated hosts, including Eric Metaxas, Charlie Kirk, and Sebastian Gorka, have used their national reach to promote narratives of cultural decline, elite betrayal, and Christian persecution, frequently advancing conspiracy theories about election

[8] New York Times, 2023https://www.nytimes.com/2023/11/08/us/politics/moderators-nbc-republican-debate.html; CNN, 2018 https://money.cnn.com/2018/05/09/media/salem-radio-executives-trump/index.html

[9] NPR, 2019 https://www.npr.org/2019/11/23/782255191/radio-host-says-he-was-fired-for-criticizing-trump

[10] See FCC ownership filings; Divided Dial, Episode 2.

[11] See Salem Communications SEC FORM 10-K filings.

[12] Salem Communications, 2003 Annual Report, SEC Form 10-K.

fraud and government corruption. As of 2025, these hosts had a combined following exceeding 10 million across the popular political social media platforms X and Truth Social. In 2020, Salem served as executive producer of *2000 Mules*, a widely discredited film alleging widespread voter fraud in key swing states.[13] Lawsuits stemming from the film prompted Salem to cease its distribution in 2024.[14] Yet as late as 2022, its nationally syndicated hosts continued to promote claims of a "stolen election," placing Salem among the few major networks that refused to moderate their messaging in the aftermath of the January 6 Capitol Riots.

According to senior executives, this model is intentional. Phil Boyce, Salem's senior vice president of spoken word, explained that the company aims not for commercial appeal but for ideological impact: "We're in it to save America". Hosts are not journalists, he noted, but "storytellers, opinion makers, thought leaders".[15] The result is a broadcasting ecosystem that operates largely out of sight of national media scrutiny, but which plays a critical role in shaping political discourse among conservative religious communities.

This transformation is central to the identification strategy in this paper. In 1995, Salem formally announced that it was transitioning from exclusively religious broadcasting to a format that explicitly combined Christian teaching with conservative political talk. This marked a strategic inflection point: the company began integrating ideological content across its stations, systematically co-locating religious and right-wing political programming to cultivate a cohesive, mobilised listenership. The years immediately surrounding this shift, particularly the 1992 to 1996 period, therefore represent a natural window in which to study the political consequences of exposure to partisan religious broadcasting. My empirical strategy leverages this timing to isolate the effect of ideological content delivery, not merely radio expansion, by focusing on Salem's initial market entries during the moment it redefined its programming model.

[13] See Reuters (2022)https://www.reuters.com/article/factcheck-usa-mules/fact-check-does-2000-mules-provide-evidence-of-voter-fraud-in-the-2020-u-s-presidential-election-idUSL2N2XJ0OQ/, CNN "'2000 Mules' creator admits some of film's claims are flawed", Dec 2024 https://edition.cnn.com/2024/12/02/politics/2000-mules-creator-admits-some-of-films-claims-are-flawed, and Washington Post, "2000 Mules, a key piece of election misinformation, has its day in court", Oct 2023 for investigations into the film's claims and Salem's distribution.

[14] CNN, "Right-wing media company Salem apologizes, stops distributing 2020 election conspiracy film '2000 Mules' after lawsuit," May 2024 https://edition.cnn.com/2024/05/31/media/salem-will-stop-distributing-2000-mules

[15] See "The Divided Dial," Episodes 2 and 5 available at https://www.wnycstudios.org/podcasts/otm/divided-dial.

Religious Realignment and the Clinton Presidency The early 1990s were a period of political uncertainty among religious voters, particularly white evangelical Protestants. In the 1992 presidential election, Bill Clinton attracted notable support from this group, receiving approximately 35 percent of the white evangelical vote, an increase from the 24 percent received by Democratic candidate Michael Dukakis in 1988.[16] Clinton's Southern background and emphasis on family values were often cited as factors contributing to his initial appeal. However, by the 1996 election, this support had declined, with Clinton receiving closer to 26 percent of the white evangelical vote.[17]

The decline in support coincided with broader debates within religious communities about the role of moral character in public leadership, as well as growing concern over social issues such as abortion, LGBTQ rights, and church-state separation. These discussions took place alongside a broader shift in partisan alignment among evangelical voters, which had been underway since the 1980s and continued through the 1990s.

Salem's decision to integrate conservative political talk with Christian teaching occurred during this period of reorientation within the religious electorate. Its programming shift followed closely after the 1994 midterm elections, in which Republicans gained control of Congress, and emerged in a media environment increasingly oriented toward ideological targeting. These developments provide historical context for understanding the religious and political landscape in which Salem expanded its broadcasting model.

2.2 Deregulation

Salem's transformation from a niche religious broadcaster into a national network of politically conservative radio stations was made possible by two major deregulatory shifts in U.S. media policy: the repeal of the Fairness Doctrine in 1987 and the passage of the Telecommunications Act of 1996.

The Fairness Doctrine, implemented by the Federal Communications Commission (FCC) in 1949, required licensed broadcasters to present contrasting viewpoints on controversial issues of public importance. Its aim was to ensure ideological diversity on the public airwaves, given their limited bandwidth and public licensing. While initially seen as a safeguard against propaganda and demagoguery, critics, including many conservatives, argued that it had a

[16] ABC News exit polls, 1992; Green et al. (1996).

[17] Pew Research Center, "Religion and the 1996 Vote," 1996.

chilling effect on speech by discouraging stations from airing political content altogether. In 1987, under the Reagan administration, the FCC formally abolished the doctrine, concluding that it was no longer necessary in an increasingly diverse media environment.[18] The repeal enabled stations to adopt ideologically consistent programming without legal obligation to provide balance, catalysing the rise of single-perspective formats such as conservative talk radio.

The second, and arguably more consequential, shift came with the Telecommunications Act of 1996. Signed into law by President Bill Clinton, the Act marked the most comprehensive overhaul of American media regulation in over six decades. Among its many provisions, it eliminated national caps on the number of radio stations a single firm could own and significantly relaxed local ownership limits.[19] Prior to 1996, a firm could own no more than 40 radio stations nationwide. After the Act, no national limits applied, and local ownership caps were doubled or eliminated, depending on market size.

The effects were immediate and dramatic. The late 1990s and early 2000s witnessed a wave of consolidation, with large conglomerates such as Clear Channel (now iHeartMedia) acquiring hundreds of stations nationwide. Salem Communications followed suit, expanding from just 18 stations in 1994 to over 100 by 2005.[20] Crucially, Salem was one of the few broadcasters that simultaneously scaled religious and political programming, often colocating "Christian Teach and Talk" (CTT) stations with their conservative talk brands, such as "The Patriot" and "The Answer". These stations shared audiences, infrastructure, and cross-promotional airtime.

3 Data

This section describes the construction of three core datasets: the expansion of Salem radio stations, the geographic reach of their broadcasts, and county-level voting outcomes. Together, these data allow me to estimate the causal effect of conservative Christian radio exposure on electoral behaviour.

[18] See FCC Report, "Fairness Doctrine Complaint of Syracuse Peace Council against Telelevision Station WTVH. Syracuse. New York," 1987 https://quello.msu.edu/wp-content/uploads/pdfs/OCR_James_H_Quello_498.pdf.

[19] Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56.

[20] FCC Ownership Reports; Divided Dial, Episode 2.

3.1 Radio Expansion

To document Salem Media Group's expansion, I compile a novel dataset on the full history of Salem-owned AM and FM radio stations between 1980 and 2020. The primary source is *Broadcasting & Cable Magazine*, a monthly trade publication that regularly reports changes in station ownership, format, and market entry. I digitise and manually code Salem's acquisition and launch dates, as well as the city of license, station frequency, and call sign for each listed property[21] (see Figure A.1 for an example). For stations with broadcast call signs which change over time, I track these changes using the address of the broadcast tower and the ownership details to ensure consistency between signals with changing broadcast signs[22]. I cross-reference these station broadcast call signs and locations with Salem SEC filings and Annual reports to confirm purchase and transmission launch dates. These data are further cross-referenced with license and engineering records from the Federal Communications Commission (FCC), which include precise tower coordinates, transmitter power (in kilowatts), and antenna height (in meters). See **??** for a detailed table of all stations ownership dates by Presidential election year.

For each station, I confirm transmission parameters using the FCC's Consolidated Database System (CDBS) and Licensing and Management System (LMS), ensuring consistent technical metadata across the full sample.[23] These data form the basis for the subsequent estimation of broadcast signal coverage and intensity. Between 1992 and 2005, Salem expanded from 18 to over 100 stations, with a notable clustering of new entries in major urban centres and counties with large evangelical populations. I focus on stations operating on the contiguous US, i.e. excluding Hawaii (see Table 3.1 below.)

3.2 Radio Coverage

A central challenge in estimating the political effects of Salem's broadcasting expansion is that direct measures of radio exposure are unavailable at a fine geographic scale. To overcome this, I construct a measure of signal strength by modelling the effective reach of each Salem transmitter across U.S. counties. Radio signal propagation follows well-established physical

[21] I obtain archival pdf versions of each issue from https://www.worldradiohistory.com/Archive-All-BC/Broadcasting-Magazine.htm

[22] For example, KDOW (1220 AM) in Palo Alto, California, has undergone several call sign changes, originally KIBE (1949–1984), then KDFC (1984–1997), KBPA (1997–1999), KBZS (1999–2001), KSFB (2001–2004), and KNTS (2004–2008), before adopting its current identifier. Despite these changes, the signal and ownership lineage remain traceable through FCC tower registration and licensing data.

[23] FCC CDBS and LMS Public Access Databases. See: `https://www.fcc.gov/media/radio/cdbs-database-public-files`

Table 3.1: Number of Salem-Owned Stations (Contiguous US)

Year	1980	1984	1988	1992	1996	2000	2004	2008	2012	2016
Stations	5	8	15	18	34	71	93	92	92	93

Political Switch

laws: in free space, signal strength diminishes with distance, while terrain features such as hills and elevation changes can significantly attenuate transmission. I capture this variation using the Irregular Terrain Model (ITM), a professional engineering algorithm developed by the U.S. Department of Commerce. The ITM accounts for both transmitter characteristics and local topography, and has been validated in recent empirical work on media effects (Olken, 2009; Yanagizawa-Drott, 2014; Durante et al., 2019; Wang, 2021).[24]

For each Salem transmitter, I collect technical specifications including frequency (MHz), effective radiated power (ERP), and antenna height above average terrain (HAAT) from Federal Communications Commission (FCC) license records. I combine these with 90-meter resolution elevation data to calculate the ITM-predicted signal loss between each transmitter and the centroid of every U.S. county. The resulting path loss estimates allow me to compute predicted signal strength for each transmitter–county pair. I assign each county the maximum predicted signal strength across all transmitters active in a given year. This continuous measure of signal exposure forms the basis of my empirical analysis (see Appendix C for complete calculations).

To address the concern that Salem may have strategically located transmitters in politically receptive areas, I follow the approach of Olken (2009) and construct a "counterfactual" signal strength assuming flat topography. Holding all technical parameters constant, I recalculate path loss for each county as if the earth were smooth and unobstructed by terrain. This hypothetical measure captures variation due to transmitter proximity and power but excludes topographic attenuation. By conditioning on counterfactual signal strength in all analyses, I isolate the component of actual reception driven by exogenous terrain features rather than endogenous placement decisions.

Figure 3.1 visualizes the geographic expansion of Salem's broadcast footprint between 1992

[24]I am grateful to Benjamin Olken for generously sharing the ITM software, which underpins the signal propagation model used in this study.

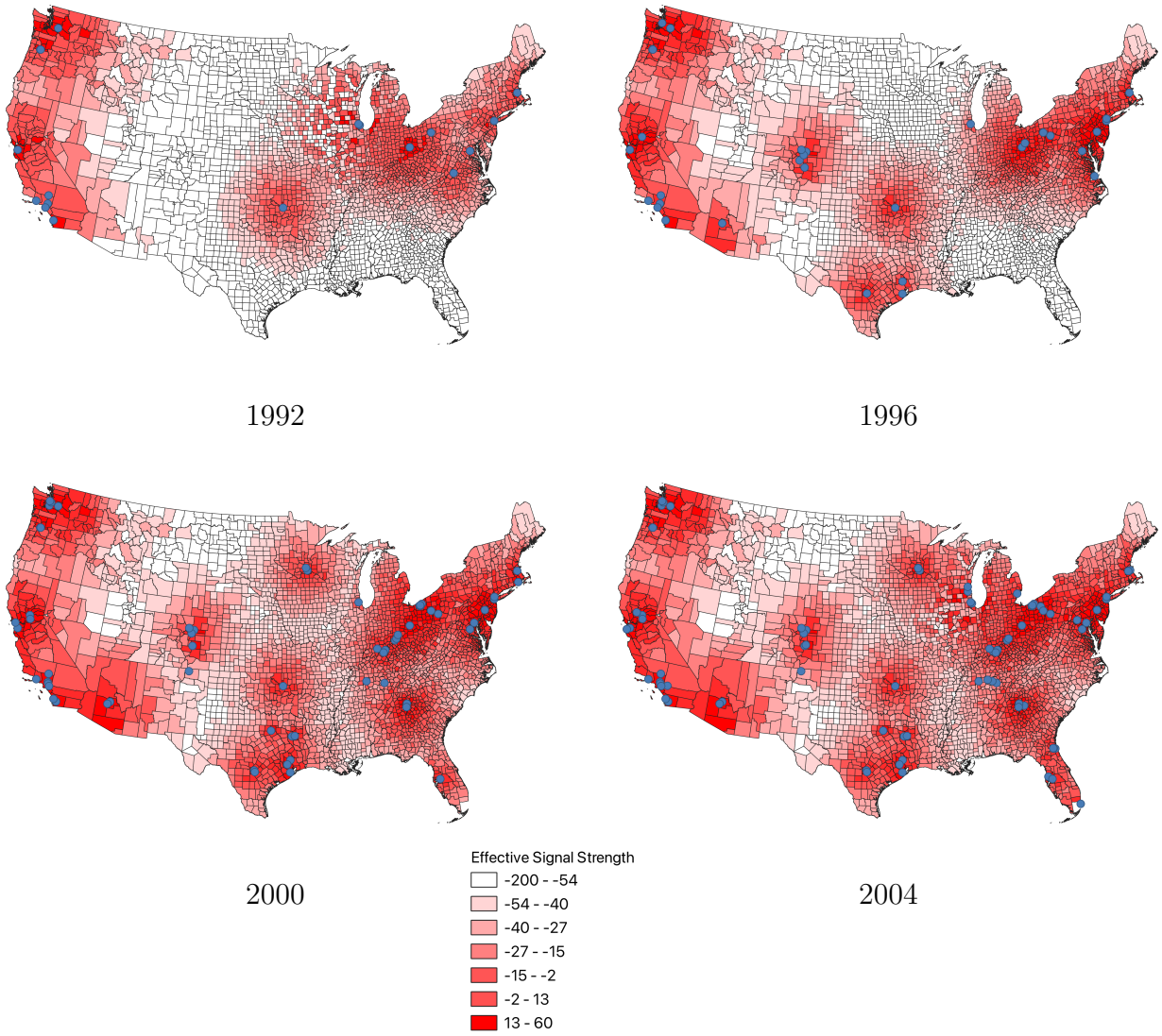

Figure 3.1: Geographic expansion of Salem Media Group and modelled signal strength across U.S. counties (1992–2004). Signal strength is calculated using the Irregular Terrain Model (ITM), with coverage thresholds based on prior engineering standards.

and 2004, based on ITM-modeled signal coverage. Counties with signal strength above the reception threshold (50 dBµV/m) are increasingly clustered in urban areas as Salem expands its network. While Salem continued to add stations after 2004, most of the major expansion in both station count and geographic signal coverage occurred during this initial period. Appendix Figure A.2 shows the broadcast footprint between 2004 and 2016, illustrating the relative stability of Salem's coverage after the early 2000s. This motivates my focus on the 1992–2004 period as the primary treatment window.

3.3 Voting, Religious and Demographic Covariates

County-level presidential election returns are obtained from Algara and Amlani (2021), who provide harmonised vote shares for Democratic, Republican, and third-party candidates across all counties from 1872 onward. The data are cleaned and merged by county FIPS codes county boundaries are harmonised to ensure consistency over time.

To measure county-level religious composition, I use the Longitudinal Religious Congregations and Membership File (1980–2010), which provides counts of religious adherents and congregations by denomination and tradition (Grammich et al., 2018). These data are drawn from the Church Membership Surveys and aggregated by the Association of Statisticians of American Religious Bodies (ASARB). I focus on evangelical Protestant adherence as a proxy for potential sensitivity to Salem's Christian-conservative content.

Historical demographic characteristics, such as population size, racial composition, urbanisation, and income, are drawn from Haines et al. (2010). For time-invariant county-level covariates not covered in this series, I supplement with data from ICPSR 20660 (2008). Measures of county ruggedness and land area are taken from the replication package for Wang (2021).

These covariates allow me to flexibly control for both long-run geographic and demographic characteristics, as well as potential moderators of media influence. The final dataset is an unbalanced panel of U.S. counties between 1980 and 2020, with variation in Salem signal coverage, political outcomes, and county-level characteristics across time. For the main analysis, I focus on the largest and most rapid expansion between 1992 and 2004.

4 Empirical Strategy

This section outlines the empirical strategy used to estimate the causal effect of exposure to Salem's Christian-conservative broadcasts on county-level voting outcomes. The baseline analysis focuses on the period between the 1992 and 1996 U.S. presidential elections, which coincides with Salem's initial major expansion into new radio markets and its strategic shift toward conservative political talk radio. During this time, the firm began co-locating religious and political content across its stations, integrating Christian teaching with right-leaning commentary to cultivate an ideologically cohesive listenership. This transition provides a natural setting for identifying the political consequences of exposure to partisan religious

broadcasting.

The key challenge in estimating the political effects of Salem's expansion lies in isolating exogenous variation in exposure to its broadcasts. Simply comparing treated and untreated counties is unlikely to yield credible causal estimates, as Salem may have targeted counties already trending Republican or featuring demographically favourable audiences. To overcome this, I leverage variation in predicted radio signal strength resulting from topographic features that attenuate electromagnetic transmission.

For each transmitter–county pair, I calculate the received power using the Irregular Terrain Model (ITM), a professional engineering algorithm developed by the U.S. Department of Commerce. The effective received power reflects actual terrain-based signal loss and is expressed in decibel-watts (dBW). I also compute a counterfactual measure that holds terrain constant at sea level, producing a free-space signal strength based purely on transmitter power and distance. By including both measures in the regression, I isolate variation in reception attributable to terrain rather than strategic market entry.

The outcome of interest is the Republican presidential vote share in a given county and year. The primary regressor is the standardised effective received power from Salem transmitters, denoted Signal_{ct}, where c indexes counties and t indexes years. I estimate the following equation:

$$\text{VoteShare}_{ct} = \beta\,\text{Signal}_{ct} + \gamma\,\text{SignalFree}_{ct} + \mathbf{X}_c \cdot \delta_t + \eta_c + \lambda_t + \epsilon_{ct} \tag{1}$$

The specification includes county fixed effects η_c, year fixed effects λ_t, and a vector of time-varying county characteristics $\mathbf{X}_c \cdot \delta_t$, which are interacted with year dummies to allow for differential trends. Standard errors are clustered at the state–county level to account for spatial correlation and grouped treatment timing.

The coefficient β captures the reduced-form effect of exogenous exposure to Salem broadcasts on Republican vote share, identified off terrain-driven variation in signal strength among counties that were not covered in 1992 but became reachable by 1996. The identifying assumption is that, conditional on free-space signal strength and the full set of controls, variation in actual signal strength is uncorrelated with unobserved determinants of political behavior. While the assumption is ultimately untestable, I support the conditional exogeneity assumption through balance and placebo tests by examining the correlation of Signal with preexisting county socioeconomic characteristics and past voting outcomes. In the most sat-

urated specification, I include within state-year fixed effects and control for demographic composition, educational attainment, income, unemployment, poverty, population density, age structure, industrial composition, religious adherence, prior voting outcomes, and geographic characteristics such as elevation, area, and terrain ruggedness. This specification enables a credible estimate of the political influence of religious broadcasting at the early stage of Salem's expansion, prior to the full saturation of the network in later years.

To evaluate the validity of the identifying assumption, I first assess the balance of observed covariates across counties with differing levels of predicted signal strength. Table 4.1 reports the coefficients from univariate regressions of signal strength on pre-treatment county characteristics. Consistent with the possibility of strategic market entry, signal strength is significantly correlated with several demographic and economic variables in the bivariate case. However, once I include controls for counterfactual free-space signal strength, geographic characteristics (elevation, terrain ruggedness, and county land area), and state fixed effects, these correlations largely disappear. In the fully controlled specification, signal strength is not systematically associated with population composition, industrial structure, or pre-1992 turnout. The exceptions are a small set of variables, median income, farm size, and educational attainment, for which coefficients remain statistically significant at conventional levels, but effect sizes are modest. These results suggest that the inclusion of rich controls and fixed effects sufficiently absorbs variation correlated with observable confounders.

Table 4.1: Exposure to Salem Communications broadcasting signal and pre-expansion County Characteristics (Balance Tests)

	Univariate		SignalFree, State FE and Terrain		
	Coefficient	R^2	Coefficient	R^2	N
Average Republican Vote Share (1980 - 1988)	0.041	0.008	-0.015	0.319	3084
	0.031		0.017		
Average turnout (1980 - 1988)	-0.001	0.000	0.000	0.031	2919
	0.000		0.000		
Republican vote share (1980)	0.042	0.006	-0.001	0.502	3084
	0.033		0.015		
Republican vote share (1984)	0.055	0.014	-0.020	0.303	3084
	0.030		0.019		
Republican vote share (1988)	0.024	0.003	-0.025	0.253	3084

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	0.037		0.019		
% Presidential Election Turnout (1980)	-0.001	0.001	0.000	0.067	2996
	0.000		0.000		
% Presidential Election Turnout (1984)	-0.001	0.000	0.001	0.022	2950
	0.001		0.001		
% Presidential Election Turnout (1988)	-0.001	0.002	-0.000	0.144	2754
	0.000		0.000		
Population Total (1990)	510.951	0.002	74.811	0.139	3084
	259.847		465.561		
% White (1990)	-0.032	0.002	0.012	0.560	3084
	0.048		0.046		
% Black (1990)	0.019	0.001	-0.023	0.639	3084
	0.043		0.038		
% Native (1990)	0.011	0.002	0.011	0.215	3084
	0.013		0.015		
% Asian/Pacific Islander (1990)	0.002	0.001	-0.000	0.353	3084
	0.001		0.003		
% Hispanic (1990)	0.226	0.175	0.187	0.562	3084
	0.098		0.113		
Births per 1000 in pop. (1990)	0.015	0.014	0.009	0.206	3084
	0.005		0.007		
Deaths per 1000 in pop. (1990)	-0.018	0.019	-0.012	0.177	3084
	0.006		0.010		
Infant deaths per 1000 in pop. (1990)	-0.013	0.001	-0.046	0.023	3084
	0.009		0.025		
% High school graduates (age 25+, 1990)	-0.005	0.000	-0.033	0.508	3084
	0.051		0.028		
% College graduates (age 25+, 1990)	0.039	0.017	-0.007	0.235	3084
	0.021		0.010		
% unemployed (1990)	0.006	0.002	0.012	0.253	3084
	0.006		0.008		
Median HH income (1990)	-7.652	0.001	-28.347	0.316	3084
	20.360		15.773		
% below poverty line (1990))	0.043	0.018	0.046	0.420	3084
	0.027		0.016		
% nonfarm services (1990)	0.011	0.002	0.010	0.145	3084

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	0.008		0.011		
Median age 1990 (100%)	-0.011	0.005	-0.005	0.195	3084
	0.006		0.009		
Average size of farm (Acres, 1992)	17.439	0.030	7.989	0.273	3084
	3.787		4.378		
Federal expenditures per capita (1990)	6.686	0.003	2.617	0.121	3084
	3.954		4.887		
Evangelical Protestants per 1000 in pop.	-0.653	0.007	-1.878	0.621	3027
	0.537		0.909		
% Farm operators (1992)	0.000	0.000	0.000	0.162	2947
	0.000		0.000		
% Manufacturing (1990)	-0.001	0.004	-0.000	0.085	2947
	0.000		0.000		

Notes: This table reports balance regressions of pre-expansion county-level covariates on baseline exposure to Salem Communications' signal strength and market concentration, including their interaction. The left panel reports univariate correlations. The right panel includes controls for signal-free power, state fixed effects, and county-level terrain. Robust standard errors are in parentheses.

To further assess the credibility of the empirical design, I conduct a series of placebo tests using county-level Republican vote shares in presidential elections prior to Salem's expansion. Specifically, I estimate equation 1 on the intervals 1980–1984, 1984–1988, and 1988–1992, restricting attention to counties that would later fall within Salem's potential broadcast range. Table 4.2 reports the results. In all three placebo windows, change in signal strength between signal strength 1992 and 1996 is not significantly correlated with prior changes in Republican support. Point estimates are small and imprecise, and R^2 values remain low despite the inclusion of baseline controls and state-by-year fixed effects. This pattern reinforces the interpretation that terrain-driven variation in Salem's reach is orthogonal to prior political trends and supports the conditional exogeneity of signal strength in the post-expansion period.

In addition to ruling out observable sources of endogeneity, I also address the possibility that Salem's terrain-induced signal variation might be correlated with that of other ideologically similar broadcasters. Section 5.3 presents placebo tests using signal exposure from Bott Radio Network and American Family Radio, two evangelical networks active during the same period, which reveal no comparable effects on vote share. To the extent that terrain-

Table 4.2: Exposure to Salem Communications signals and voting in past Presidential Elections (Placebo Tests)

	1980-1984	1984-1988	1988-1992
	(1)	(2)	(3)
Signal	0.653*	-0.099	0.392
	(0.362)	(0.203)	(0.470)
N	5,568	5,568	5,568
All Baseline Controls	Yes	Yes	Yes
State × Time FE	Yes	Yes	Yes
R^2	0.005	0.000	0.001
Dependent Variable Mean	42.242	42.242	42.242

Notes: This table presents placebo estimates of the effect of Salem signal strength on Republican presidential vote share during three pre-treatment periods: 1980–1984, 1984–1988, and 1988–1992. Each column reports coefficients from a separate two-year panel regression using lagged signal values prior to Salem's actual entry. All regressions include county fixed effects, state-by-year fixed effects, and the full set of baseline controls. The absence of consistent, significant effects across these placebo windows supports the validity of the identification strategy. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

related attenuation also reduced exposure to stations with opposing ideological content, the estimates reported may be interpreted as conservative.

5 Results

5.1 Baseline Results

Table 5.1 presents the estimated effect of exposure to Salem's Christian-conservative radio broadcasts on Republican vote share and voter turnout between the 1992 and 1996 presidential elections. The dependent variable in columns 1–7 is the Republican vote share at the county level, while columns 8 and 9 report estimates for total and Republican-attributed turnout, respectively.

Column 1 begins with a parsimonious specification that includes only county and year fixed effects. In this baseline model, a one standard deviation increase in received signal strength is associated with a 1.25 percentage point increase in Republican vote share. The estimate is

statistically significant at the 1 percent level. Column 2 adds the free-space signal strength measure, which accounts for the mechanical correlation between signal strength and proximity to transmitters. The coefficient on the effective signal remains large and significant, increasing to 2.79 percentage points.

Subsequent columns introduce a series of progressively richer control sets. Column 3 adds state-by-year fixed effects and time-varying controls for county demographics and socioeconomic conditions. Column 4 adds controls for population density, area, and terrain ruggedness. Column 5 further adjusts for past presidential voting patterns (1980–1988), and column 6 includes religious adherence rates across denominations. The estimated effect remains remarkably stable throughout, hovering between 0.81 and 0.83 percentage points per standard deviation increase in signal strength.

Column 7 reports results from the most saturated and preferred specification, which includes all control variables and fixed effects. The coefficient estimate of 0.81 remains statistically significant at the 1 percent level. This effect corresponds to an increase of roughly 2.1 percent relative to the baseline mean. The stability of the point estimate across specifications lends strong support to the identifying assumption that topography-driven variation in signal strength is orthogonal to unobserved county-level political trends.

Columns 8 and 9 assess the effect of signal exposure on voter turnout. In both specifications, the coefficient on signal strength is statistically indistinguishable from zero and substantively negligible, indicating that the primary margin of response was vote switching rather than mobilisation.

I next implement a difference-in-differences strategy to assess whether the political effects of Salem exposure were driven by changes in content rather than coverage alone. This analysis restricts the sample to counties with stable signal strength between 1992 and 1996, excluding areas where Salem's signal was newly introduced or dropped, and compares changes in Republican vote share before and after Salem's 1995 pivot to explicitly partisan Christian-conservative programming. The estimated coefficient on the interaction between signal exposure and the post-treatment period in Table B.1 is positive and similar in magnitude to the baseline effect, suggesting that the ideological shift may have amplified the political consequences of broadcast exposure. However, the estimates are imprecise and not statistically significant, and should be interpreted with caution. Still, the direction and size of the effect provide suggestive evidence that it was the content of Salem's programming, not solely the presence of a signal, that shaped local electoral outcomes.

Table 5.1: Exposure to Salem Communications signals and voting in Presidential Elections (1992–1996)

	Republican Vote Share							Turnout (*Total*)	Turnout (*Republican*)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Signal	1.247***	2.787***	0.819***	0.819***	0.832***	0.815***	0.814***	-0.004	0.007
	(0.460)	(0.640)	(0.284)	(0.284)	(0.282)	(0.277)	(0.290)	(0.035)	(0.014)
N	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Signal Free	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County Controls	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
County Terrain Controls	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Past Electoral Controls	No	No	No	No	No	Yes	Yes	Yes	Yes
Religious Controls	No	No	No	No	No	No	Yes	Yes	Yes
R^2	0.019	0.107	0.008	0.008	0.008	0.008	0.008	0.001	0.002
DV Mean (1992)	39.781	39.781	39.781	39.781	39.781	39.781	39.781	0.582	0.229
DV SD (1992)	8.591	8.591	8.591	8.591	8.591	8.591	8.591	1.952	0.720
Signal SD (1992)	33.005	33.005	33.005	33.005	33.005	33.005	33.005	33.005	33.005

Notes: This table reports coefficient estimates from a series of nested two-way fixed effects models of Republican vote share and turnout between 1992 and 1996. The main explanatory variable is received signal strength from Salem affiliates. All models include county and year fixed effects, with controls incrementally added across specifications (see row labels). Turnout columns report total and Republican turnout, respectively. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Evangelical Population Heterogeneity: To assess whether the political effects of religious broadcasting were stronger in communities aligned with Salem's target audience, I next examine heterogeneity by religious composition. Salem Media's programming explicitly caters to evangelical Christian audiences, and contemporary accounts indicate that its flagship talk shows and pastoral content were designed to resonate with socially conservative Protestant communities. If the network was more persuasive in areas with a higher baseline demand for Christian-conservative content, then we should expect the political influence of exposure to Salem's signal to be larger in counties with higher concentrations of evangelical Protestants.

To test this hypothesis, I interact signal strength with an indicator for counties in the top quartile of evangelical Protestant adherence as of 1990. Column 1 of Table 5.2 shows that the effect of a one standard deviation increase in exposure to Salem broadcasts on Republican vote share is significantly larger in evangelical-rich counties. The estimated effect in counties outside the top quartile of the evangelical population is 0.81 percentage points, while the interaction term for the top quartile is 0.44 percentage points higher, implying a total effect of

approximately 1.25 percentage points, approximately 3 percent of the 1992 mean Republican vote share.

In columns 2 - 4, I repeat this exercise for counties in the top quartile of Catholic, non-Evangelical Protestant and other Preotestant religious adherence, respectively. The estimated interaction effects are smaller and statistically insignificant in all cases. These results are consistent with the view that Salem's programming exerted greater persuasive influence in counties demographically aligned with its intended religious audience.[25]

Columns 4 and 5 show no statistically significant effects on turnout, either overall or for Republican voters specifically, suggesting that Salem's influence operated primarily through persuasion rather than mobilisation. Taken together, these results indicate that the persuasive effect of Salem's broadcasts was strongest in religious constituencies aligned with the network's message.

AM/FM and Format-Type Signal Heterogeneity: To better understand the mechanisms through which Salem's broadcasts influenced political behavior, Table B.3 disaggregates signal exposure by both frequency band and content format. The first set of columns distinguishes between AM and FM signals. As expected, the AM coefficients are larger and statistically significant, while FM estimates are smaller and imprecisely estimated. This aligns with the programming structure of Salem Media Group, which reserved AM frequencies for politically oriented talk shows, such as The Michael Medved Show and The Dennis Prager Show, while FM stations primarily delivered Christian music and general faith-based lifestyle content. Given AM radio's central role in the rise of conservative political broadcasting, this pattern is consistent with an interpretation in which persuasion, not religious ambience, drives political outcomes.

The second set of columns directly tests this mechanism by classifying stations by format: Christian Teach & Talk (CTT), News Talk (NT), Top 40 (contemporary music), and Other. Results show that CTT and NT formats, both of which emphasise spoken-word content with ideological and moral themes, are strongly associated with increased Republican vote share. The interaction effects with the evangelical population are also positive and significant, indicating that persuasive impacts were amplified in counties aligned with Salem's religious messaging. In contrast, Top 40 and Other formats have smaller or insignificant effects, reinforcing the view that content, not just signal presence, determined political influence.

[25]In each regression, the interacted religious group is excluded from the set of baseline religious controls, while the remaining religious group shares remain included.

Table 5.2: Exposure to Salem Communications signals and voting in Presidential Elections (1992–1996) – DDD

	Republican Vote Share				Turnout (*Total*)	Turnout (*Republican*)
	(1)	(2)	(3)	(4)	(5)	(6)
Signal	0.813***	0.774**	0.838***	0.773**	0.003	0.011
	(0.269)	(0.317)	(0.303)	(0.301)	(0.039)	(0.014)
Signal × Evangelical	0.437**				-0.085	-0.031
	(0.202)				(0.081)	(0.028)
Signal × Catholic		0.118				
		(0.202)				
Signal × Other Protestant			-0.009			
			(0.287)			
Signal × Other Religion				0.204		
				(0.255)		
N	5,568	5,568	5,568	5,568	5,568	5,568
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
State × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Baseline_controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.009	0.008	0.008	0.007	0.001	0.002
DV Mean (1992)	42.242	42.242	42.242	42.242	0.582	0.229
DV SD (1992)	9.948	9.948	9.948	9.948	1.952	0.720
Signal SD (1992)	32.677	32.677	32.677	32.677	32.677	32.677

Notes: This table reports difference-in-differences-in-differences (DDD) estimates of the effect of Salem signal exposure on Republican presidential vote share and turnout between 1992 and 1996. Each column includes county fixed effects, time fixed effects, state-by-year fixed effects, and a full set of baseline covariates (demographic, geographic, and religious). Signal strength is interacted with indicators for counties in the top quartile of 1990 religious group share to test for heterogeneity in treatment effects. Columns 1–4 report vote share outcomes; Columns 5–6 report effects on total and Republican turnout, respectively. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

These findings show that Salem's political effects were not generic to Christian broadcasting, but instead operated through intentional format targeting of ideologically resonant content to receptive audiences.

5.2 Robustness

I conduct several robustness checks to validate the main findings. Table B.2 presents estimates from alternative specifications of Equation 1. Columns (1) to (3) replace the continuous signal strength measure with indicator variables equal to one if signal strength exceeds varying thresholds. This approach follows the discrete treatment specification common in ITM-based research (Yanagizawa-Drott, 2014; Chopra, 2021). In all cases, the estimated effect on Republican vote share remains positive and statistically significant.

In Columns (4) to (7), I assess whether the main results are driven by reductions in signal strength rather than the introduction of Salem's broadcast coverage. Specifically, in columns (4) and (5) I hold signal strength constant in counties where coverage declined between 1992 and 1996. In columns (6) and (7) I restrict the sample by omitting counties for which the signal strength reduced between 1992 and 1996. The coefficients in each specification remain similar in magnitude and significance, suggesting that the results are not driven by exits from coverage. Online Appendix Table E1, I explore spatial heterogeneity and find consistent effects across different geographic regions newly exposed to Salem's broadcasts.

In Column (8), I test for heterogeneity in treatment effects by replacing the top-quartile Evangelical dummy with county-level quintiles of Evangelical Protestant share. Interactions between signal strength and each quintile (excluding the lowest, which serves as the reference group) reveal a monotonic increase in the estimated effect, with the top quintile displaying the largest and most precisely estimated coefficient. The fourth quintile is positive but not statistically distinguishable from zero. Overall, these results provide support for the baseline findings and suggest stronger effects in more religious counties.

5.3 Alternative Religious Radio Signal Placebo

To validate that the political effects identified for Salem Media Group are not simply artefacts of religious broadcasting or conservative Christian radio more broadly, I conduct placebo tests using two other religious radio networks: Bott Radio Network and American Family Radio (AFR). Both networks operated nationally during the study period, had ties to the Council for National Policy, and shared a broadly evangelical orientation, but differed in programming style and political engagement.

Bott Radio Network, founded in 1962, focused exclusively on non-partisan religious teaching

and avoided political commentary. AFR, launched by the American Family Association in the late 1980s, promoted a Christian nationalist worldview but maintained a primary emphasis on moral activism rather than electoral influence during the early 1990s.

For both networks, I digitise the historical station expansion using *Broadcasting & Cable Magazine* and calculate county-level signal strength using the same terrain-adjusted methodology applied to Salem. Replicating the main analysis with these alternative exposure measures yields no significant effects on Republican vote share or turnout between 1992 and 1996 (see Appendix Tables B.4 and B.5).

The absence of comparable effects for Bott and AFR supports the interpretation that it was Salem's distinctive integration of religious identity and partisan political messaging, not religious broadcasting alone, that drove the observed shifts in voting behaviour.

5.4 Persuasion Rate

To better understand the magnitude of the political effects associated with Salem's Christian-conservative broadcasts, I calculate a persuasion rate following the method introduced by DellaVigna and Kaplan (2007) and formalized in DellaVigna and Gentzkow (2010). The persuasion rate measures the share of persuadable individuals who switched to voting Republican as a result of exposure to Salem's programming. That is, those who would not have voted Republican in the absence of exposure but did so because of it.

Using the interaction estimate from Section 5, along with evangelical population shares and baseline Republican vote support, I estimate a persuasion rate of approximately 3.0% (standard error: 1.4%). The calculation is detailed in Appendix D.

This estimate falls within the lower range of media persuasion effects reported in the economics literature (Enikolopov et al., 2011; DellaVigna et al., 2014; Adena et al., 2015). For instance, DellaVigna and Kaplan (2007) estimate that Fox News persuaded 11.6% of viewers, while other studies report effects between 6% and 20%. Given Salem's emphasis on ideological reinforcement rather than mass-audience news framing, a more modest persuasion rate is plausible. Yet even a small average effect, when applied across counties with tens of thousands of voters, can generate substantively meaningful aggregate shifts in electoral outcomes.

5.5 Staggered Entry and Persistence of Effects

Up to this point, the analysis has focused on the initial wave of Salem's expansion between 1992 and 1996, when the network grew from 18 to 34 owned-and-operated stations. I now extend the analysis in two stages. First, I examine the full staggered rollout of Salem-owned stations through 2004, a period during which the network expanded to 103 towers nationwide. This staggered entry permits estimation of the dynamic political effects of increased signal exposure using the continuous-treatment event-study framework developed by de Chaisemartin et al. (2024), which accommodates both staggered timing and continuous variation in treatment intensity. I estimate placebo effects for the three presidential elections prior to treatment and trace the evolution of effects over the three elections following initial exposure.

In the second stage, I extend the panel through to 2020 to assess the long-run persistence of early exposure effects. It is important to note, however, that the measure of exposure used throughout the analysis is based solely on Salem-owned broadcast infrastructure. It does not capture the rapid post-2004 growth in syndicated programming delivered via the Salem Radio Network (SRN), which allowed thousands of unaffiliated AM and FM stations to carry Salem-produced content. Because I do not observe where or when unaffiliated stations adopted Salem programs, exposure after 2004 reflects only a subset of total potential ideological influence. As a result, signal strength from Salem-owned towers in the post-2004 period should be interpreted as a lower bound on exposure to Salem's content, in contrast to the pre-2004 period, which more cleanly identifies exposure to exclusively Salem-controlled programming.

Nevertheless, the extended panel provides a valuable test of durability: whether early exposure to Salem's distinctive religious-conservative programming produced persistent shifts in political behaviour, even as the broader media landscape fragmented with the rise of cable news, digital platforms, and alternative ideological sources. This long-run analysis allows for an assessment of both persistence and potential interaction, whether the effects of early exposure were amplified or eroded as ideological media competition increased.

$$Y_{ct} = \sum_{\tau \neq -1} \beta_\tau \cdot \mathbb{1}\{\text{event time}_c = \tau\} + \sum_{s=1}^{S} \sum_{t} \delta_{st} \cdot T_{c0}^{s} \cdot \mathbb{1}\{t = t\} + \eta_c + \lambda_t + \varepsilon_{ct} \qquad (2)$$

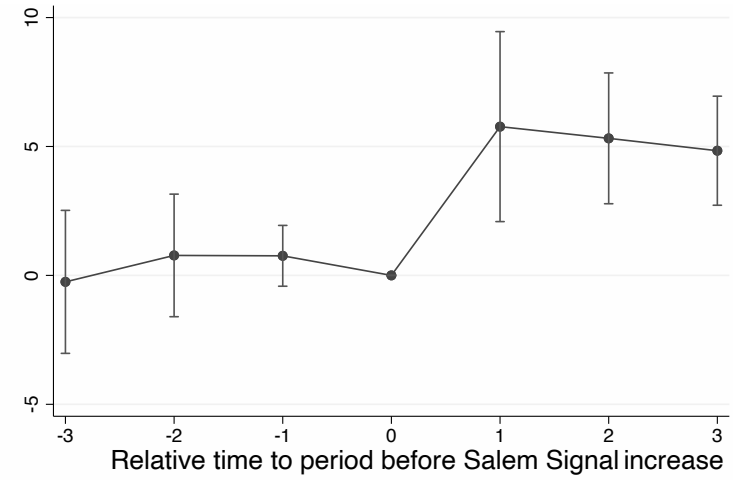
In this specification, Y_{ct} denotes the outcome of interest for county c in year t, such as

Republican vote share. The variable event time$_c$ indexes time relative to the change in signal strength for county c, and β_τ captures the dynamic treatment effect at event time τ, relative to the reference period $\tau = -1$, which is omitted for normalization. The term T_{c0} represents the baseline (e.g., 1992) level of the continuous treatment variable (signal strength), and the interaction $T_{c0}^s \cdot \mathbb{1}\{t = t\}$ flexibly controls for differential time trends by allowing year-specific coefficients δ_{st} on polynomial functions of T_{c0} up to degree S. County fixed effects η_c control for time-invariant heterogeneity, and year fixed effects λ_t absorb common shocks. The error term ε_{ct} captures residual variation, clustered at the state level.

Results

Results in Figure 5.1, which plots dynamic effects from 1992 to 2004, show an immediate and persistent increase in Republican vote share following Salem's entry. There is no evidence of pre-trends in the three election cycles preceding exposure, supporting the identifying assumption of parallel trends. The treatment effect emerges sharply in the first post-treatment election, reaching around 5 percentage points, and remains elevated in the next two election cycles.

Figure 5.1: Dynamic exposure to Salem signal across time (1992–2004)



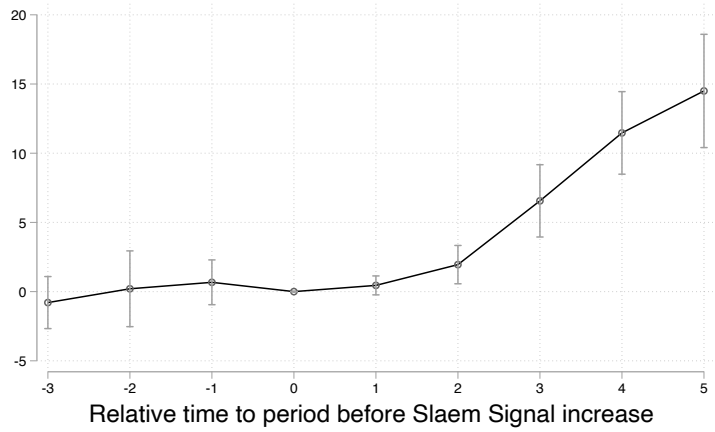
Notes: This figure plots event-study estimates of the effect of Salem signal exposure on Republican presidential vote share from 1992 to 2004. Counties are grouped by time relative to their first significant increase in Salem signal strength. Bars indicate 95% confidence intervals. The reference period is the election immediately prior to treatment.

The extended event-study estimates in Figure 5.2 show that these partisan shifts persisted well beyond the initial expansion period. Because the estimator aligns counties by event time, the longest-run effects are identified from counties first exposed in the early 1990s, while shorter-run dynamics are informed by the larger set of counties treated later in the

rollout. The figure demonstrates that effects remain statistically and substantively significant through at least five election cycles after initial exposure.

Importantly, there is no evidence of anticipatory behavior or differential trends in the pre-treatment periods, reinforcing the credibility of the identification strategy. The persistence of treatment effects in the long run, despite increasing competition from digital and ideological media sources, suggests that Salem's religious-conservative programming generated durable changes in political preferences, particularly in counties exposed early in the network's growth.

Figure 5.2: Dynamic exposure to Salem signal across time (1992–2020)



Notes: This figure extends the event-study analysis through the 2020 election. Counties are indexed by time relative to their first increase in Salem signal strength. Coefficients reflect dynamic treatment effects relative to the election immediately before treatment. Bars represent 95% confidence intervals. Longer-run effects reflect early-treated counties only.

To complement the dynamic event-study approach, I estimate a series of two-way fixed effects regressions that pool counties over sequential three-election windows. These specifications compare counties exposed to increases in signal strength to counties who never and have not yet been exposed to increases in signal strength, isolating the average effect of increased signal strength within each period. The baseline model in Table 5.3 columns 1, 3, and 5 shows that exposure to Salem's signal is associated with a statistically significant increase in Republican presidential vote share in the earlier periods, ranging from 0.81 percentage points in 1992–1996 to 0.61 percentage points in 1992–2000, although the point estimates decline and become statistically indistinguishable from zero by the 1992–2004 window.

In Columns 2, 4, and 6, I interact signal strength with evangelical population shares. The interaction terms are positive, statistically significant, and grow in magnitude over time.

By 2004, the signal effect in high-evangelical counties reaches 1.68 percentage points, suggesting that Salem's influence was especially pronounced in counties with greater baseline receptivity to religious-conservative content. The results highlight the importance of local ideological context in conditioning the political effects of partisan media exposure. They also reinforce the interpretation from the event-study that early effects were strongest where Salem's messaging resonated most and that these effects attenuate only modestly over time in aggregate, while remaining persistent in receptive environments.

Table 5.3: Exposure to Salem Communications signals and voting in Presidential Elections (Staggered DiD Matrix, 1992–2004)

	(1)	(2)	(3)	(4)	(5)	(6)
Signal	0.814***	0.780***	0.613**	0.311	0.417	-0.063
	(0.290)	(0.269)	(0.297)	(0.295)	(0.322)	(0.338)
Signal ×		0.511**		1.254***		1.675***
Evang Pop		(0.212)		(0.250)		(0.322)
Years	1992 - 1996	1992 - 1996	1992 - 2000	1992 - 2000	1992 - 2004	1992 - 2004
N	5,568	5,568	8,352	8,352	11,136	11,136
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	Yes	Yes	Yes	Yes	Yes	Yes
All BL controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.008	0.008	0.004	0.012	0.002	0.016
Signal SD	0.841	0.841	0.821	0.821	0.804	0.804

Notes: This table reports estimates from two-way fixed effects regressions of Republican presidential vote share on Salem signal strength. Each column corresponds to a different three-election window. All specifications include county fixed effects, state-by-year fixed effects, and a full set of baseline controls (demographic, geographic, and religious). Interaction terms are included in even-numbered columns to capture heterogeneity by 1990 evangelical population. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

6 Conclusion

This paper provides new evidence on the political consequences of religiously affiliated media infrastructure in the post-deregulation era. Focusing on Salem Communications, a Christian-conservative radio network that rapidly expanded its national footprint during the 1990s and early 2000s, I show that increased exposure to partisan religious broadcasting measurably

influenced U.S. presidential voting behaviour. Using plausibly exogenous variation in signal strength induced by local topography, combined with the staggered entry of Salem stations across counties and years, I identify a persistent and demographically targeted increase in Republican vote share attributable to Salem's broadcasts. These effects are strongest in counties with high concentrations of evangelical Protestants and are driven primarily by politically oriented AM radio formats, rather than religious music or apolitical programming.

The findings speak to several important literatures. First, they extend a growing body of work on media effects by demonstrating that ideologically motivated religious broadcasters can exert durable influence on electoral outcomes, comparable in magnitude and persistence to well-studied secular outlets such as Fox News. Second, they underscore the role of deregulation, particularly the repeal of the Fairness Doctrine and the relaxation of ownership caps under the Telecommunications Act of 1996, in facilitating the rise of ideologically coherent media networks that fuse religious identity with political messaging. Third, the results contribute to our understanding of political persuasion by showing that religiously framed partisan content can move vote choices even in the absence of overt mobilisation efforts, with effects concentrated in ideologically aligned constituencies.

Importantly, the effects of exposure persist well beyond initial contact. Counties first exposed to Salem's broadcasts in the early 1990s continue to exhibit elevated Republican support through at least five subsequent presidential elections. This suggests that partisan religious media can generate not only immediate shifts in electoral behaviour, but also longer-run realignments in political preferences, particularly when delivered through trusted theological frameworks. At the same time, the heterogeneity in treatment effects highlights the importance of local ideological context: Salem's influence is strongest where its message resonates with preexisting religious worldviews.

More broadly, this paper illustrates how transformations in media market structure, enabled by regulatory change and shaped by religious institutions, can contribute to durable shifts in political coalitions. As new forms of ideological communication continue to emerge across digital platforms, understanding the interplay between media content, identity, and political behaviour remains an urgent task. The case of Salem Communications provides a historical analogue to contemporary dynamics, showing how private actors operating within deregulated communication environments can build powerful infrastructure for political persuasion, often outside the scope of conventional media scrutiny.

These findings also speak to the broader institutional consequences of media deregulation.

Salem's expansion occurred in the wake of two major policy shifts: the repeal of the Fairness Doctrine and the relaxation of ownership limits under the Telecommunications Act of 1996, which enabled more consolidated and ideologically defined media structures to emerge. While these reforms were primarily justified on economic and technological grounds, the results presented here indicate that such changes may also have downstream political implications. More broadly, the findings highlight the potential for structural media policy to shape the information environments in which voters form political preferences, particularly in settings where content is closely aligned with group-based identity. These patterns merit further investigation, particularly in the context of evolving digital and broadcast media regulation.

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Appendix

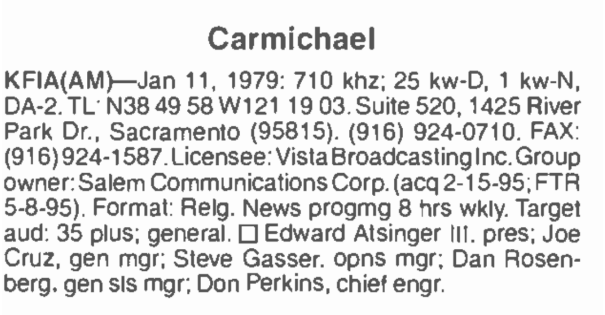
A Figures

Figure A.1: Excerpts from *Broadcast & Cable Yearbook* 2000

Salem Communications Corp.. 4880 Santa Rosa Rd., Suite 300, Camarillo, CA 93012. (805) 987-0400. FAX: (805) 384-4511. Executives: Edward G. Atsinger III, pres/CEO; Stuart W. Epperson, chmn; Eric H. Halvorson, exec VP/COO.

Stns: 34 AM, 15 FM. KPXQ(AM) Phoenix, AZ; KFIA(AM) Carmichael (Sacramento), KIEV(AM) Glendale, KLTX(AM) Long Beach (Los Angeles), KKLA-FM Los Angeles, KDAR(FM) Oxnard (Ventura), KTKZ(AM) Sacramento, KLTH(AM) San Bernardino (Riverside), KFAX(AM) San Francisco and KPRZ(AM) San Marcos-Poway (San Diego), all CA; KRKS-FM Boulder (Denver), KBJD(AM) Denver. KNUS(AM) Denver, KRKS(AM) Denver, KPRZ-FM Fountain, KBIQ(FM) Manitou Springs and KGFT(FM) Pueblo, all CO; WYLL(FM) Des Plaines (Chicago), IL; WLSY(FM) New Albany, IN; WRVI(FM) Valley Station, KY; WITH(AM) Baltimore, MD; WEZE(AM) Boston, MA; KYCR(AM) Golden Valley and KKMS(AM) Richfield, both MN; WWDJ(AM) Hackensack, NJ (New York, NY); WMCA(AM) New York, NY;

Salem Owned Stations (2000)



Carmichael

KFIA(AM)—Jan 11, 1979: 710 khz; 25 kw-D, 1 kw-N, DA-2. TL: N38 49 58 W121 19 03. Suite 520, 1425 River Park Dr., Sacramento (95815). (916) 924-0710. FAX: (916) 924-1587. Licensee: Vista Broadcasting Inc. Group owner: Salem Communications Corp. (acq 2-15-95; FTR 5-8-95). Format: Relg. News progmg 8 hrs wkly. Target aud: 35 plus; general. □ Edward Atsinger III. pres; Joe Cruz, gen mgr; Steve Gasser. opns mgr; Dan Rosenberg. gen sls mgr; Don Perkins, chief engr.

KFIA (AM) - Carmichael, Sacramento: Tower, Programming and Ownership Details

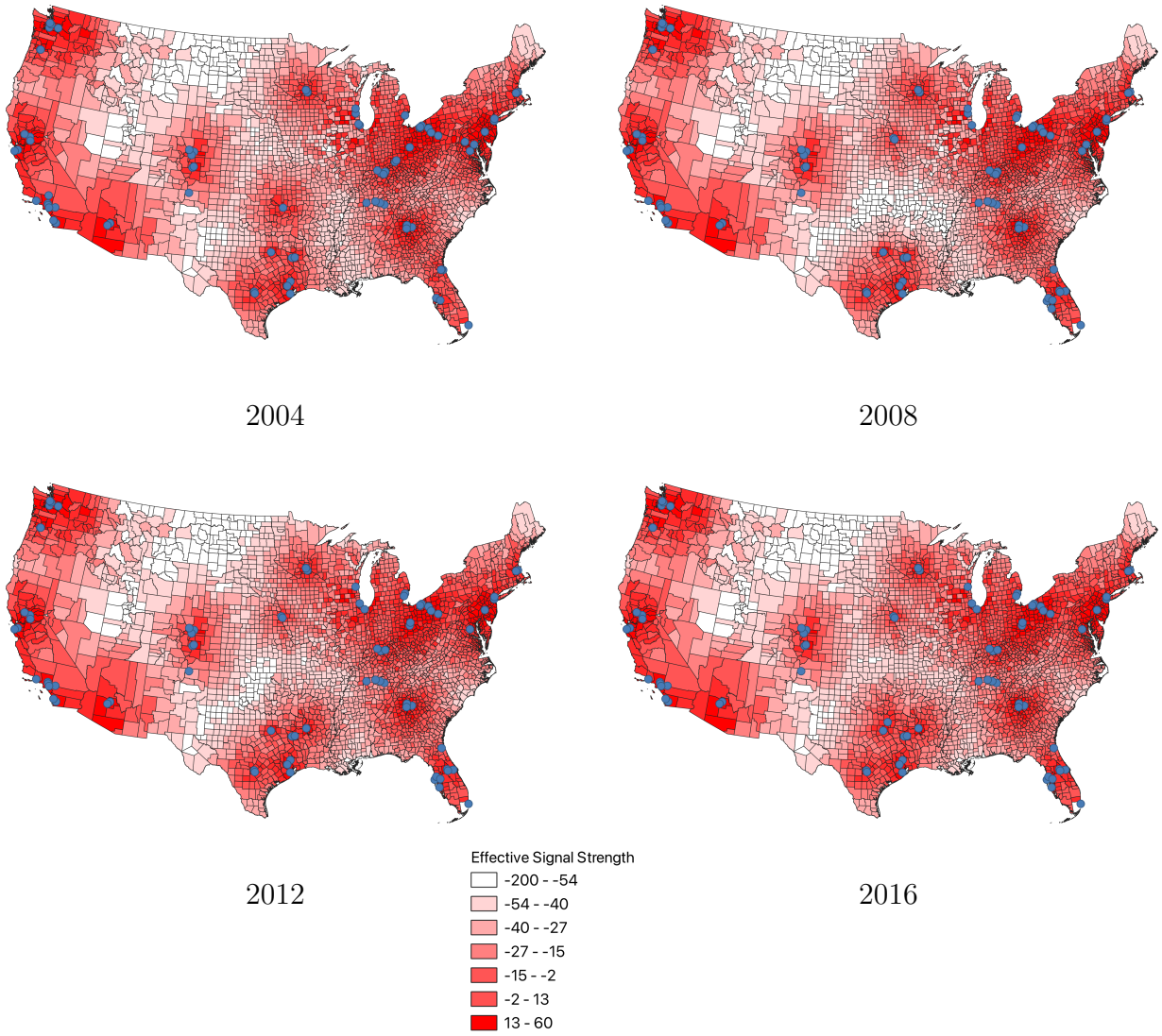


Figure A.2: Post-2004 expansion of Salem Media Group's broadcast coverage based on ITM-modelled signal strength. The marginal increase in signal footprint between 2004 and 2016 justifies restricting the main analysis window to the initial expansion period.

B Tables

Table B.1: Exposure to Salem Communications signals and voting in Presidential Elections (1992–1996)

	Republican Vote Share	
	(1)	(2)
Signal	0.893	0.878*
× Post	(0.606)	(0.464)
Evangelical		-0.798
× Post		(0.529)
Signal		0.061
× Evangelical × Post		(0.735)
N	4,012	4,012
County FE	Yes	Yes
Time FE	Yes	Yes
State FE × Time FE	Yes	Yes
All BL controls	Yes	Yes
R^2	0.008	0.012
Signal SD	33.005	33.005

Notes: This table reports coefficient estimates from two-way fixed effects regressions of Republican vote share between 1992 and 1996. The key independent variable is signal strength from Salem Communications affiliates, interacted with an indicator for the post-treatment year (1996). Column (1) estimates the average effect of exposure for counties with stable signal coverage across both years. Column (2) includes a triple interaction with an indicator for counties in the top decile of white evangelical adherence in 1990. All models include county fixed effects, year fixed effects, state-by-year interactions, and a full set of baseline controls. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.2: Robustness Main Results (1992 – 1996)

	Republican Vote Share							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Signal (≥ -40)	0.828**							
	(0.344)							
Signal (≥ -20)		1.288***						
		(0.474)						
Signal (≥ 0)			0.517**					
			(0.242)					
Signal				0.825***	0.813***	0.757***	0.747***	0.315
				(0.276)	(0.269)	(0.274)	(0.262)	(0.321)
Signal × Evangelical					0.437**		0.454**	
					(0.202)		(0.216)	
Signal × Q2 Evangelical								0.635*
								(0.375)
Signal × Q3 Evangelical								0.666**
								(0.300)
Signal × Q4 Evangelical								0.337
								(0.478)
Signal × Q5 Evangelical								0.956**
								(0.367)
N	5,568	5,568	5,568	5,596	5,568	4,616	4,588	5,568
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
All Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.004	0.009	0.001	0.008	0.009	0.006	0.007	0.011
DV Mean (1992)	39.781	39.781	39.781	39.781	39.781	39.781	39.781	39.781

Notes: This table reports robustness checks of the estimated effect of Salem Communications' signal exposure on Republican presidential vote share between 1992 and 1996. Columns 1–3 vary the signal exposure threshold used to define treatment ($\geq$ –40 dBm, –20 cBm, and 0 dBm respectively). Columns 4 and 5 replicate the baseline and DDD specification with signal strength held constant for any counties which witnessed reduced signal strength between 1992 and 1996. Columns 6 and 7 replicate the baseline and DDD specification with the sample restricted to counties facing a constant or increase in signal strength between 1992 and 1996. Column 8 replaces the binary evangelical interaction with quartiles (Q2–Q5) of the county-level evangelical distribution. All specifications include county and year fixed effects, state-by-year fixed effects, and baseline controls. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.3: Radio Programming Heterogenetity (1992 – 1996)

	Republican Vote Share											
	AM		FM		CTT		NT		Top 40		Other	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Signal	0.967***	0.926***	0.773	0.829	0.727**	0.683**	0.745***	0.717***	0.662**	0.660**	0.970*	0.981
	(0.319)	(0.312)	(0.546)	(0.520)	(0.281)	(0.275)	(0.207)	(0.205)	(0.295)	(0.294)	(0.554)	(0.602)
Signal		0.591**		-0.353		0.610***		0.394***		0.036		-0.089
× Evangelical		(0.266)		(0.331)		(0.170)		(0.144)		(0.149)		(1.127)
N	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568	5,568
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
All BL controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.008	0.009	0.007	0.008	0.980	0.980	0.980	0.980	0.980	0.980	0.980	0.980
Signal SD	33.005	33.005	33.005	33.005								

Notes: This table evaluates the heterogeneity in the effect of radio signal exposure on Republican vote share between 1992 and 1996 by signal frequency and programming format. Columns 1–2 report estimates for AM signals, while columns 3–4 report FM signals. Columns 5–6 correspond to Christian Teach & Talk (CTT) stations; columns 7–8 to News Talk (NT); columns 9–10 to Top 40 music; and columns 11–12 to other formats. Even-numbered columns interact signal strength with an indicator for counties in the top quartile of 1990 evangelical Protestant adherence. All regressions use a two-period panel and restrict the sample to counties that experienced no decline in signal strength between 1992 and 1996. All specifications include county fixed effects, year fixed effects, state-by-year fixed effects, and a full set of baseline demographic, geographic, and religious controls. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.4: Exposure to Bott Radio Network signals and voting in Presidential Elections (1992–1996)

	Republican Vote Share						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Signal	110.841**	110.841**	7.353	7.353	7.603	7.911	6.918
	(53.869)	(53.869)	(42.405)	(42.405)	(40.136)	(39.383)	(40.006)
N	5,568	5,568	5,568	5,568	5,568	5,568	5,568
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Signal Free	No	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	No	No	Yes	Yes	Yes	Yes	Yes
County Controls	No	No	No	Yes	Yes	Yes	Yes
County Terrain Controls	No	No	No	No	Yes	Yes	Yes
Past Electoral Controls	No	No	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	No	No	Yes
R^2	0.001	0.001	0.000	0.000	0.000	0.000	0.000
DV Mean (1992)	39.781	39.781	39.781	39.781	39.781	39.781	39.781
DV SD (1992)	8.591	8.591	8.591	8.591	8.591	8.591	8.591
Signal SD (1992)	6.811	6.811	6.811	6.811	6.811	6.811	6.811

Notes: This table reports coefficient estimates from a series of nested two-way fixed effects models of Republican vote share and turnout between 1992 and 1996. The main explanatory variable is received signal strength from Bott Radio Network. All models include county and year fixed effects, with controls incrementally added across specifications (see row labels). Turnout columns report total and Republican turnout, respectively. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table B.5: Exposure to American Family Association Radio Network signals and voting in Presidential Elections (1992–1996)

	Republican Vote Share						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Signal	-0.125	-0.079	0.447	0.447	0.423	0.450	0.449
	(0.941)	(1.270)	(0.403)	(0.403)	(0.397)	(0.384)	(0.377)
N	5,156	5,156	5,156	5,156	5,156	5,156	5,156
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Signal Free	No	Yes	Yes	Yes	Yes	Yes	Yes
State FE × Time FE	No	No	Yes	Yes	Yes	Yes	Yes
County Controls	No	No	No	Yes	Yes	Yes	Yes
County Terrain Controls	No	No	No	No	Yes	Yes	Yes
Past Electoral Controls	No	No	No	No	No	Yes	Yes
Religious Controls	No	No	No	No	No	No	Yes
R^2	0.000	0.000	0.002	0.002	0.001	0.002	0.002
DV Mean (1992)	39.781	39.781	39.781	39.781	39.781	39.781	39.781
DV SD (1992)	8.591	8.591	8.591	8.591	8.591	8.591	8.591
Signal SD (1992)	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table reports coefficient estimates from a series of nested two-way fixed effects models of Republican vote share and turnout between 1992 and 1996. The main explanatory variable is received signal strength from American Family Association Radio Network. All models include county and year fixed effects, with controls incrementally added across specifications (see row labels). Turnout columns report total and Republican turnout, respectively. Standard errors are clustered at the state level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

C Signal Calculations

This appendix describes how effective radio signal strength from Salem transmitters is calculated at the county level using engineering parameters and the Irregular Terrain Model (ITM). The resulting measure serves as the key exposure variable in the main analysis.

Data Inputs and Preprocessing

For each Salem-owned AM and FM station, I collect technical specifications from Federal Communications Commission (FCC) records, including: transmitter coordinates, operating frequency (AM/FM band), effective radiated power (in kilowatts), and antenna height above average terrain (in meters). These parameters are merged with elevation data and county centroid locations. The distance (in kilometres) between each transmitter and each county centroid is computed as a necessary input for propagation modelling.

Transmission Power and Gain Settings

Transmitter power is converted from kilowatts to decibel-watts (dBW):

$$\text{Transmitter Power}_i = 10 \times \log_{10}(\text{ERP}_i \times 1000)$$

I set transmitter antenna gain (TAG) to 2.5 dB and receiver antenna gain (RAG) to 10 dB for all stations. These values are consistent with typical assumptions in engineering and prior work (Olken, 2009).

Signal Loss Estimation via ITM

Two measures of signal loss are calculated:

- **Free-space loss**: estimated assuming no terrain obstacles
- **Effective loss**: estimated using the ITM to account for geographic attenuation (e.g., hills, mountains)

The ITM software calculates terrain-based loss between each transmitter and each county centroid. The following received power calculations are made:

$$\text{Received Power}_{ic}^{\text{Free}} = \text{Transmitter Power}_i - \text{Free-Space Loss}_{ic} + \text{TAG} + \text{RAG}$$
$$\text{Received Power}_{ic}^{\text{Eff}} = \text{Transmitter Power}_i - \text{ITM Loss}_{ic} + \text{TAG} + \text{RAG}$$

Aggregation

Each county c is assigned the maximum effective received power across all transmitters i:

$$\text{Signal Strength}_c = \max_i \left(\text{Received Power}_{ic}^{\text{Eff}}\right)$$

This final signal strength measure is used as the continuous treatment variable in the analysis. A corresponding free-space signal strength measure is also constructed and included as a control to isolate exogenous topographic variation in reception.

D Calculation of the Persuasion Rate

Following the methodology of DellaVigna and Kaplan (2007), I calculate the persuasion rate (PR) as:

$$\text{PR} = \frac{\Delta V}{S(1 - V_0)} \tag{3}$$

where:

- $\Delta V = 0.00437$ is the estimated interaction effect of Salem signal strength and high evangelical adherence on Republican vote share (from Table 5.2),
- $S = 0.25$ is the share of the population in counties with top quartile evangelical adherence,
- $V_0 = 0.422$ is the baseline Republican vote share in those counties in 1992.

Substituting in these values:

$$\text{PR} = \frac{0.00437}{0.25 \cdot (1 - 0.422)} = \frac{0.00437}{0.1445} \approx 0.0302$$

which implies a persuasion rate of 3.02 percent. To compute the standard error, I apply the delta method:

$$SE(\text{PR}) = \frac{SE(\Delta V)}{S(1 - V_0)} = \frac{0.00202}{0.1445} \approx 0.0140$$

Hence, the final persuasion rate is estimated at **3.0%** with a standard error of **1.4%**.