Printing Progress? Newspapers and Female Emancipation *

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Abstract

How do mass media shape gender norms and economic behavior? This paper studies the expansion of local newspapers in Victorian and Edwardian Britain and their impact on women's labor supply, marriage, fertility, and political mobilization. We link data on the staggered arrival of newspapers across 620 districts (1851–1911) to census microdata, petition records, and newspaper text. Using a dynamic difference-in-differences design, we find that, on average, newspaper access reinforced traditional gender roles: female labor force participation declined, marriage accelerated, and fertility rose. Yet these patterns reversed in districts exposed to a major feminist shock—the 1866 suffrage petition. In these areas, newspapers increased women's labor market participation, delayed marriage, and reduced fertility. Effects were strongest in places with lower baseline female empowerment. Text analysis reveals that positive framing of women in the news independently boosted female labor supply. Moreover, exposure to favorable coverage of the 1866 petition increased local petitioning rates, suggesting media shaped not only beliefs but collective action. These results show that newspapers acted not just as information sources, but as coordination technologies—amplifying or stalling change depending on timing, content, and narrative salience. Symbolic inclusion can shift social equilibria—but the emancipatory power of media depends on who is visible, when, and how.

Keywords: media, suffrage, gender, empowerment, newspapers.

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How we are seen determines in part how we are treated: how we treat others is based on how we see them; such seeing comes from representation.

Richard Dyer, The Matter of Images

1 Introduction

The stories a society tells—and how it tells them—shape how people live, work, and aspire. Narratives of progress, identity, and power influence not only who is seen and heard, but also who dares to participate. Representation matters: which voices are amplified, how they are portrayed, and what is deemed newsworthy can entrench exclusion or serve as a catalyst for change (Ferrara et al., 2012). Media can alter perceptions of marginalized groups by introducing inclusive role models that reduce prejudice, or by shifting the symbolic language through which social identities are constructed—thereby enabling new forms of political agency and group belonging (Armand et al., 2023; McRae, 2023). These dynamics are not unique to the digital age. Long before the rise of television or social media, newspapers were the primary medium of mass communication. In nineteenth-century Britain—a period marked by industrial expansion, political agitation, and the early stirrings of the women's movement—the rapid growth of the provincial press transformed access to public discourse. Yet its consequences for gender norms and female empowerment remain poorly understood.

This paper investigates how the diffusion of local newspapers in Victorian and Edwardian Britain shaped gender norms and women's economic participation. Between 1851 and 1911, the number of districts with at least one newspaper nearly tripled. Yet content remained overwhelmingly male-centric, reflecting and reinforcing the gendered division of labor. While newspapers expanded access to public discourse, they did not necessarily expand inclusion within it. Stories about pioneering women—doctors, educators, suffragists—were rare and often portrayed as exceptional. This asymmetry raises a central question: When does access to a dominant information technology empower marginalized groups—and when does it reinforce their invisibility?

This question matters because female labor force participation has been highly sensitive to both technological and cultural change. Over time, women's involvement in the labor market has been shaped by structural transformation, legal rights, war, education, and access to labor-saving technologies (Goldin, 1990, 2006; Costa, 2000; Olivetti and Petrongolo, 2016; Albanesi and Olivetti, 2016; Fernández, 2013; Vidart, 2024). Inventions such as the sewing machine or the washing machine increased the female labor supply by reducing time spent on domestic work (Greenwood et al., 2005; Ager and Coluccia, 2023; **?**). These were

productive technologies: they changed constraints. Newspapers, by contrast, are informational technologies. They do not directly alter productivity or time budgets—but they can shift beliefs, update expectations, and foster common knowledge.

Viewed this way, newspapers are better understood as coordination devices. Their power lies not in reducing domestic labor but in changing perceptions of what is legitimate, desirable, or feasible. They play a role in belief formation and norm diffusion. However, as emphasized in recent development economics research (Mobarak et al., 2012; Guiteras et al., 2019), the social returns to new technologies depend not just on access but on who adopts them, how they are used, and whether prevailing norms allow behavioral change. Strategic complementarities and demand-side frictions often block adoption and stall diffusion. The history of the British press exemplifies this tension.

The mid-19th century saw major policy reforms that expanded newspaper supply: the abolition of stamp duties (1855) and paper duties (1861) dramatically reduced costs. Newspapers proliferated across the country, reaching hundreds of new districts. Access widened even further through informal channels, such as newsboys and workplace reading. By the 1880s, even many working-class households had indirect exposure (Teitelbaum, 1984). And yet, for women, effective adoption lagged. Female literacy rates were lower (Cressy, 1980; Houston, 1982), women's presence in public life was constrained, and the "male breadwinner" norm (Welter, 1966; Goldin, 1986) limited women's control over household consumption. As a result, even where access was technically available, engagement remained low. Facing female readership, editors had little incentive to cater to women's interests. This setting likely produced a low-adoption, low-representation equilibrium—where demand and supply reinforced one another in excluding women.

Such equilibria, however, are vulnerable to shocks. Britain's campaign for women's rights generated a series of high-salience events that plausibly altered both female demand for newspapers and editorial incentives. These included Elizabeth Garrett Anderson's 1865 qualification as Britain's first female physician; the 1866 suffrage petition presented by John Stuart Mill; and the 1888 Match Girls' Strike. Events like these made political and professional ambitions for women more salient and attainable, raising the value of media engagement. Editors, sensing opportunity, had incentives to shift content. These dynamics mirror recent theories of coordination technologies, where external shocks can tip systems into new equilibria.

This paper tests whether these mechanisms operated in practice, using data on the staggered arrival of local newspapers in 620 British districts between 1851 and 1911. Linking these to census microdata on female labor force participation, marriage, and fertility, we

estimate the effects of newspaper access using a dynamic difference-in-differences framework (Callaway and Sant'Anna, 2021). We then go beyond average effects to examine the role of content. Focusing on the 1866 suffrage petition, we compare districts that opened a newspaper just before (and thus were exposed) to those that opened just after.

The results point to the conditional power of media. On average, the arrival of newspapers reduced female labor force participation and was associated with earlier marriage and higher fertility—patterns consistent with a reinforcement of domestic ideals. However, in districts exposed to the 1866 petition, these trends reversed: female labor force participation rose, fertility declined, and marriage was delayed. This divergence suggests that representation—who appears and how—can change how media technologies operate on social outcomes.

This paper makes four contributions. First, it provides new historical evidence on how mass media shape gender norms and labor outcomes, contributing to a broader literature on media and belief formation (Gentzkow et al., 2011; Yanagizawa-Drott, 2014; Campante et al., 2018). Second, it shows how informational technologies operate differently from productivity-enhancing innovations: their impact depends critically on the stories they carry. Third, it offers an empirical case of how representation in public narratives can catalyze norm change, echoing work on role models (Ferrara et al., 2012; Riley, 2024). Finally, it positions early female empowerment in Britain not just as a story of legislation or economic need but as one of visibility—of being seen, named, and included in the stories a nation tells about itself.

The historical setting strengthens identification. The British press landscape featured low outlet density and minimal ideological segmentation. Most districts had at most one or two papers, often with broad reach and limited competition. This minimizes concerns about self-selection or audience sorting. Moreover, many individuals—especially women—encountered content indirectly: through others reading aloud, shared papers, or community discussion. In this context, what was printed had a real chance to shift shared beliefs. By tracking both access and content, this paper provides evidence on when and how media technologies shape the norms that define economic opportunity.

2 Historical Background

The British Provincial Press

Throughout the nineteenth century, the British provincial press emerged as a central institution in the diffusion of political ideas, civic information, and social norms across the country. While London remained the hub of elite national newspapers, local or "provincial"

papers became the dominant media channel for most Britons outside the capital. By the 1870s, this decentralized press ecosystem wielded enormous influence. As William Gladstone put it in 1877, "there was more political power in the provincial press than in the whole of the London press" (Williams, 2010, p. 8).

This transformation was enabled by a series of foundational policy reforms. The abolition of the newspaper stamp duty in 1855 eliminated a long-standing tax on each printed issue, dramatically lowering fixed publishing costs. This was followed by the repeal of the advertisement duty (1853) and, most critically, the paper duty in 1861. Together, these measures marked the dismantling of the so-called "taxes on knowledge," enabling the rise of cheaper, more frequent, and more locally oriented publications (Lee, 1976; Conboy, 2004). The removal of these fiscal constraints coincided with key technological innovations—such as the rotary press and stereotyping—that increased printing speed and reduced marginal costs, making daily publication more viable across provincial towns.

The effects were immediate and far-reaching. Based on data from Mitchell and Beelen (2023)'s Newspaper Press Directories, we document a sharp expansion in the geographic reach of the provincial press. Between 1851 and 1911, the number of districts with at least one newspaper rose from 163 to 458 out of 620. Despite this growth, newspaper access remained sparse in many places: by 1911, 45% of newspapered districts had only one title in circulation. This thin coverage is crucial for our identification strategy, as it allows us to observe the staggered arrival of a newspaper and its potential effects on local behavior and norms.

The growing autonomy of the provincial press was closely tied to technological and institutional innovations in news transmission. In 1868, the telegraph network was nationalized in response to frustration with private monopolies, particularly the Electric and International Telegraph Company, which had charged provincial papers high prices for limited and delayed coverage (Silberstein-Loeb, 2009; Williams, 2010). The 1868 reform aimed to put provincial and metropolitan publishers "upon an equality as regards the time, cost, and method of obtaining their news" (Silberstein-Loeb, 2009, p. 767). The founding of the Press Association (PA) in 1870 by leading provincial editors, including those from the **???**, further consolidated this transformation. The PA served as a cooperative wire service, providing telegraphic news summaries to member papers. By 1880, it reached nearly all daily provincial papers; by 1915, it served 152 titles, accounting for over 88% of the provincial daily market (Silberstein-Loeb, 2009).

Despite relying on wire services that often originated in London, the provincial press maintained considerable editorial autonomy. Provincial editors selectively incorporated na-

tional and international news into a locally grounded structure that emphasized regional issues, municipal politics, religion, trade, and local society. In practice, this created a hybrid information environment in which provincial newspapers simultaneously reflected and localized national debates.

This structure shaped not just what was reported, but who was represented. As reported by Lansdall-Welfare et al. (2017), across the nineteenth and early twentieth centuries, the average ratio of male to female mentions in British provincial newspapers was nearly 3:1. While coverage of women increased marginally in moments of social mobilization—such as the suffrage movement or labor strikes—women remained largely absent from political and professional narratives. When mentioned, women appeared most often in domestic, entertainment, or victim-related contexts. Their visibility in the press did not match their growing presence in education, activism, or the workforce. This imbalance reinforces the hypothesis that newspapers, while expanding informational access, did not automatically broaden representation.

In response to this exclusion, a separate ecosystem of explicitly feminist periodicals gradually emerged. These publications were not merely niche outlets but strategic attempts to reshape the information market from the margins.

Doughan and Sanchez (1987) document how feminist newspapers—often launched by activists and reformers—sought to amplify women's voices at times when mainstream editors remained slow to adapt. Titles such as *The Englishwoman's Review* (founded in 1866), *The Woman's Signal*, and *The Common Cause* provided coverage of suffrage debates, professional achievements, and labor struggles that rarely made it into mainstream print. Crawford (2003) shows that *Votes for Women*, founded by the Women's Social and Political Union in 1907, reached a circulation of over 50,000 copies—a remarkable figure given limited literacy and advertising budgets. Rather than viewing these papers as exogenous innovations, they should be understood as endogenous responses to a political and cultural system that systematically limited women's visibility. Their success reveals the latent demand for gender-relevant narratives—and highlights the limits of mainstream press reform in the absence of demand-side pressure.

The provincial press thus became both a carrier of ideas and a gatekeeper of voice. Though it often served as the primary information source for readers outside the capital—especially before the rise of London-based "national" papers with regional editions in the early twentieth century (e.g., *Daily Mail*'s Manchester edition, 1900)—it reproduced many of the prevailing social hierarchies of its time. Its structure allowed for coverage of high-profile events like the 1866 women's suffrage petition, yet whether such events reached a given community

depended on timing, editorial decisions, and local demand.

Women, Work, and Political Mobilization in 19th-Century Britain

The nineteenth and early twentieth centuries marked a pivotal era in the evolution of women's roles in Britain. Economic modernization, legal reform, and political agitation gradually expanded the spaces in which women could participate beyond the domestic sphere. Yet these developments unfolded within a cultural and institutional framework that largely reinforced gendered hierarchies—especially through the persistent ideal of the "male breadwinner" model, which framed men as primary earners and women as dependents (Davidoff and Hall, 2018). This ideology permeated law, education, and labour markets, defining the terms of respectability and shaping the contours of female citizenship.

Labour force participation among women during this period reveals the tension between structural change and cultural constraint. Drawing on individual-level data from the Integrated Census Microdata (I-CeM), which harmonizes records from the British censuses of 1851 to 1911 (Schurer et al., 2025), a clear and persistent marital gap in employment emerges. As shown in Figure 1, female labour force participation (FLFP) in Britain from 1851 to 1901 evolved differently by marital status. Among single women, FLFP initially increased slightly—from about 70% in 1851 to a peak in the 1880s—before declining in the final two decades of the century. In contrast, married women's participation was not only much lower throughout but also declined steadily across the entire period, dropping from around 20% to just over 10%. This divergence reflects how marital status increasingly structured women's access to paid work: while single women were expected to contribute economically, marriage often triggered withdrawal from the labour market due to legal constraints, employer preferences, and social norms surrounding domesticity. For comparison, male labour force participation remained stable between 95% and 97%, underscoring the gendered rigidity of labour roles.

The sectors in which women worked were also heavily segmented. Working-class women were concentrated in domestic service—by far the largest single employer of women throughout the period—as well as textiles (particularly in the cotton mills of Lancashire and Yorkshire), agriculture in southern England, and, increasingly, in education, nursing, and clerical occupations. Yet these roles were consistently undervalued and underpaid relative to male-dominated sectors, and opportunities for advancement remained rare. As Burnette (2008) documents, women's wages were typically less than half those of men, even in comparable jobs, and their contributions were often dismissed as supplementary rather than central to

household economies.

Education was another frontier of change. The Elementary Education Act of 1870 and the Education Act of 1880 introduced compulsory schooling for children aged 5 to 10, contributing to a substantial rise in literacy rates. In 1861, approximately 75 percent of men and 60 percent of women were literate; by the turn of the century, this gender gap had significantly narrowed. However, access to secondary and higher education remained sharply stratified by gender. Elizabeth Garrett Anderson's admission as Britain's first licensed female physician in 1865—achieved only after sustained legal and institutional resistance—highlighted the formidable barriers to professional training. Her example inspired broader campaigns that led to the founding of women's colleges such as Girton (1869) and Newnham (1871), but women's full integration into university life remained contested well into the twentieth century (Sutherland, 1990).

Legal and economic constraints were slowly eroded by reform. The Married Women's Property Acts of 1870 and 1882 granted married women control over their earnings and inheritances, dismantling the common law doctrine of coverture, under which a married woman had no legal identity apart from her husband. As Shanley (1989) argues, these changes marked a significant shift in how women were positioned as legal and economic actors, though their implications varied by class and were often limited by continuing structural inequalities.

Women's collective political mobilization gained momentum in the late nineteenth century, with increasing overlap between labour activism and suffrage advocacy. The Match Girls' Strike of 1888, a walkout by young women at the Bryant and May match factory in East London, was a landmark moment in British labour history. The strike not only secured material concessions but also challenged assumptions about working-class women's capacity for political action and helped catalyze a broader, if uneven, integration of women into the trade union movement (Tusan, 2005).

The campaign for women's suffrage emerged from this context of growing public engagement. While organized efforts began in the 1860s—such as the petitions sponsored by the Langham Place Circle and the formation of the National Society for Women's Suffrage—the turn of the century saw a decisive shift toward more militant strategies. In 1903, Emmeline Pankhurst founded the Women's Social and Political Union (WSPU), which employed confrontational tactics including protests, hunger strikes, and civil disobedience. The movement gained widespread attention after the death of suffragette Emily Wilding Davison at the Epsom Derby in 1913, which galvanized public debate and revealed the intensity of resistance to female enfranchisement (Atkinson, 2018).

These campaigns achieved a partial breakthrough with the Representation of the People

Act in 1918, which enfranchised women over the age of thirty who met property qualifications. Full electoral parity was only achieved in 1928 with the Equal Franchise Act, which extended voting rights to all women aged twenty-one and over, on the same terms as men.

3 Data

Registration Districts and Sub-Districts. Our unit of observation is the registration sub-district, as defined in the Integrated Census Microdata (I-CeM), which harmonizes full-count census data for England and Wales from 1851 to 1911 (Schurer, Higgs, and FindMyPast, 2025). Each individual is georeferenced to a sub-district, allowing us to track demographic and economic outcomes at a fine spatial resolution. To assign consistent geographic boundaries over time, we use digitized shapefiles for sub-districts provided by Joseph Day, and for registration districts from Southall et al. (2023). Following common practice in historical GIS (Satchell, 2017; Satchell et al., 2018; Roughley and Anderson, 2019; Day et al., 2016), we harmonize all boundaries to the 1851 geography to ensure temporal comparability.

Newspaper Circulation. We construct district-level measures of newspaper diffusion using the dataset by Mitchell and Beelen (2023). These directories list all known British newspapers by year, including founding date, place of printing, circulation, and political alignment. We restrict to provincial, general-interest newspapers and exclude specialized publications (e.g., on sport, medicine, trade) based on title keywords. For each registration district, we define the year of first newspaper availability as the earliest year a newspaper was printed locally, assigning exposure to all sub-districts within the district. This follows Beach and Hanlon (2023), who argue that circulation areas of provincial papers correspond closely to district boundaries. Sub-districts in the county of London are excluded to avoid endogenous exposure to metropolitan media markets.

Newspaper Content and Framing. To analyze how women were portrayed in the press, we use full-text articles from the British Newspaper Archive (BNA). We extract articles mentioning "women" between 1851 and 1911 and collect those referencing "women's suffrage" to study coverage around the 1866 petition. We classify suffrage-related articles by tone—positive, neutral, or negative—to assess local framing of feminist claims. While the BNA provides rich content, it represents a non-random sample of historical newspapers. As Beach and Hanlon (2023) show, only about 30% of the newspapers listed in the 1895 *Newspaper Press Directory* appear in the BNA. Selection is systematically related to observables:

daily newspapers are 16 percentage points more likely to be included, while political alignment has little predictive power; older and more established newspapers are also more likely to survive. The archive thus over-represents urban, high-circulation dailies and under-represents short-lived or local weeklies.

Socio-Economic Data. We construct key socio-economic indicators at the sub-district level using full-count individual-level census data from I-CeM (Schurer et al., 2025). For each census year between 1851 and 1891, we compute gender-disaggregated labour force participation rates as the number of individuals recorded as working divided by the working-age population (defined as ages 15–64), separately by gender and sub-district. To capture broader dimensions of women's status, we draw on the dataset compiled by Reid (2020), which provides detailed demographic and occupational measures across registration sub-districts. Specifically, we use indicators such as Total Fertility Rate (TFR), average age at marriage, and adult female celibacy (the share of never-married women aged 45–54), as well as female employment shares in domestic service and textile manufacturing. For men, we use the share employed by occupational skill level and in textile work. These variables allow us to characterize both fertility behavior and gendered labour segmentation. To summarize the multi-dimensional nature of gender norms, we use TFR, age at marriage, and adult celibacy to construct an index of female empowerment for each census year. We apply principal component analysis (PCA) and extract the first component, which captures the common variance across these indicators. Higher values of this component correspond to sub-districts with later marriage, lower fertility, and higher lifetime celibacy—traits historically associated with greater female autonomy. Following Reid (2020), we also classify each sub-district in 1851 according to its economic structure. A sub-district is labeled as *textile* if at least 25% of the working population (ages 15–64, excluding general labourers) were employed in textile-related occupations. It is labeled as *agricultural* if at least 5% were employed in agriculture and the population density was less than one person per acre. Finally, it is important to note that the 1871 census is currently missing from I-CeM. However, Reid (2020) accessed an alternative version of the 1871 census and provides TFR and ASFRs for that year.

1851 Literacy. Because the historical censuses do not report education levels until 1921, we rely on school attendance data from the 1851 Census of Education to proxy for female literacy. This was a separate survey conducted concurrently with the 1851 Census of Population, recording school-level data on the number of enrolled pupils by gender (Southall and Aucott, 2022). Although the dataset does not contain information on pupils' ages, it cap-

tures the number of students belonging to each school—i.e., those listed on the register. To construct a district-level proxy for literacy, we calculate the ratio of scholars enrolled in any day school to the number of children aged 5–14 in the same registration district. Population denominators are taken from the I-CeM census microdata. This measure reflects the extent of exposure to formal schooling during childhood, which is strongly correlated with literacy in the period. The national average in our sample is approximately 60%, in line with earlier estimates by Schofield (1973) based on aggregate illiteracy rates, with the added benefit of being geographically disaggregated at the district level.

Petitions. We collect new data on women's suffrage petitions between 1870 and 1890 from the *Women's Suffrage Journal*, edited by Lydia Becker and published monthly by the Manchester National Society for Women's Suffrage. Each issue reports the occurrence of petitions, their locality, and the name of the corresponding Member of Parliament (MP). When available, we also collect the number of signatories; however, this information is missing in most cases. We therefore rely primarily on counts of petitions per year and district. We aggregate this information at both the registration district and MP constituency levels. The *Women's Suffrage Journal*—founded in 1870 and active until Becker's death in 1890—served as the principal communication organ of the suffrage movement in the north of England. Becker, a leading figure in the early campaign, was secretary of the Manchester Society from 1867 and played a key role in mobilizing petitioning activity, particularly during the 1870s and 1880s. The petition data offers a unique window into the geography of grassroots suffrage activism during the period when legislative lobbying (through petitions and private bills) was the primary political strategy.

4 First Newspaper Entry

We investigate the impact of local newspaper access on female empowerment by exploiting the staggered entry of newspapers across districts. Our treatment variable is the year in which a district first receives a locally printed newspaper. As newspaper entry is an absorbing treatment—districts remain "treated" once they gain newspaper access—we restrict our sample to newspapers that survive at least five years to avoid capturing ephemeral or short-lived publications.

To estimate the causal effect of newspaper diffusion on gender norms, we implement a dynamic difference-in-differences (DiD) design that accommodates variation in treatment timing, following Callaway and Sant'Anna (2021). Our main event-study specification is:

$$Y_{it} = \sum_{j} \mathbf{1}\{t - G_i = j\}\delta_j + \alpha_i + \sigma_t + u_{it} \tag{1}$$

where Y_{it} denotes outcomes such as female labour force participation, the share of women in male-dominated occupations, fertility, or celibacy; α_i are district fixed effects; σ_t are year fixed effects; and G_i is the year of first newspaper entry in district i. The coefficients δ_j trace out dynamic treatment effects relative to the year of first exposure ($j = 0$). At each time t, the control group consists of "not-yet-treated" districts ($G_i > t$).

Identification relies on the standard assumptions of the staggered DiD framework: (i) *parallel trends*, meaning that in the absence of treatment, treated and control districts would have followed similar trajectories in the outcome; and (ii) *no anticipation*, implying that districts did not adjust gender-related behaviors in expectation of future newspaper access. While these assumptions are not directly testable, the event-study specification enables us to visually assess their plausibility by inspecting pre-treatment coefficients.

To improve the credibility of the parallel trends assumption, we restrict our sample to districts that eventually receive treatment by 1911. That is, we exclude never-treated districts and compare only among units that ultimately gain newspaper access, exploiting variation in the timing of entry rather than its occurrence. This ensures a more balanced comparison across districts that are likely to be similar in their long-run characteristics.

Because we observe outcomes at decadal intervals (the census years), treatment cohorts necessarily include districts that adopted newspapers at different points within the preceding decade. For example, districts in the 1861 treatment cohort may have received their first newspaper as early as 1852 or as late as 1860. To address the resulting measurement imprecision, we conduct a robustness check in Appendix A, where we re-bin treatment cohorts based on the exact distance between the year of newspaper entry and the nearest census year. Restricting the window from 10 years to 5 years yields nearly identical results, suggesting that our main findings are not driven by within-cohort timing heterogeneity.

To address potential endogeneity concerns—namely, that newspaper entry may be correlated with underlying economic development or unobservable district characteristics that also influence women's outcomes—we implement an instrumental variables (IV) strategy detailed in Appendix B. The instrument follows a shift-share logic and is designed to isolate quasi-exogenous variation in newspaper access that is unrelated to local gender dynamics.

Finally, our results are robust to conditioning on a pre-treatment measure of female empowerment, constructed as the first principal component of three baseline variables: total fertility rate, female age at marriage, and adult celibacy. This helps address concerns about

omitted variable bias due to pre-existing differences in gender norms. However, conditioning on this covariate introduces a positivity assumption (i.e., sufficient overlap in the covariate distribution across treated and control units), as discussed in Callaway and Sant'Anna (2021).

Female Labour and Gender Norms

We begin by estimating the dynamic effects of local newspaper entry on women's economic and demographic outcomes. Figure 2 presents the event-study estimates for female labour force participation (FLP). We observe a marked and persistent decline in FLP following newspaper entry. Crucially, the estimated pre-treatment coefficients are close to zero and statistically insignificant, lending support to the parallel trends assumption.

To investigate whether the effect differs by marital status, Figure 3 disaggregates FLP into never-married and married women. The estimates are standardized, and results suggest that the decline in FLP occurs for both groups, with no statistically significant difference between them. This implies that the effect of newspaper exposure on women's labour market participation is not mediated by marital status.

Next, we explore potential occupational re-sorting in response to newspaper entry. Using occupational data from Reid (2020), we examine changes in the share of women working in domestic service—a sector historically linked to traditional gender roles. Figure 4 reveals that while pre-treatment trends are flat, domestic service employment increases shortly after newspaper access becomes available. This effect, however, fades over time. The short-term rise may reflect a shift among working women towards more socially normative occupations, suggesting that newspapers reinforced traditional expectations about women's economic roles.

We further test this hypothesis by studying newspaper effects on demographic indicators of gender norms. Figure 5 shows that following newspaper entry, adult celibacy declines, age at marriage falls, and total fertility increases—all changes consistent with more conservative gender role attitudes. To understand whether the increase in fertility is concentrated at specific life stages, we disaggregate by age using Age-Specific Fertility Rates (ASFRs). Figure 6 indicates that the fertility rise is concentrated among younger women, though effects across all reproductive-age groups trend upward. This supports the interpretation that newspaper exposure contributed to a societal shift towards more traditional gender expectations, including earlier and more intensive childbearing.

Circulation, Printing, and Spillovers

Our empirical setup allows us to distinguish between newspaper circulation and printing. Since we know the exact sub-district where each newspaper was printed, we can isolate the potential economic effects of becoming a local printing hub—effects that might stem from labour market activity or industrial development unrelated to information diffusion.

Figure 7 illustrates our identification strategy. We collapse the event-study framework into an average treatment effect across cohorts and time, and define three distinct treatments: (i) sub-districts that print newspapers, (ii) sub-districts exposed to circulation within their district but do not host printing activity, and (iii) sub-districts that border treated areas (spillovers). In all specifications, the comparison group consists of sub-districts that will eventually receive the respective treatment by 1911 but have not yet done so at time t.

Table 1 reports the results. Column (1) shows that the combined effect of printing and circulation is statistically indistinguishable from zero. In contrast, Column (2) isolates non-printing circulation areas and recovers the same negative effect on FLP previously identified, suggesting that the effect is driven by exposure to newspaper content rather than industrial dynamics associated with printing. Column (3) estimates small but negative spillover effects in adjacent sub-districts, implying that the previously estimated effect of newspaper access is likely a lower bound.

The Role of Literacy

To probe mechanisms, we examine whether baseline female literacy shaped districts' responses to newspaper entry. Using district-level school attendance rates from 1851 as a proxy for female literacy, we split the sample into high and low literacy areas. Figure 8 plots separate treatment effects for each group on both female labour outcomes and gender norms. The reduction in female employment and the intensification of traditional gender norms are concentrated entirely in areas with initially low female literacy.

This heterogeneity is consistent with a model of strategic complementarities in the media market. In low-literacy environments, women were unlikely to constitute a substantial readership, weakening incentives for editors to offer inclusive or progressive coverage. As a result, newspapers in these areas may have perpetuated or even amplified prevailing patriarchal values. In turn, the lack of female-oriented content further discouraged women's engagement with the press, reinforcing the equilibrium. This dynamic reflects a classic case of strategic complementarities: women's incentives to consume media were low because coverage failed to reflect their experiences, and coverage remained narrow because women were not salient

consumers. Our results suggest that higher female literacy—by increasing women's effective demand for media—acted as a cultural buffer against regressive narratives and gender norm entrenchment.

Occupational Structure by Gender

We next examine how newspaper circulation shaped the occupational structure, with a focus on gendered patterns of sectoral and skill-based employment. Figure 9 confirms that male labour force participation (MLF) remained essentially unaffected by newspaper entry, consistent with the already near-universal participation rate of men (between 95–97%). However, while the extensive margin of male employment is stable, media diffusion may have influenced the composition of male occupations.

To explore this, we use the occupational classification scheme developed by Reid (2020), which categorizes jobs by skill level and sector. Panel A of Table 2 shows that newspaper entry is associated with a significant reallocation of male employment: the share of men in skilled non-manual and semi-skilled occupations declines, while the share in professional and managerial roles increases. This shift suggests that local newspapers may have facilitated or reflected broader processes of occupational upgrading, potentially through better access to information, job market signals, or normative shifts around career aspirations.

Simultaneously, we observe a clear gendered restructuring within the textile sector. Following newspaper entry, the share of men employed in textile production declines, while the share of women rises by a similar magnitude. This pattern indicates a partial substitution effect: newspapers may have contributed to reasserting gender norms by pushing men out of feminized industries while reinforcing women's concentration in them.

To understand the heterogeneity behind these patterns, we disaggregate the sample by pre-existing economic specialization. Panel B restricts the analysis to sub-districts that were classified as agricultural in 1851. In these areas, the decline in skilled non-manual male employment is particularly pronounced, suggesting that the shift away from artisanal and intermediate-skill work may have been concentrated in more rural or traditional regions.

Panel C focuses on textile-dominated sub-districts. Here, we find that the gendered reallocation in the textile industry is almost entirely driven by these historically industrialized areas. Newspaper entry appears to have amplified existing gender divisions: while men transitioned out of textiles—possibly toward more status-enhancing jobs—women's participation in textiles increased substantially, consistent with a reinforcement of occupational segregation.

Taken together, these findings suggest that newspaper circulation did not just affect female labour force participation but also interacted with existing local economic structures to reshape occupational sorting along gendered lines. Rather than equalizing opportunities, media exposure appears to have deepened traditional divisions—pushing men upwards into professional roles while anchoring women in feminized sectors like textile work.

5 The 1866 Petition for Women's Suffrage

The preceding analysis suggests that newspaper circulation, on average, reinforced patriarchal structures and contributed to the diffusion and entrenchment of male breadwinner norms. However, equilibria rooted in strategic complementarities—such as low female representation in both media content and readership—are not immutable. They are susceptible to coordinated shocks that shift expectations and alter incentives. One such moment was the 1866 women's suffrage petition, which marked a critical turning point in the campaign for women's rights in Britain.

Led by Helen Taylor and presented in Parliament by John Stuart Mill, the 1866 petition called for extending the franchise to female property holders. It gathered 1,521 signatures and spurred the first parliamentary debate on women's suffrage in 1867. To understand whether media content—rather than access alone—can shape gender norms, we study this pivotal event along two dimensions: (i) differential exposure to the petition through newly established newspapers, and (ii) the tone and framing of coverage in the press.

Media Exposure to the 1866 Petition

We first isolate the causal effect of being exposed to this news item by leveraging variation in newspaper entry timing relative to the month of petition submission (June/July 1866). Specifically, we compare districts that received their first local newspaper just before 1866 (and thus were exposed to the news) with those that received it shortly after (and therefore missed the event). By conditioning on districts with similarly timed media access, this approach isolates the impact of the 1866 petition coverage from the broader (and potentially negative) effects of newspaper circulation shown earlier.

We implement a difference-in-differences (DiD) design around this timing threshold, estimating:

$$Y_{i,t} = \text{Newspaper in } 1866_i \times \text{Post-}1866_t + \alpha_i + \sigma_t + \omega_{c,t} + \delta_{g,t} + \epsilon_{i,t} \tag{2}$$

where Newspaper in 1866_i is an indicator for districts whose first newspaper entered before mid-1866, and Post-1866_t is a post-treatment dummy. The specification includes district fixed effects α_i, year fixed effects σ_t, county-by-year fixed effects $\omega_{c,t}$, and geographic cluster-by-year fixed effects $\delta_{g,t}$ to absorb any local trends and unobserved heterogeneity at fine spatial levels. To further account for differences in timing, we apply kernel weights based on the proximity of a district's entry year to 1866, similarly to a regression discontinuity approach.

Figure 10 illustrates the empirical strategy and maps the districts used in the analysis. The event-study plot in Figure 11 shows no differential pre-trends in 1851, validating the identification strategy. After the event, we observe a sharp and persistent increase in female labour force participation (FLFP), particularly among never-married women. For married women, the increase is slower and appears only in the next generation, suggesting that deeper gender norms take longer to shift for this group—possibly due to entrenched legal and economic constraints on married women's work.

Table 3 presents static DiD estimates on both FLFP and gender norms outcomes, including adult celibacy, age at marriage, total fertility rate (TFR), and our composite index of female empowerment. We find consistent evidence that exposure to the 1866 petition reversed the earlier pattern: treated districts experienced an erosion of traditional norms. Notably, the empowerment effect is strongest in districts that were less progressive in 1851—suggesting that exposure to feminist political discourse had larger effects in more patriarchal environments.

To test the plausibility of a readership channel, we explore the heterogeneity in baseline female literacy using data from the 1851 education census. Figure 12 shows that the positive effects are concentrated in districts with higher female literacy, even after controlling for male literacy. This suggests that the mechanism was not simply men reading about women, but rather women engaging with narratives about their own political and social rights. In other words, the shock worked because women were both the subject and the audience of the news, breaking the self-reinforcing equilibrium of low readership and low representation. Editors in these areas may have had greater incentives to publish more inclusive content, leading to a virtuous cycle of media and empowerment.

To further validate our design, we run a placebo test using a "fake" news shock in 1856, assigning treatment to districts that received a newspaper just before versus just after that year. Figure 13 contrasts the estimated treatment effects around 1856 and 1866. As expected, we detect no significant effect around the 1856 cutoff, ruling out decade-end timing confounds and reinforcing the claim that the 1866 results reflect exposure to the suffrage petition and

not arbitrary differences in newspaper entry timing.

Together, these findings suggest that while newspaper access generally reinforced patriarchal norms, targeted exposure to feminist content during key moments could catalyze lasting change in women's roles and status—particularly when the local audience was literate and receptive.

To probe whether content framing amplified the petition's effects, we analyze a corpus of approximately 10,000 newspaper articles from the British Newspaper Archive (BNA) that mention both "suffrage" and "female" in 1866. Using CorEx, an unsupervised topic modeling method that maximizes total correlation among observed words and latent topics, we extract dominant themes in coverage. To identify empowering narratives, we anchor the model using positive adjectives (e.g., empowering, finally, rightly, correctly), and construct district-level sentiment scores by mapping articles to newspapers, and newspapers to their circulation areas.

$$Y_{i,t} = \text{Positive in } 1866_i \times \text{Post-}1866_t + \alpha_i + \sigma_t + \omega_{c,t} + \delta_{g,t} + \eta_{i,t} \tag{3}$$

where Positive in 1866_i is an indicator capturing whether the positive score is above median. Figure 14 shows that, conditional on being exposed to the petition, more positive framing further increased female labor force participation. The effect is evident for both never-married and married women, though it appears later and more gradually for the latter. This lag likely reflects institutional and legal frictions—such as coverture laws and restricted economic rights—that constrained married women's ability to act on changing beliefs. In contrast, single women, less encumbered by household dynamics, responded more immediately to shifts in perceived opportunity.

Together, these findings suggest that beyond access and timing, the tone and framing of information critically shaped the emancipatory potential of media. Newspapers helped shift norms not just by transmitting events, but by narrating them in ways that validated new roles for women—and did so most effectively when women were both subjects and readers of the story.

Women's Suffrage Movement and Petitioning

To further explore the political consequences of media exposure to the 1866 petition, we collect novel data on suffrage petitioning activity from yearly issues of the *Women's Suffrage Journal* between 1870 and 1880. The journal, edited by Lydia Becker, systematically reported petitions submitted to Parliament in favor of women's suffrage, including information on the

place, *date*, and *number of signatures*, as well as the name of the Member of Parliament involved. Based on this, we construct district-level measures of petitioning intensity by year, focusing on the cumulative number of petitions submitted and, when available, the number of signatories.

Since petitioning data is only available for the post-treatment period, we cannot directly implement a standard DiD design with pre-treatment dynamics. To address this limitation, we use a Synthetic Difference-in-Differences (SDiD) estimator, which combines the strengths of synthetic control and DiD by constructing weighted combinations of control units that match the pre-treatment trends of the treated units (Arkhangelsky et al., 2021). Specifically, we use female empowerment and labour market variables to re-weight non-treated districts such that their pre-1866 trends match those of the treated group.

We use this strategy to compare petitioning behavior across treatment dimensions. First, we contrast districts that were exposed to newspaper coverage of the 1866 petition with those that were not. Second, we leverage our content analysis of newspaper articles to differentiate districts by tone of coverage: we construct a district-level "positivity score" based on the share of articles that framed the petition positively, and define as treated those districts with above-median positivity.

Figure 15 presents the average number of petitions across these groups. We find no meaningful difference between exposed and non-exposed districts, suggesting that simple access to the news was not sufficient to spur civic mobilization. However, framing appears crucial: districts with more positive coverage of the 1866 petition submitted significantly more suffrage petitions in the subsequent years.

To explore the dynamics of this effect, we estimate year-by-year differences in petitioning activity between districts with positive versus non-positive coverage. The results, shown in Figure 16, reveal consistently higher petitioning rates in positively treated districts throughout the 1870s and early 1880s. The effect is most pronounced in the first decade following the petition, though we cannot statistically reject that it varies significantly across years.

Taken together, these findings highlight that media content—not just access—can meaningfully influence grassroots political mobilization. In this case, positive framing of women's political demands translated into greater engagement with the suffrage movement, reinforcing the broader role of media in shaping civic behavior and norm formation.

6 Conclusions

This paper shows that mass media can entrench existing gender hierarchies or disrupt them—depending not only on access, but on timing, content, and audience. While the expansion of local newspapers in 19th-century Britain generally reinforced domestic ideals, exposure to a feminist milestone— the 1866 suffrage petition—reversed these effects, increasing female labor force participation and delaying family formation. These effects were strongest in districts with low baseline female empowerment and high female literacy, and further amplified by positively framed media content.

By combining archival data with census data, the paper shows how media technologies can shape social norms. It moves beyond the question of access to show that who appears in the public narrative—and how they are portrayed—can alter behavioral equilibria. The findings also help explain why many women remained invisible in the early media landscape, and how moments of visibility sparked downstream changes in economic and political engagement.

This historical setting illustrates a broader mechanism still relevant today: symbolic inclusion can be catalytic, but only when audiences are equipped to receive it and institutions are slow to adjust. The emancipatory power of media is neither linear nor automatic. It is contingent on representation—and on whether the stories a society tells allow its marginalized members to see themselves in the plot.

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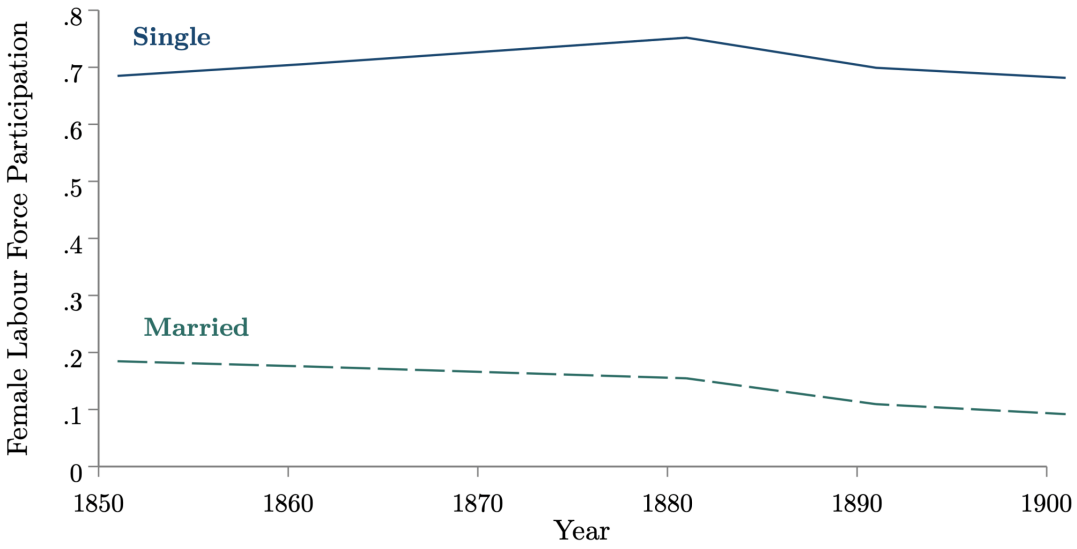
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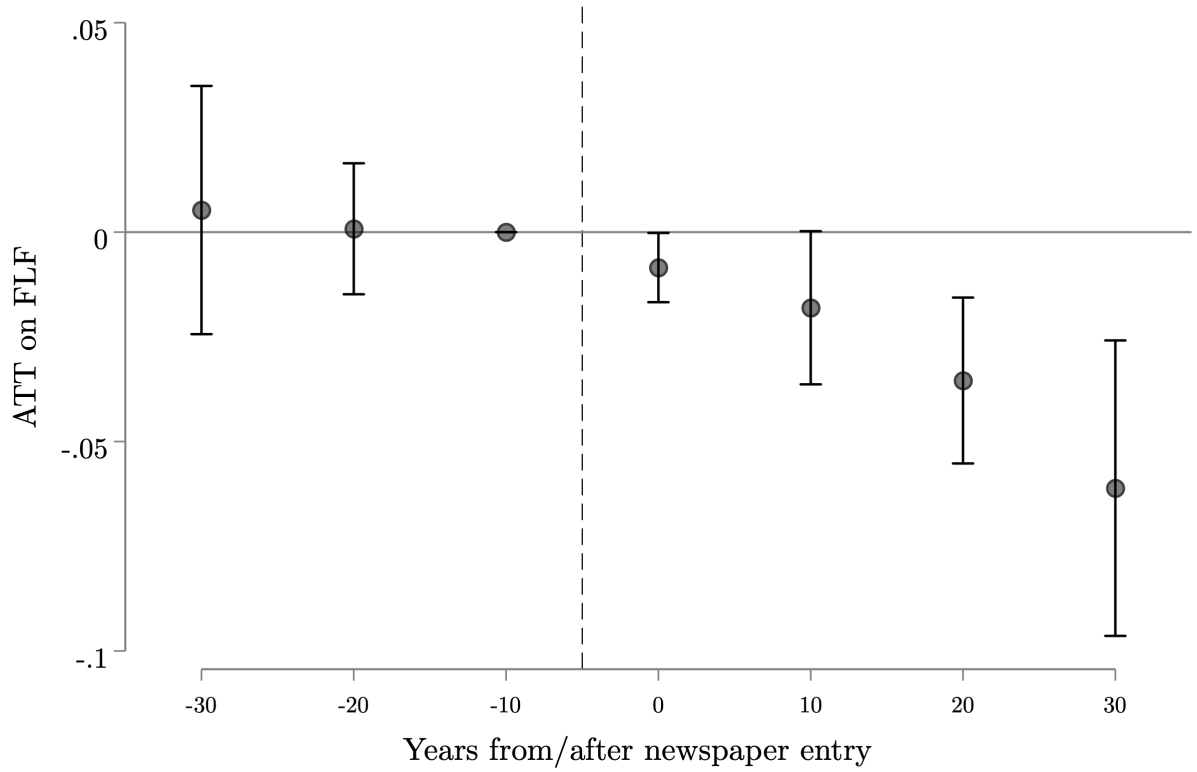
Figures

Figure 1: Evolution of Female Labour Force Participation.



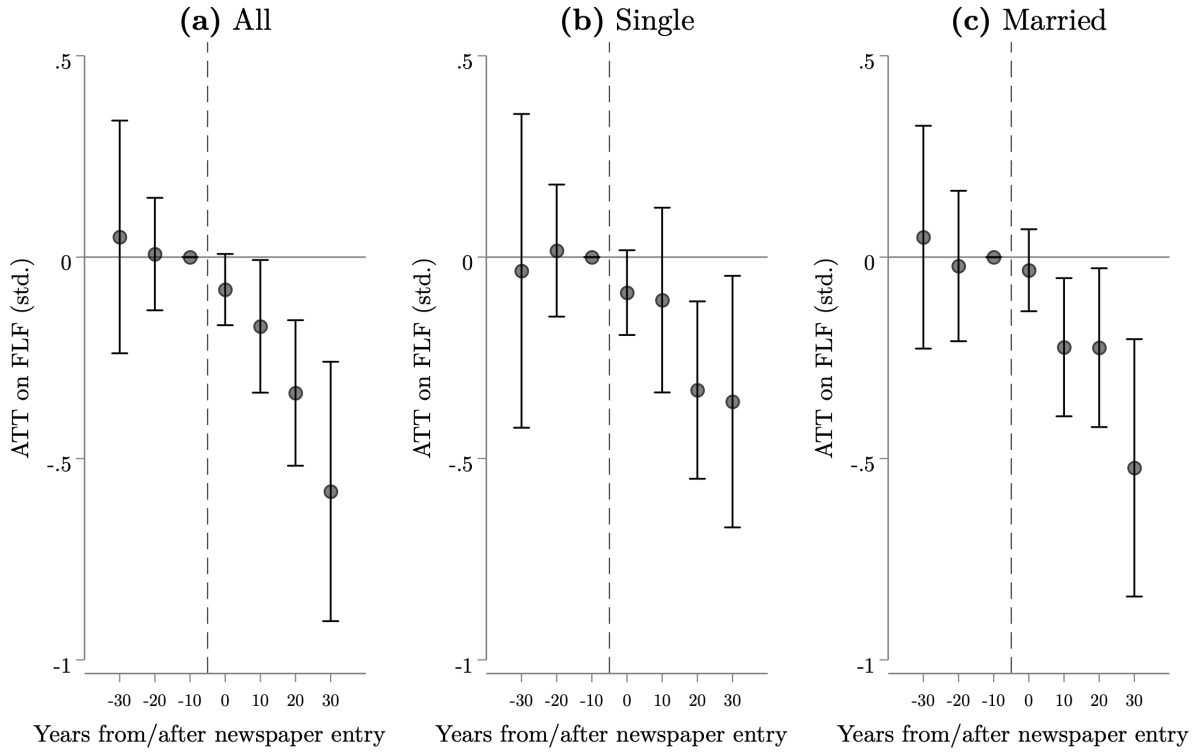
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Figure 2: Female Labour Force Participation.



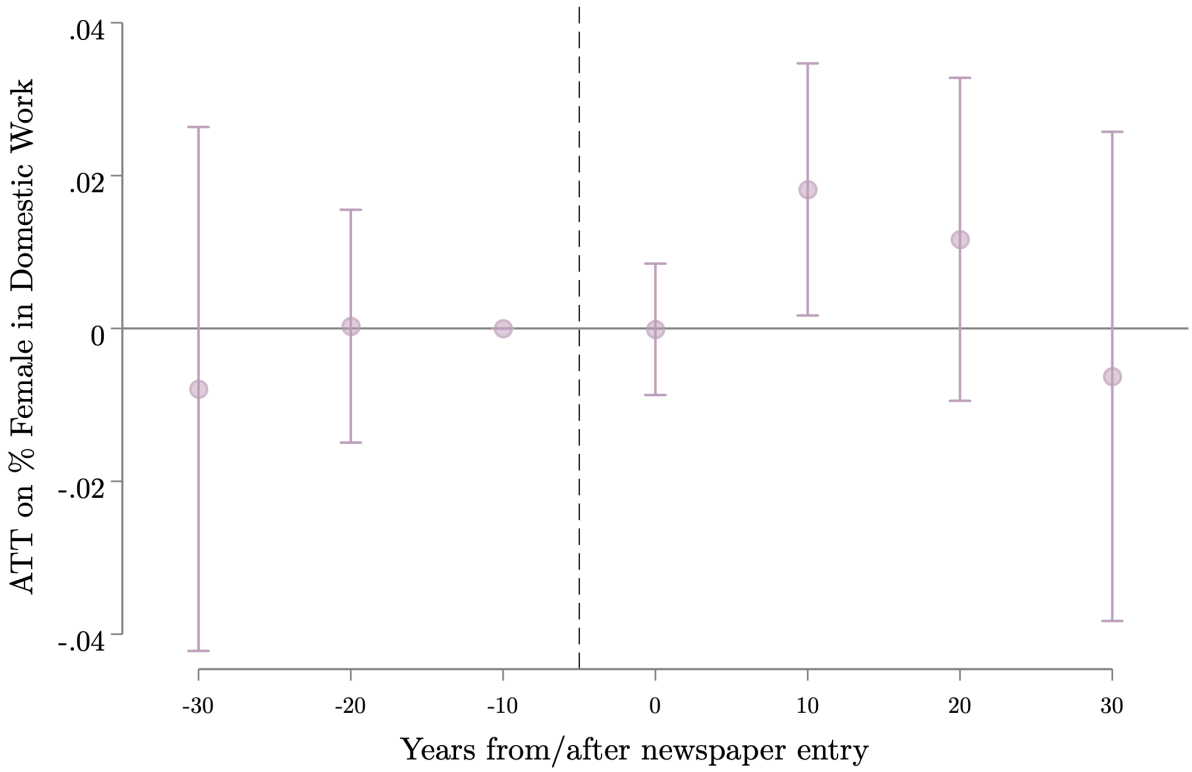
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Figure 3: Female Labour Force Participation and Marital Status.



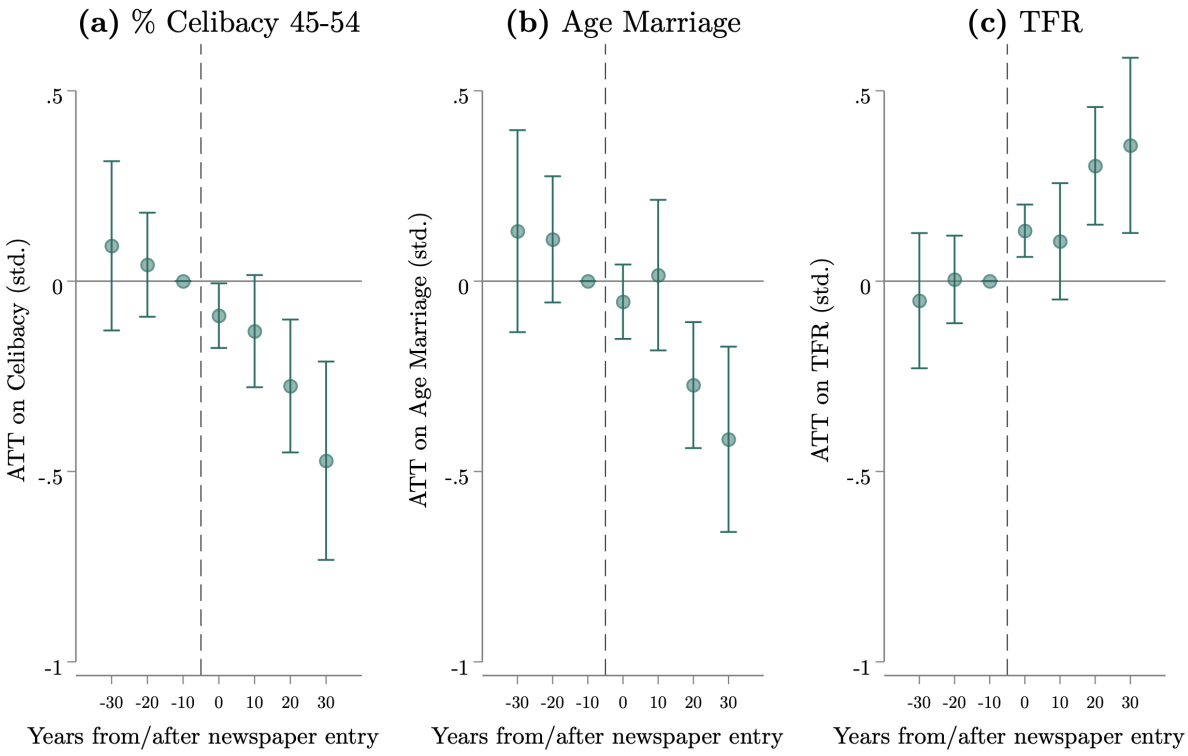
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Figure 4: Female Employment in Domestic Services.



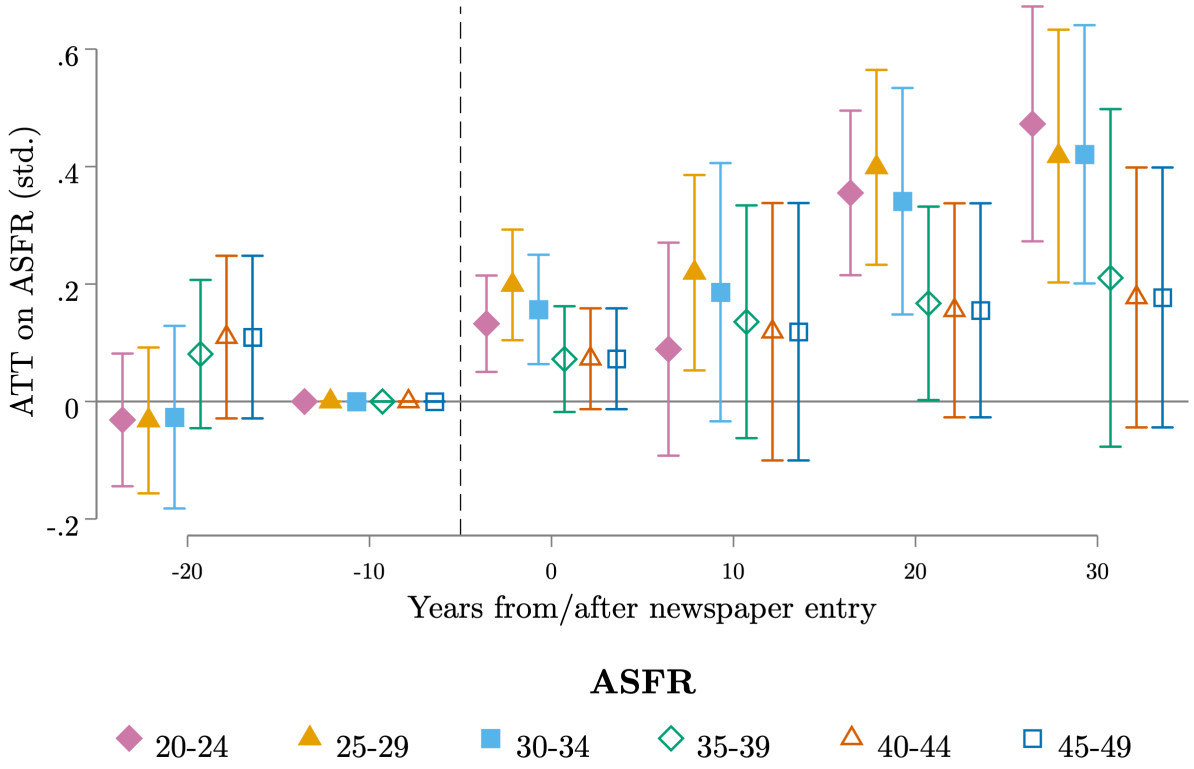
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Figure 5: Gender Norms.



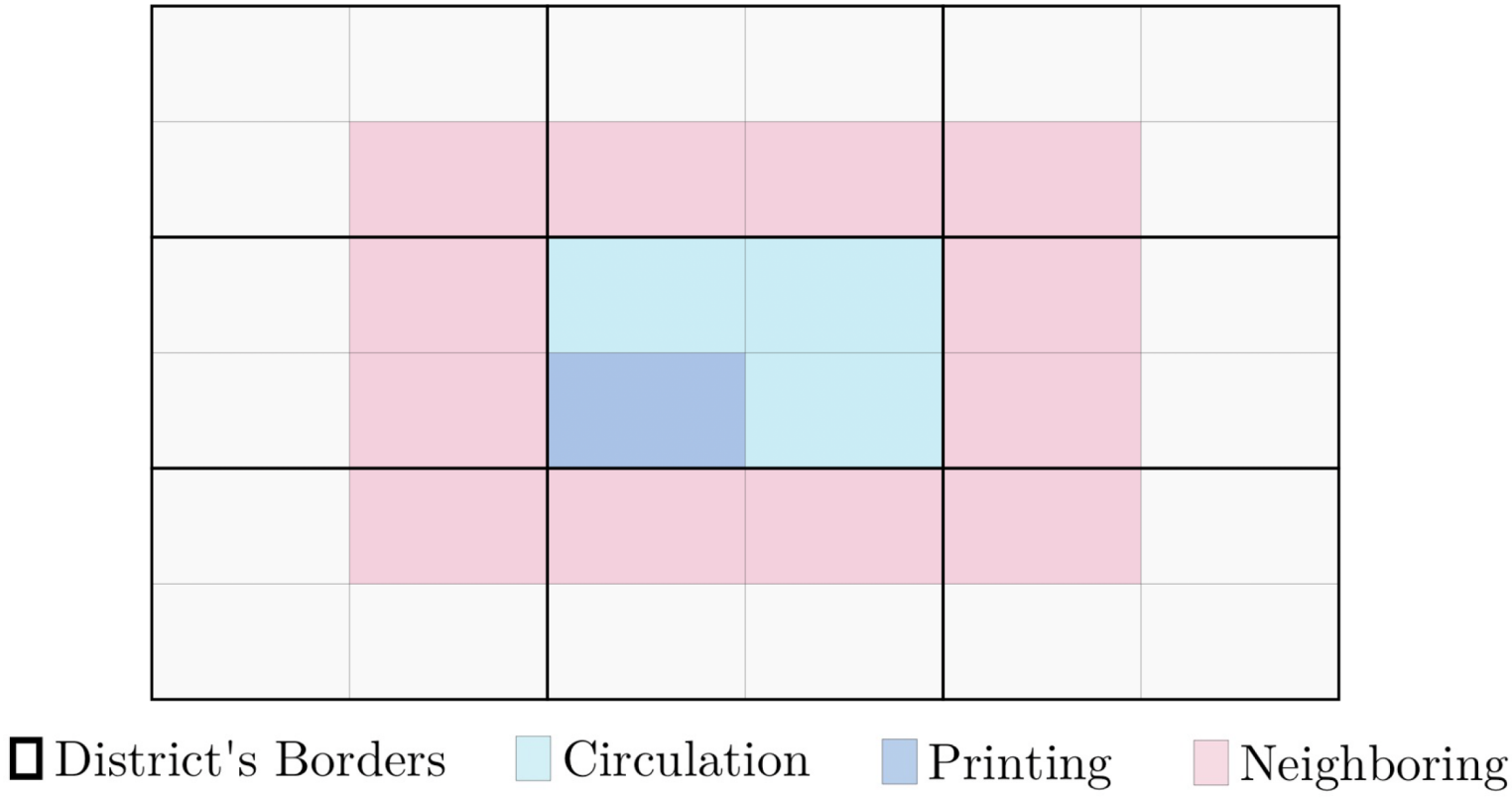
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Figure 6: Fertility Rate by Age Bracket.



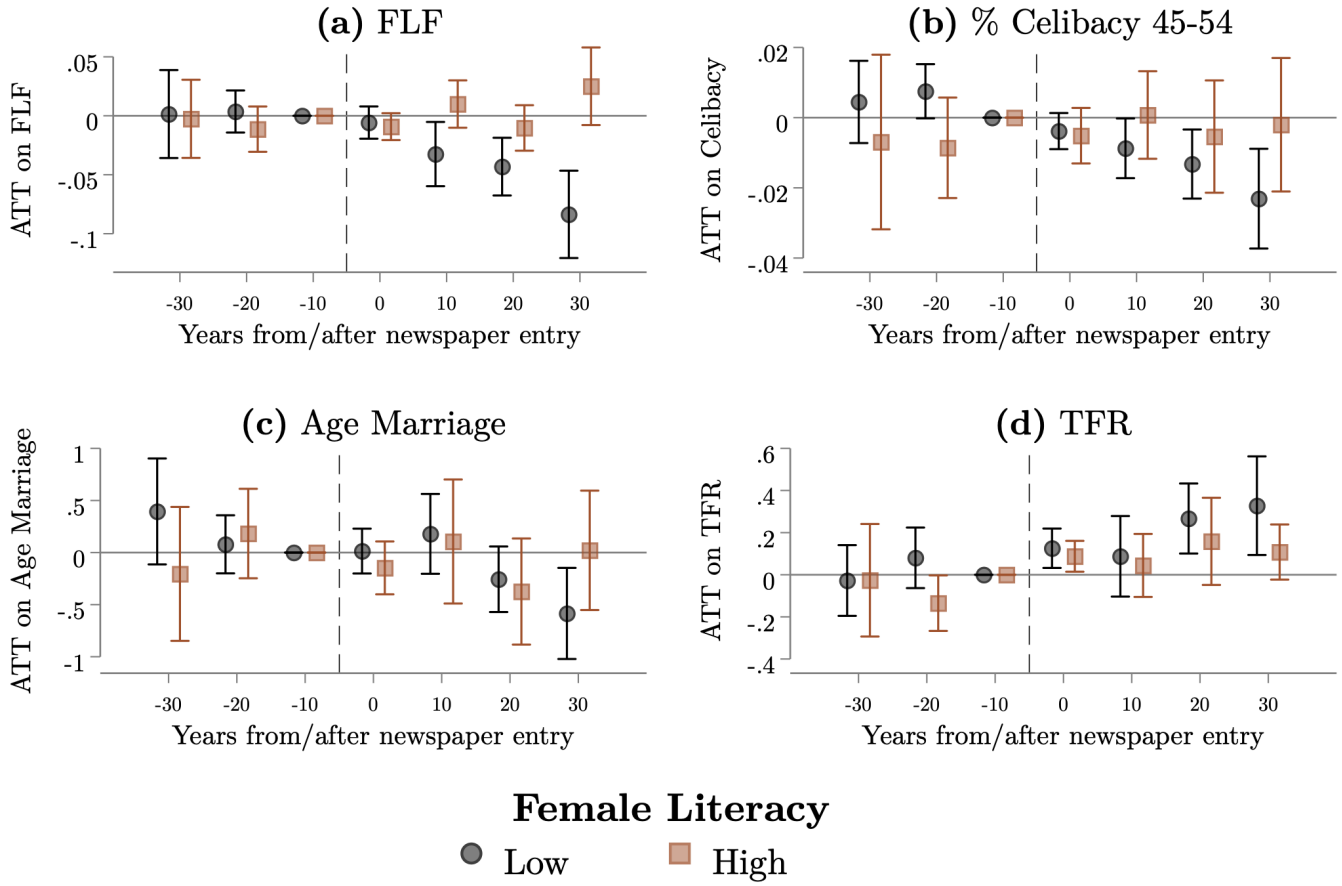
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Figure 7: Circulation Spillovers.



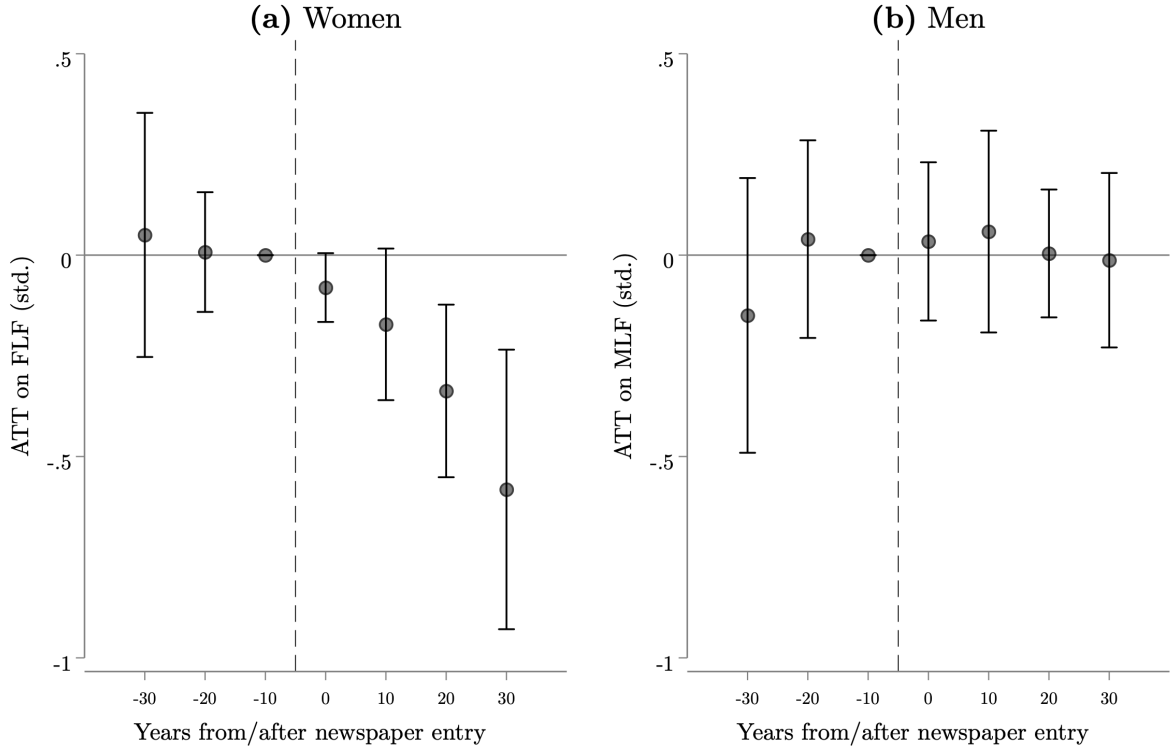
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Figure 8: Female Emancipation and Literacy.



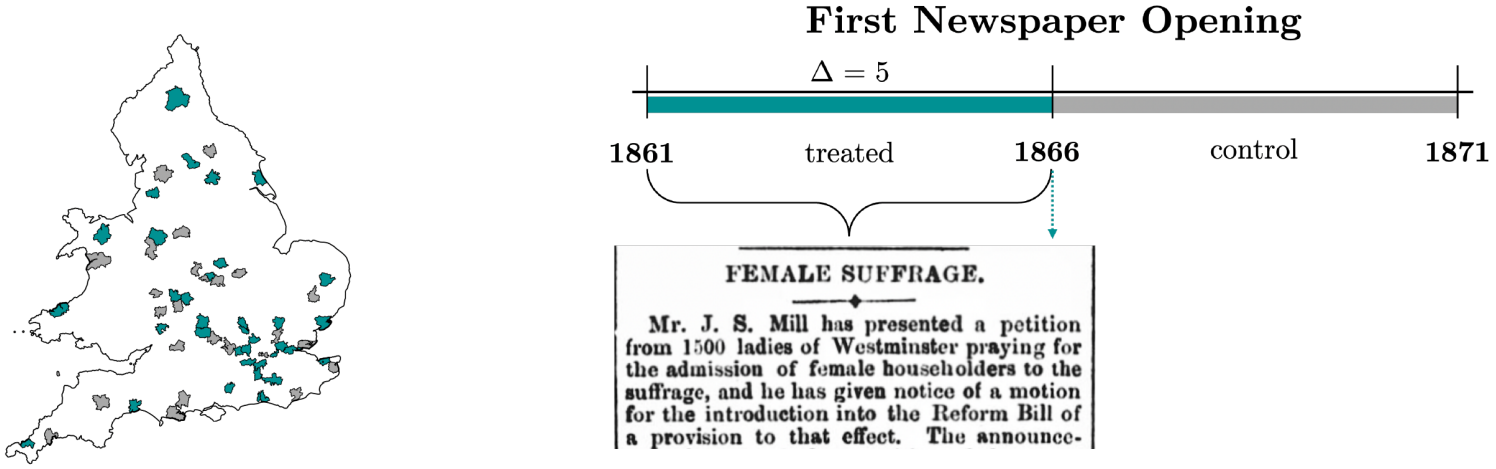
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Figure 9: Labour Force Participation by Gender.



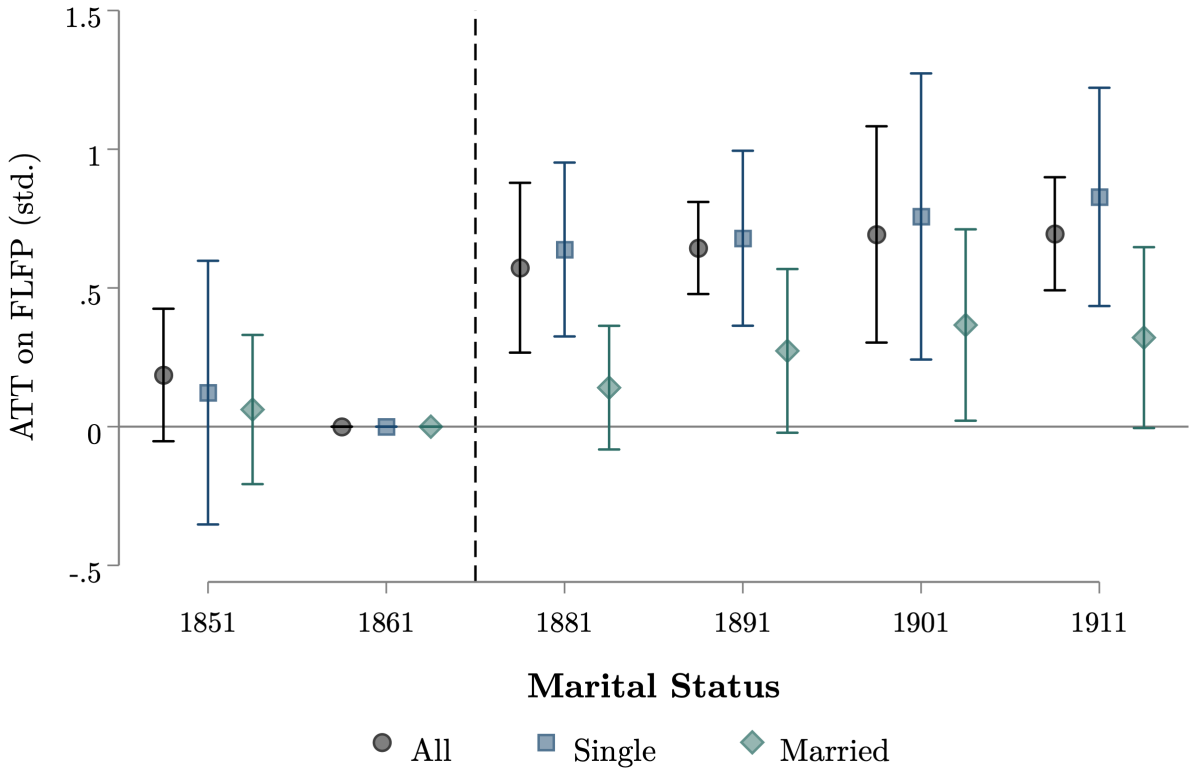
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Figure 10: 1866 Petition Exposure.



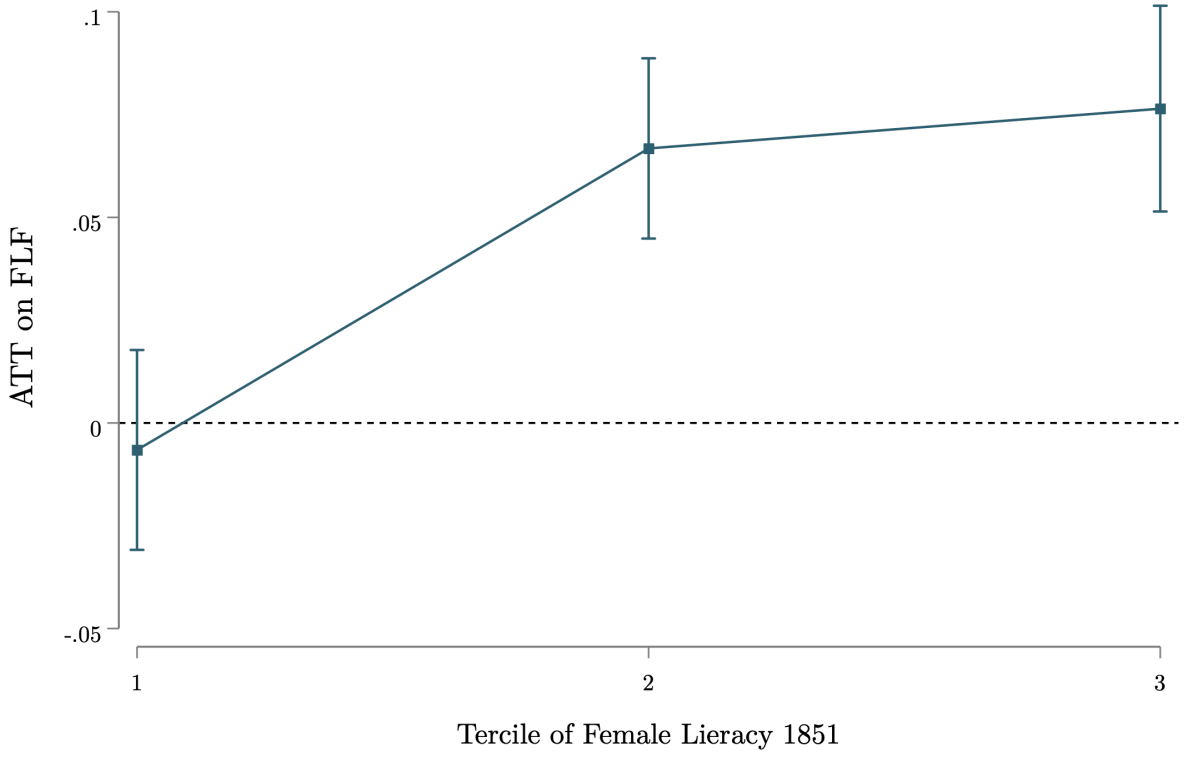
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Figure 11: 1866 Petition Exposure: Results.



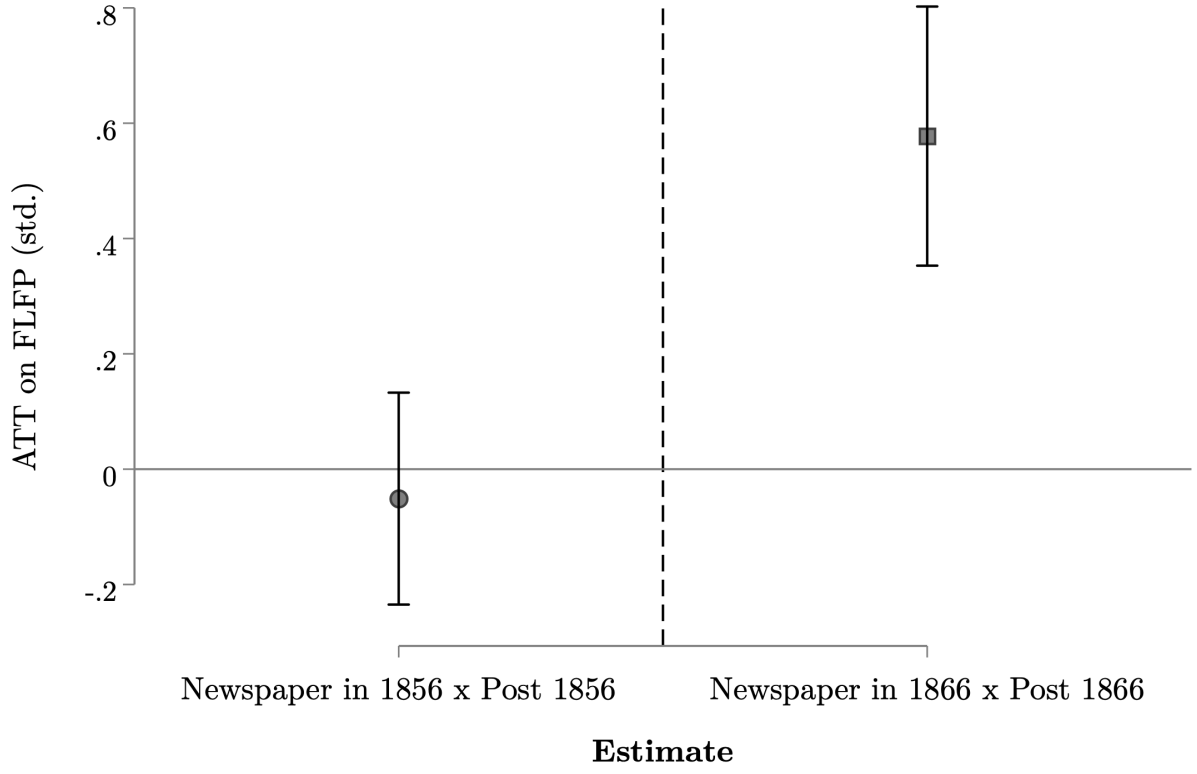
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Figure 12: 1866 Petition Exposure: Results by 1851 Literacy.



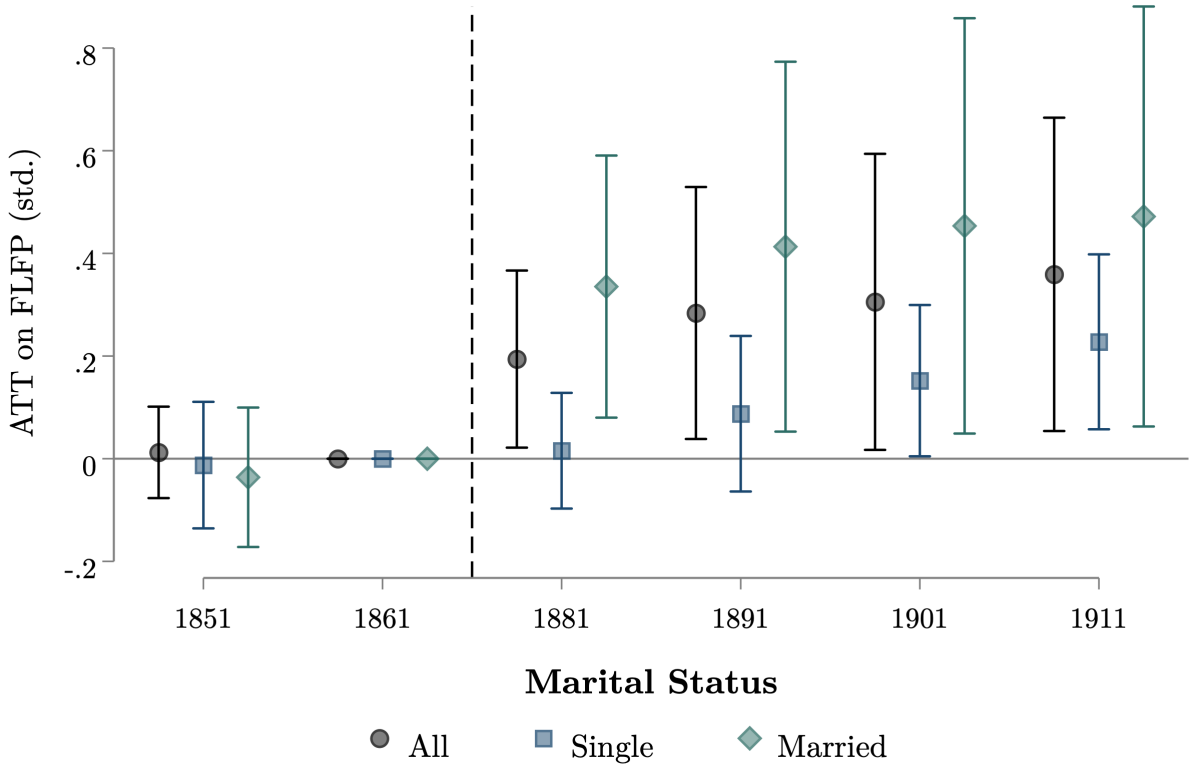
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Figure 13: 1866 Petition Exposure: Placebo.



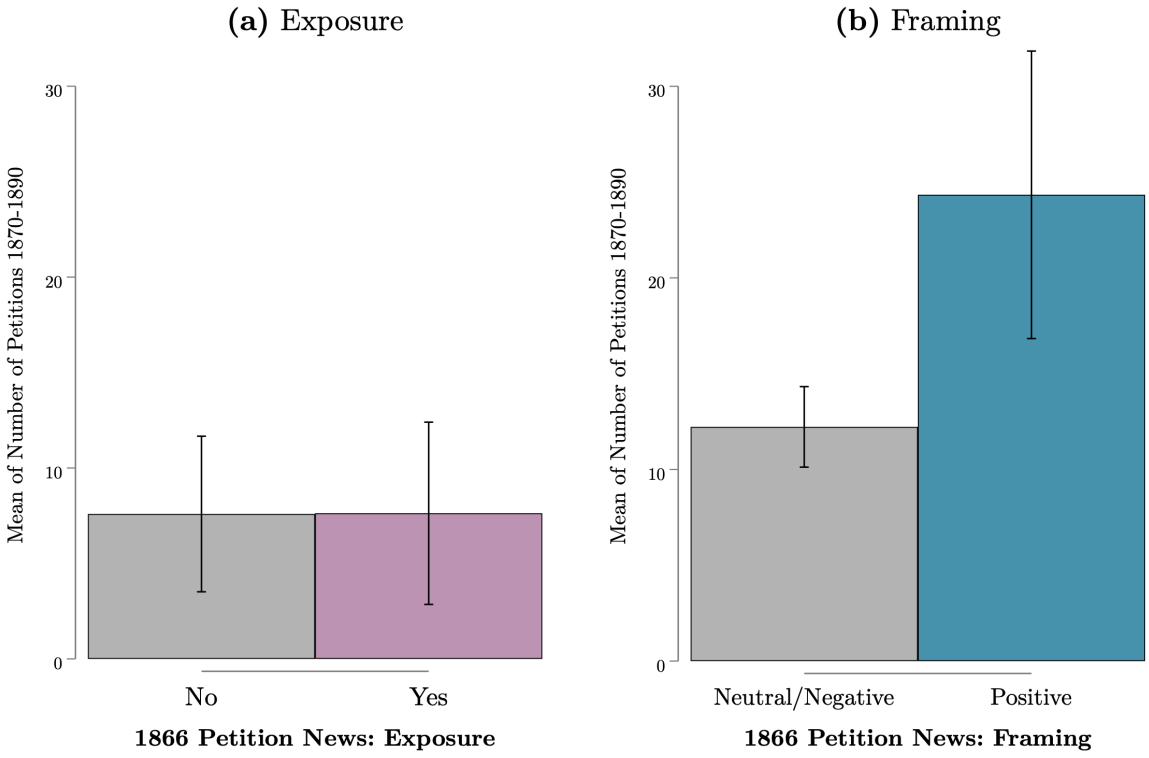
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Figure 14: 1866 Petition Framing: Results.



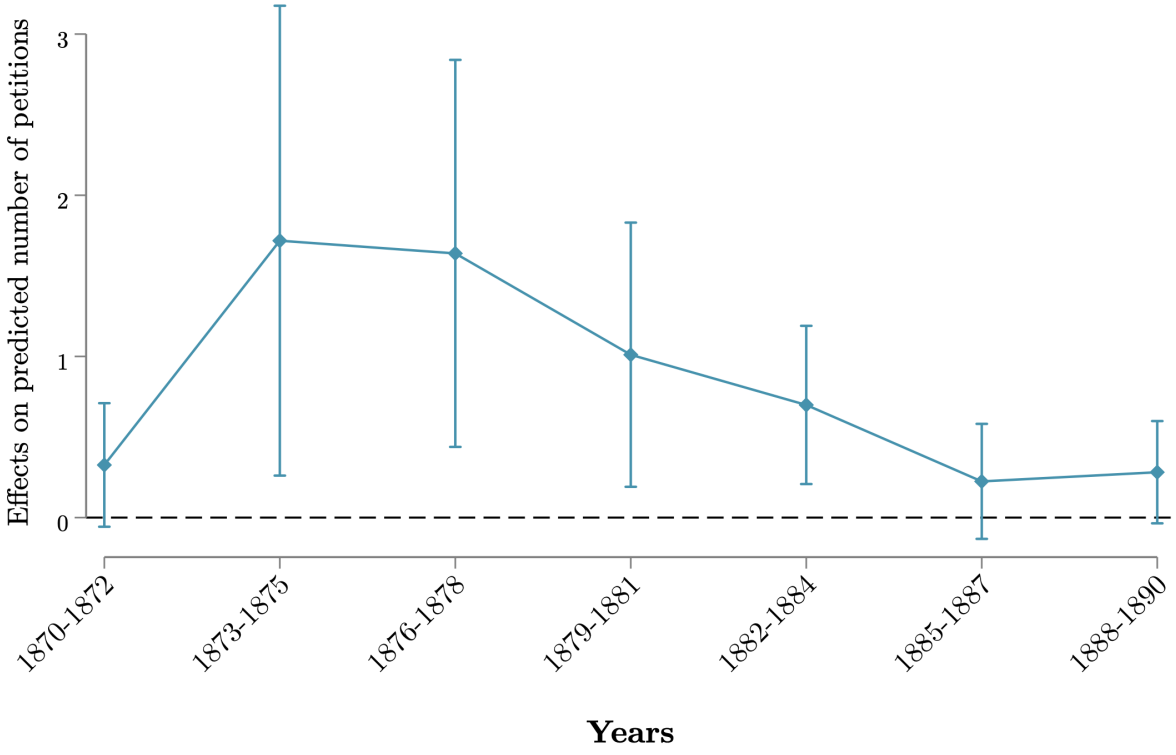
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Figure 15: Petitions 1870-1890: Comparison of Means.



Notes:

Figure 16: Petitions 1870-1890: Dynamics.



Notes:

Tables

Table 1: Printing and Circulation.

	FLF		
	Printing ■	Circulation ■	Neighboring ■
	(1)	(2)	(3)
Newspaper Entry	0.001	-0.045***	-0.025**
	[0.010]	[0.013]	[0.012]
Baseline mean	0.423	0.421	0.427
Observations	2293	3232	800

Notes:

Table 2: Occupational Structure.

	% Men						% Women
	Professional	Skilled non-m.	Skilled m.	Semi-skilled	Unskilled	Textile	Textile
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: *All sub-districts*							
Newspaper Entry	0.005**	-0.019***	0.004	-0.013**	-0.006	-0.024***	0.020***
	[0.002]	[0.005]	[0.003]	[0.005]	[0.007]	[0.006]	[0.007]
Baseline mean	0.036	0.168	0.186	0.105	0.123	0.055	0.045
Observations	4562	4562	4562	4562	4562	4562	4562
Panel B: *1851 agricultural sub-districts*							
Newspaper Entry	0.003	-0.018***	-0.001	-0.004	0.005	-0.003	-0.001
	[0.002]	[0.005]	[0.003]	[0.005]	[0.006]	[0.004]	[0.001]
Baseline mean	0.035	0.180	0.189	0.099	0.119	0.014	0.008
Observations	3436	3436	3436	3436	3436	3436	3436
Panel C: *1851 textile sub-districts*							
Newspaper Entry	0.017***	0.015***	0.008	-0.011*	-0.071***	-0.079***	0.073***
	[0.002]	[0.004]	[0.005]	[0.006]	[0.005]	[0.015]	[0.021]
Baseline mean	0.026	0.129	0.153	0.097	0.096	0.341	0.302
Observations	462	462	462	462	462	462	462

Notes:

Table 3: Exposure to 1866 Petition News.

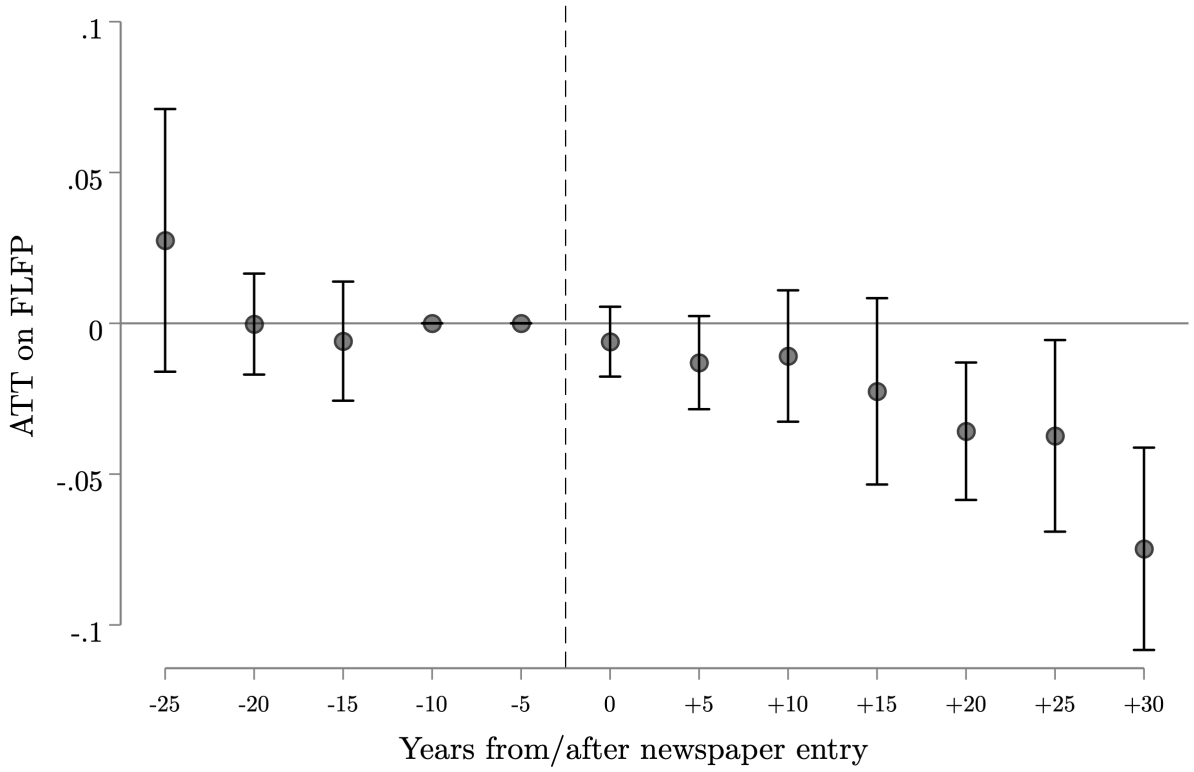
	FLF	% Celibacy	Age Marriage	TFR	Empowerment
	(1)	(2)	(3)	(4)	(5)
Panel A: *Average effect*					
Newspaper in 1866 x Post 1866	0.061***	0.013	1.241***	-0.226**	0.749***
	[0.012]	[0.011]	[0.336]	[0.094]	[0.214]
Panel B: *Heterogeneity by 1851 gender norms*					
Newspaper in 1866 x Post 1866	0.075***	0.025**	1.422***	-0.346***	1.006***
	[0.016]	[0.012]	[0.410]	[0.124]	[0.276]
Newspaper in 1866 x Post 1866 × High Female Empow. 1851	-0.043**	-0.034***	-0.526*	0.304**	-0.746***
	[0.017]	[0.010]	[0.308]	[0.134]	[0.184]
Baseline mean	0.431	0.109	25.687	4.585	-0.694
Observations	1127	1127	1127	1127	1127

Notes:

Appendix

A Decennial Census and Newspaper Establishment

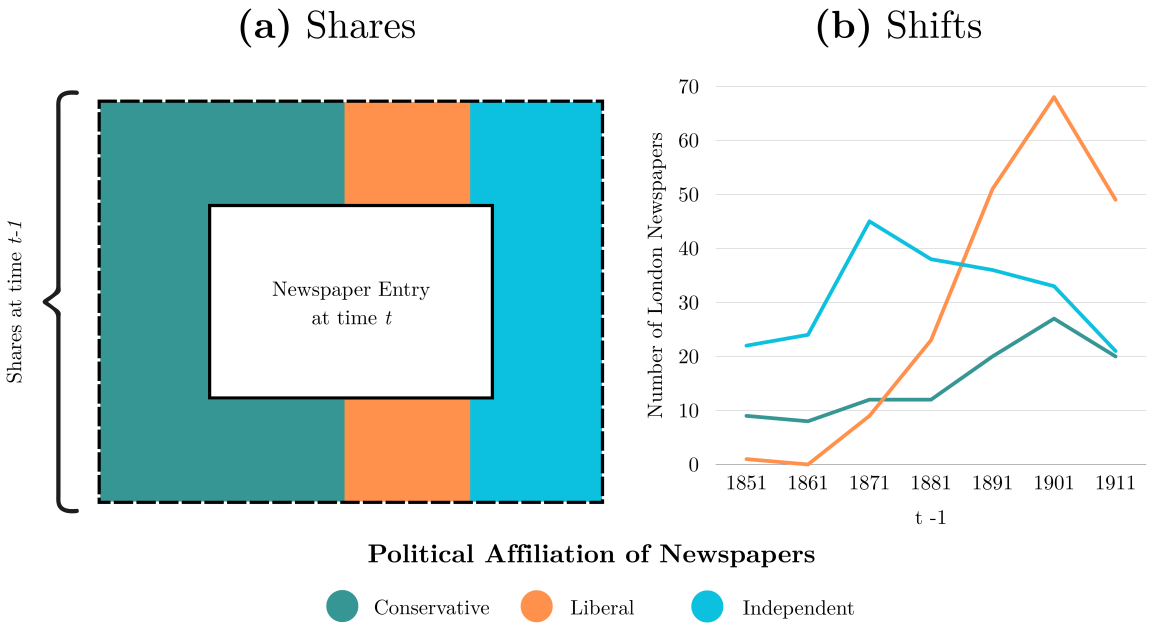
Figure A.1: Split by Distance from Census Year.



Notes:

B Instrumenting Newspaper Entry

Figure B.1: IV strategy: Shares and Shifts.



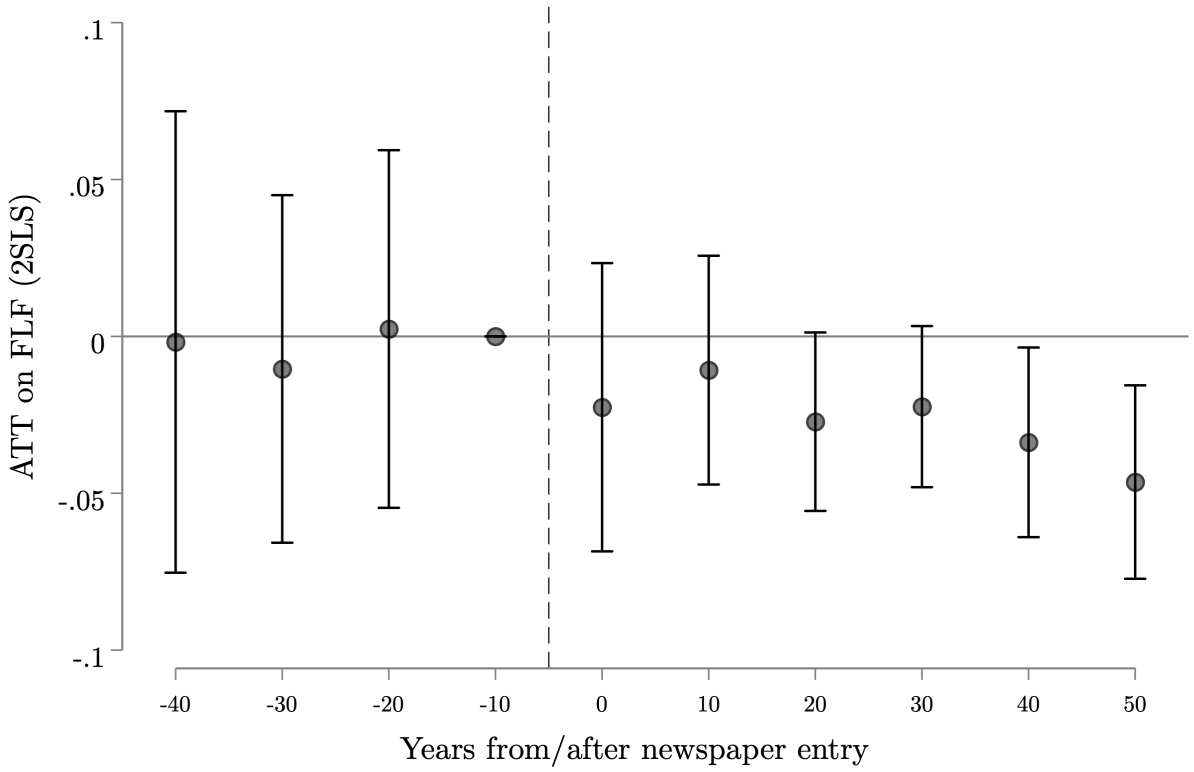
Notes:

Table B.1: IV strategy: Static.

	OLS	2SLS			
	(1)	(2)	(3)	(4)	(5)
Panel A: *Neighbors*					
Newspaper Entry	-0.016***	-0.020**	-0.019**	-0.019**	-0.019**
	[0.005]	[0.009]	[0.008]	[0.009]	[0.008]
Panel B: *Neighbors of Neighbors*					
Newspaper Entry	-0.016***	-0.022***	-0.022***	-0.025***	-0.025***
	[0.005]	[0.008]	[0.008]	[0.008]	[0.008]
Excluded pol. aff.		3	3	0	0
Exposure shares		Yes	Yes	Yes	Yes
Exposure shares × London trends		No	Yes	No	Yes
Baseline mean	0.413	0.413	0.413	0.413	0.413
Observations	9083	9083	9083	9083	9083

Notes:

Figure B.2: IV strategy: Dynamic.



Notes

- Block A ("Advertisable") – occupations that (i) sell directly to the public or (ii) rely on newspaper display/classifieds to drum up custom: merchants factors, auctioneers estate agents, wholesale/retail dealers in every consumer good, cafés/hotels/inns, pawnbrokers general shop-keepers, and the advertising newspaper trades themselves.

- Block B ("Low-ad baseline") – large employment groups whose output is sold through contracts, commodity exchanges, or internal transfers (agriculture, mining/quarrying, heavy transport navvies, general labourers, domestic servants, unskilled municipal workers). They very rarely need local newspaper space, so you can divide by these counts to "de-scale" the retail measure.