Property Inheritance Rights and Female Political Participation in India[*]

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Abstract

The paper examines whether granting property inheritance rights to females improves their participation in politics as election candidates in India. Conservative gender norms in patriarchal societies like India discourage women from actively participating in politics, with socially enforced sanctions for non-compliance. Additionally, being politically active is costly, requiring significant contributions of time and resources. Improvement in property rights is likely to financially empower women, easing both the constraints. Using state-level variation in legal changes to women's property rights and employing a large administrative data on elections in India, we show that better property rights for women lead to an increase in women contesting for elections and likelihood of winning for women candidates. We also document that regional parties contest more female candidates and there is increased entry of *new* female candidates after the reform. Further, using a large household survey data, we provide evidence that the increased political participation is driven by improved financial autonomy of women after the inheritance reforms. We confirm that pre-existing trends are not confounding our results.

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1 Introduction

Women's under-representation in politics is glaring, with only 27% of parliamentary seats worldwide held by women as of April 2024.[1] According to the World Economic Forum's 2023 Gender Gap Report,[2] 75 out of 146 countries have 20% or fewer women in ministerial positions, and only 11 countries have 50% or more ministers who are women. Shockingly, the report estimates it will take another 162 years to achieve political gender equality.

India, like many other nations, faces challenges in improving women's political participation as election candidates. Despite marginal improvements over time, female involvement in Indian politics remains dismally low, particularly at the national and state election levels (see Figures 1 and 2). This situation is particularly concerning for two reasons. First, unlike numerous other countries, India granted universal enfranchisement to *all* adult citizens, allowing them to vote and contest in elections upon gaining independence (in 1947)[3]. Second, quotas for female representation at the local government level have been implemented (Brulé (2020)) for more than three decades.

It is well-known that active involvement of women in politics is an essential foundation for achieving both gender equality and a truly democratic society. It enables women to directly participate in shaping public policies and ensures greater accountability to their needs. Research indicates that increased representation of women in legislative bodies leads to a heightened focus on addressing women's concerns and advancing their interests (Chattopadhyay and Duflo (2004)). Further, female political participation has also been shown to improve economic performance (Hsieh et al. (2019); Baskaran et al. (2023)) and reduce corruption (Dollar et al. (2001)). Thus, it is likely that the exceedingly high gender inequality prevailing in India across almost spheres can be attributed at least partly to the low

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[1]https://data.ipu.org/women-averages/?date_month=4&date_year=2024

[2]https://www.weforum.org/publications/global-gender-gap-report-2023/

[3]Many developed countries restricted the right to vote and contest in elections to male property owners. However, the demand for equal voting rights gained momentum in the 19th and 20th century which culminated in equal political participation rights for women. For example, voting rights were extended to women in the United States in 1920.

representation of females in politics.

In this paper, we examine whether introducing legal reforms that improve women's property ownership can increase their participation in politics in India. Using a natural experiment involving staggered introduction of the property rights reform, we causally estimate the impact of equalising women's and men's property inheritance rights on their participation as election candidates in state elections for the 1974 to 2004 period. There are multiple reasons why we expect women's improved claims to property to increase their participation in politics. Contesting in elections is costly, requiring significant contribution of time and resources (Brady et al. (1995); Verba et al. (1995); Verba et al. (1997)), and most Indian women are not financially empowered and do not tend to control household wealth. Additionally, patriarchal societies discourage women from expressing their preferences through political participation, with socially enforced sanctions for non-compliance (Bleck and Michelitch (2018)). The reforms that improve women's property rights by contesting the core construct of patriarchy, according to which control over the relations of production — economic, social, and political—is held by the senior male in the household, can potentially remove both these barriers. These reforms can increase women's lifetime wealth or unearned income, giving them access to the financial resources required for participating in politics particularly as election candidates. Financial autonomy can also give women the ability to violate patriarchal prescriptions without having to fear repercussions.

The property rights reforms that the paper considers involves amendments to the Hindu Succession Act (HSA) of 1956, enacted by five Indian states between 1976 and 1994. The HSA is the primary legislation that governs contemporary property rights for Hindus, Buddhists, Jains, and Sikhs. The act of 1956 states that both sons and daughters have equal inheritance rights to the private property accumulated by their father during his lifetime. Even though the act does not discriminate between men's and women's claims to individual property, there were significant gender disparities particularly with regard to joint family property. As per HSA, sons had a birthright to an independent share to joint family prop-

erty, whereas daughters did not. Given that a substantial amount of property, particularly rural land, is jointly owned in India, these biased rights severely impacted the land ownership status of women in India. Recognising the inherent gender bias in the HSA, five Indian states between 1976 and 1994 made amendments to this central inheritance law granting daughters equal share in the joint family property. The amendments stated that women who got married after the reform was passed in their state could benefit from the new rules of inheritance.

Making use of the variation in timing of amendment to HSA by the five states, we employ a difference-in-difference (DID) framework to estimate the impact of enactment of HSA amendments on female political participation. We use administrative data on political participation of women from Election Commission of India (ECI) that is compiled by the Trivedi Centre for Political Data (TCPD). We compile constituency-level information on political participation of women from 1974 to 2004 for our analysis. Our DID results show that there is increase in the percentage of females contesting elections in the treatment states post the amendment as compared to states that did not amend their inheritance laws. Our specifications partial out constituency-specific factors and election-year factors that could have an influence on political participation of females. In addition, we find increase in the vote share of female candidates and increase in the likelihood of female candidates winning the elections post the amendment. We also document that it is the state and local political parties that contest more female candidates rather than the major national political parties. Further, we show that the increase in female candidates is driven by females who are relatively "new" candidates who do not have political experience. Our findings also suggest that increased entry of females in politics increases political competition.

Given that we make use of DID strategy, the main threat to identification is that the timing of amendment to HSA is correlated with unobserved factors that affect female political participation in the treatment districts. This would lead to differential trend in the outcome variable in the treatment group before the treatment is introduced. We provide suggestive

evidence against this by estimating an event study specification and showing absence of pre-existing differential trends in political participation of females in the treatment states. Further, since the amendment was only applicable for Hindu women, we show that the HSA amendment has a negligible impact on female political participation in places which have very high Muslim population and the observed positive impact is driven by places with high Hindu population. Using an algorithm developed by Chaturvedi and Chaturvedi (2024) to predict the religion of candidates, we also estimate a falsification test and show that the amendment does not have any impact on political participation of Muslim female candidates.

We investigate the mechanism and examine if the improvement in political participation of females post-inheritance rights reforms is driven by increased financial position of women as they become equal claimants to the joint family property with the amendment. The increased financial autonomy can enable women to spend resources required for contesting for elections. Land ownership and increased assets can also give women the confidence to express her political views and become active in politics. We test this mechanism using the first round of India Human Development Survey (IHDS) conducted in the year 2004-05. IHDS provides detailed socio-economic and demographic information for women in the 15-49 age group. Using the variation in women's state of residence and age at marriage at the time of reform, we show that women exposed to the amendment have higher financial autonomy as measured by ownership of bank account, having cash to spend, participation in expenditure discussion at home and not being financially dependent on kids in future. Additionally, we find exposed women also have higher years of education level and are more likely to participate in discussion in politics at home.

1.1 Literature

Our study contributes to the large and growing research on the impact of the HSA. Most of the existing work finds positive effects of the legislation on outcomes for women. For example, Deininger et al. (2013) show that the reforms led to a rise in level of primary

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education attained by girls. Mookerjee (2019) finds HSA increased women's participation in household decision-making; Roy (2015) finds that the reform improved educational attainment for women and the dowry they received as well as their involvement in household decision-making; Bose and Das (2017) find positive impact of HSA reforms on girl's education attainment; Heath and Tan (2020) show that HSA enabled women to contribute more labor to higher-paying jobs; Deininger et al. (2019) find positive effects of the reform on female education, assets brought into marriage, bank account ownership, female survival rates as well as on several second-generation outcomes; and Tandel et al. (2023) show HSA influenced fertility decisions, enhanced children's health outcomes, and reduced gender inequality.

However, some studies also document mixed as well as negative impact possibly because implementing a progressive legal change such as HSA challenges entrenched norms. Rosenblum (2015), for example, shows the inheritance reform reduced girls' survival ratio, possibly led by sex-selective abortion that resulted from an increased cost of raising girls as compared to boys for landowning households. (Bahrami-Rad, 2021) finds that women exposed to inheritance laws are more likely to marry their paternal cousins to keep the property within the family and less likely to work, particularly in agriculture. Bhalotra et al. (2020) find the reform increased excess female infant mortality and son-based fertility stopping. Anderson and Genicot (2015) show that inheritance rights are linked to increased levels of suicide and domestic violence, possibly because of the stress induced by legislation.

Our work is also related to a growing strand of work that shows that land titling policies improves political participation of beneficiaries. Kopas (2019) shows that land titling policies in Peru and Columbia increased political mobilisation of voters measured as voter turnout and use of courts. De Janvry, Gonzalez-Navarro and Sadoulet (2014) show that land titling program in Mexico increased vote share of pro-market political parties as asset owners vote for parties that implement low taxes on labour and capital. Nandwani (2023) shows that implementation of a property rights reform in India that improved land claims of the indigenous population increased their political representation as election candidates.

Additionally, a burgeoning literature has also shown that increased property ownership in the form of home increases local political participation of the asset owners as their interests become more closely tied to the community (Kumar, 2022; Yoder, 2020; Einstein, Palmer and Glick, 2019).

We also contributes to the burgeoning literature that examines the causes of low female political participation in economics and political science. Existing work has looked at the role of factors such as difference in competitiveness between males and females (Wasserman (2023)), voters' bias against female political representatives (Fréchette et al. (2008); Beaman et al. (2006); Le Barbanchon and Sauvagnat (2022); Baskaran and Hessami (2018)), party leaders' bias against female political candidates (Esteve-Volart and Bagues (2012); Casas-Arce and Saiz (2015)), institutional barriers (Profeta and Woodhouse (2022); Baltrunaite et al. (2014), and cultural factors like lineage norms that determine men and women's control over wealth (Brulé and Gaikwad (2021)) and norms that induce discouragement effect for women (Faravelli et al. (2023)).

Additionally, our work is related to the broader literature on gender gaps in leadership positions. This literature shows gender gaps exist in leadership positions not only in politics but also across various other sectors. Keller et al. (2023), Elsesser and Lever (2011) and Chakraborty and Serra (2024) examine the well-known gender gap in corporate decision making; Sarsons et al. (2021) examine gender gap in academic settings and find female professors receive less credit for group work and therefore less likely to receive tenure the more they collaborate; Grossman et al. (2019) and Brooks et al. (2014) find that professional investors and nonprofessional evaluators prefer entrepreneurial pitches presented by male as compared to female entrepreneurs, even when the content of the pitch is the same.

The rest of the paper unfolds as follows. In Section 2, we discuss the background. In Section 3, we discuss the data and empirical strategy. Section 4 presents the results and discusses the mechanism. The last section concludes.

2 Background

Inheritance in India was historically based on the *Mitakshara* system that laid down succession rules for Hindu families. This system distinguished between individual and joint property while deciding the inheritance rights. The joint property is the one that is inherited through paternal ancestors and individual property is self-acquired or inherited through any individual other than father, paternal grandfather or paternal great-grandfather(Agarwal, 1994). As per the *Mitakshara* system, only sons had inheritance rights to the ancestral property and inheritance to self-acquired property could be decided by the individual. In the post independent India, these traditional succession practices were codified which culminated in the enactment of the HSA in 1956.

As per the HSA, both sons and daughters have equal inheritance rights over father's individual property. However, in case of intestate death, daughters have no direct rights to inherit joint property (ancestral assets, the most common asset being land, that is acquired by inheritance)[4]. Sons, on the other hand, by birth, have exclusive inheritance rights over not only individual property but also joint property and thus were co-parceners. Given that 97% of the property in India is joint property(Roy, 2015), women were formally excluded from claiming rights over ancestral land. The discriminatory legal framework governing women's land rights has been cited has a major reason why ownership of land has been abysmally low for women.

As the Indian constitution grants both states and the federal government the authority to legislate over matters concerning inheritance, a few progressive states recognised that excluding women from their coparcenary rights is unconstitutional and thus amended the discriminatory legal structure to recognise the inheritance right of females. In particular, five Indian states amended their HSA from the period beginning 1976 to 1994 to equalise women's inheritance rights as that of men. The state of Kerala passed the amendment to reform HSA

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[4]Daughters or widows could claim rights over joint property only in the absence of male heirs

in 1976, Andhra Pradesh in 1986, Tamil Nadu in 1989, Maharastra and Karnataka in 1994[5]. In these states, women became co-parceners to the joint family property by birth and thus got equal inheritance rights as males. However, the reform was only applicable to unmarried women at the time of reform who belonged to Hindu, Buddhist, Sikh or Jain religion.

3   Data and Methodology

3.1   Data

Elections to the state assembly occur after every five years in India and the election winner, termed as the Members of Legislative Assembly (MLA), is decided based on first-past-the-post rule. The elections data is made publicly available by the Election Commission of India - an independent constitutional body that is responsible for conducting elections. We use state assembly elections data from the ECI made available online by the Trivedi Center for Political Data (TCPD). We obtain information on all state elections that were conducted between 1974 and 2004. The reason we do not look at elections after the year 2004 is because the central HSA was amended in the year 2005 wherein daughters became co-parcenary in all states leaving no cross-sectional variation in amendments to HSA after the year 2005. The data gives detailed information on election candidates including the name and gender of all the contesting candidates in the constituency-year, the party with which the candidate is affiliated, vote share received by candidates, their position obtained in the elections, the constituency and year in which the election is conducted among others.

Figure 1 presents the temporal variation in female candidates and female winners and Figure 2 presents the vote share of female candidates over the sample period. Figure 1 shows that the percentage of female candidates is a meagre 2.2% and around 4.7% of elected leaders are females in the beginning of the sample period. Political participation of females improve

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[5]Maharashtra and Andhra Pradesh HSA amendment acts particularly state that the reform was also brought in to address rising dowry in the states.

over time, both in terms of participation in elections and their likelihood of winning, and by 2003 percentage of female candidates rises to 8% and percentage of female winners also increases to 7.6%. However, we observe a dip in female participation in 2004. Thus, while overall there has been an increasing trend of female political participation, the level is still much below satisfactory.

Figure 2 suggests that the vote share of females has been going down with the highest vote share observed in 1975 (27%) with some increase in the mid-1990s, and a decline thereafter. This decline could be driven by entry of new female candidates in politics as shown in figure 1. If these females did not have a large voter base, the entry of weak female political candidates could have pulled down the average female vote share.

Table 1 presents the summary statistics and shows that only 4% of the candidates are females over our sample period and the average vote share of female candidates is just 4%. On average, the likelihood of a female winning is 5%. Most of the females contesting for elections are either from a national political party or contest as an independent candidate without being affiliated to any any political party.

In addition to elections data, we also use population census conducted in the years 1981, 1991 and 2001 to get information on state level demographic variables that we use as controls. Additionally, we obtain information on development expenditure (as a percentage of revenue expenditure) in a state from the records maintained by the Reserve Bank of India.

3.2   Empirical Model

We use the variation in the timing of HSA amendment by the five states and examine the impact of the amendment on female political participation in a DID framework. We estimate the following regression equation:

$$Y_{c,s,t} = \alpha + \beta_c + \theta_t + \gamma HSAA_{s,t} + \delta Z'_{s,t} + \epsilon_{c,s,t} \tag{1}$$

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where Y measures the political participation of females in constituency c which is in state s during election year t. $HSAA$ is a dummy variable that indicates whether state s at time t amended the Hindu Succession Act in favour of women inheriting the joint property. The regression specification controls for constituency fixed effects which implies that we exploit variation in political participation of women within a constituency over time for identification. We also control for election-year fixed effects that partial out shocks to female political participation that are common for states. In addition, we have a range of state-time varying controls including literacy rate, work participation rate, proportion of Scheduled Caste and Tribe population, proportion of Hindu and Muslim population, proportion of rural population, percentage of development expenditure in a state. Our identification assumption is that timing of of the HSA amendment was orthogonal to female political participation. However, it is possible that growing political clout of women could have influenced the timings of these amendments. While it is not possible to fully rule this concern out, we provide suggestive evidence against these confounders. We cluster the standard errors at the state level to allow shocks to female political participation to be correlated within a state over time.

4 Results

4.1 Main Results

Regression results obtained from estimating equation 1 are reported in Table 2. Column 1 suggests that there is a 1% point increase in the percentage of female candidates contesting for elections after the amendment of HSA in the treatment states. This amounts to a 25% increase as compared to the average in our sample (3.85%). Second column suggests that exposure to HSA amendment increases vote share of female candidates by 2% points - a considerable increase considering the sample average. Not only do we see more women participating in election after the amendment, we also find that the likelihood of female

candidates winning the election increases by 5% points after the HSA amendment.

The validity of the DID strategy relies on parallel trends in the treatment and control groups before the enactment of the treatment. We provide suggestive evidence of this by estimating the following event study specification wherein we check for differential trend in female's political outcomes for years before HSA was amended in the treatment states.

$$Y_{c,s,t} = \alpha + \beta_s + \theta_t + \sum_{k=-16}^{28} \gamma_k Treatment_s * Year + \delta Z'_{s,t} + \epsilon_{c,s,t} \tag{2}$$

Here the female political outcome Y_cst is regressed on the interaction between treatment states and years in the sample and we expect the coefficients before the enactment of the amendment to be insignificant. The specification also allows us to check whether the observed positive effect of the amendment is bunched right after the reform or kicks in a few years later. The results reported in Figures 3, 4 and 5 show that almost none of the coefficients of the interaction for the pre-reform years are statistically significant suggesting absence of pre-existing trend in political participation in the treatment states before the amendment was implemented. Further the graphs show that the effect of the amendment on the outcome is evenly spread across the post-treatment years. These graphs also suggest that it is unlikely for pre-existing factors to influence the timing of amendments in the treatment states thus increasing our confidence in the causality of the estimates reported in Table 2.

4.2   Additional outcomes

We examine if the increased political participation of females is on account of national parties contesting female candidates or driven by parties which are regional. The ECI categorises parties based on their presence across states into national, state or local parties. As the terminology suggests, national parties have presence across states whereas state and local parties primarily have their presence in state and local government elections, respectively. Table 3 shows that enactment of amendment to the HSA resulted in state and local parties

contesting more female candidates whereas we do not find any impact on national parties and female candidates contesting independently without being affiliated to any party. This is an encouraging result which suggests that the amendment has led regional parties, which have had extremely low female representation (Table 1), to contest more female candidates.

We check if increased entry of female candidates driven by the enactment of property rights reforms increases political competition. The increase in number of female candidates in elections is expected to affect the vote share of male incumbents. Column 1 of Table 4 shows that implementation of HSA amendment decreased the vote share of male incumbent by 3 percentage points. Given that a quarter of elections in India have a margin of less than 5%, this implies that entry of female candidates is resulting in decreased wins for the incumbent. We also check if the women who already have some political experience of contesting in elections are driving the increase in female candidates or is the result driven by new candidates. Column 2 of Table 4 shows that females who are new with no prior experience of contesting for elections are driving the increase in female candidates observed in Table 2.

As explained before, the HSA was applicable to only women belonging to Hindu religion (as well as Sikh, Buddhist and Jain religion) whereas Muslim women were not affected by amendment. Given this we expect the following a) The amendment to have more bite in places with high population proportion of Hindus b) The political participation of Hindu women is expected to go up. We present evidence for a) in Table 5 where we interact the proportion of Hindu population [6] with the HSA amendment dummy variable. As expected we see that the coefficients of interactions are positive and significant suggesting that the effect of the inheritance reforms is higher wherever Hindu population is higher. Additionally, the coefficients of HSA amendment is negative (albeit weakly significant) suggesting that the HSA amendment has a negative impact on women's political participation in places with very high Muslim population.

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[6]We use the census years 1981, 1991 and 2001 for data on Hindu population.

We present evidence for b) in Table 6. The outcome variables in this table correspond to the political participation for non-muslim women. While the elections data does not have information on the religion of the candidates, we use the algorithm developed by Chaturvedi and Chaturvedi (2024) that is based on a machine learning model to predict the religion of the candidates. The algorithm probabilistically predicts whether a given name corresponds to a Muslim or a non-Muslim name. As expected Table 6 shows that the political participation results observed in Table 2 are driven by increased participation of Hindu women. Additionally, tables 5 and 6 suggest that if other confounding factors were to drive the political participation of women, the confounders would only have to affect political participation of Hindu women and not Muslim women.

4.3 Robustness checks

In this section, we conduct a number of tests to ensure that our reported results are robust to potential confounding factors. First, we consider the fact that four out of five states that amended their succession act lie in the southern part of the country. It has been well known that southern India has less entrenched patriarchal norms and consequently women from southern region fare much better than other regions in the country in terms of almost all socio-economic indicators (Dyson and Moore, 1983; Rahman and Rao, 2004). Thus, our reported impact of improved political participation of women in treatment states could be driven by the four southern states which have better women outcomes to begin with. We ensure that this is not the case by controlling for region-specific linear trends in our main specification. India is divided into six geographical regions: North, South, West, East, Central and North-East. The state of Kerala, Karnataka, Tamil Nadu and Andhra Pradesh lie in the Southern region and Maharashtra lies in the Western region. The control states are spread across all the regions other than South. Even though, our specification controls for constituency fixed effects, these trends ensure that region-specific factors that vary linearly over time are partialled out. The results reported in Table 8 show that while the magnitude

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of the coefficients fall, two out three of them are still positive and significant suggesting that our results are not driven by region-specific factors.

Another potential confounding factor is selective migration of women into treatment states. If more progressive families migrated to the treatment states to ensure that women in their family get equal share in their ancestral property (or conservative families moved out of the treatment states), then the increased political participation could be because of presence of more empowered women in treatment states. We provide a number of explanations to argue that migration is not driving our results. First, the extent of inter-state migration for females has been very low in India. As per the 1981 census of India, inter-state migration for females constituted only 9% of the total female migration pointing that its magnitude is not large enough to completely drive our observed results. Second, as noted by Beauchamp et al. (2023), while patrilocal village exogamy (where the woman moves out of her village to join her husband's family) is the practice throughout most of India, 73% of women stay within the same district. Roy (2015), in fact, finds that migration across states in India is estimated to be less than 3%. Additionally, as per the constitution, a person can only contest for election in a state assembly elections if he/she is a registered voter in the state. Thus migrant females would first have to get themselves removed from the voter list from their home state and register as voters in the new state which is a non-trivial task. Given that there are very few contestants who are non-residents of the state, migrant female contesting for elections is unlikely to completely drive our results.

Further, in order to completely alleviate this concern, we use data on percentage of female migrant population in the state from the population census of 1981, 1991 and 2001 and use them as controls in our regression specification.

It is possible that the timing of amendment coincided with other political changes that improved women's representation as political candidates. If this is the case, then the observed coefficients in the previous tables are unlikely to be the effect of inheritance rights reforms. We provide suggestive evidence against this testing the impact of the HSA amendment

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on political participation of Muslim women. While HSA amendment brought in gender equalising inheritance rights, the amendment was not applicable to Muslim women and hence any positive significant impact on political participation of Muslim women would show that factors other HSA amendment are driving the impact. While the elections data does not have information on the religion of the candidates, we use the algorithm developed by Chaturvedi and Chaturvedi (2024) that is based on a machine learning model to predict the religion of the candidates. The algorithm probabilistically predicts whether a given name corresponds to a Muslim or a non-Muslim name. Reassuringly, our results (Table 9) confirm that the coefficient of amendment is not significant for any of the three indicators of political participation. This placebo test increases our confidence that other factors are unlikely to drive our results.

The recent econometric work has highlighted that in case of staggered treatment introduction involving multiple groups and time periods, the DID regression is unlikely to identify the true Average Treatment Effect (ATE) particularly when there there is treatment effect heterogeneity across groups or time periods. See De Chaisemartin and d'Haultfoeuille (2023) for a review of the literature that documents this issue. Since the effect of amendment is likely to vary across states or time periods, it is crucial to ensure that our DID estimates are not misleading. Fortunately, this literature has also proposed estimators that are robust to treatment effect heterogeneity in case of staggered treatment timing. We employ the two-stage estimator introduced by Gardner (2022) to assess robustness of our findings.

The estimator estimates the treatment effect in two stages - in the first stage, the outcome is regressed on group and time fixed effects for the untreated observations and in the second stage the estimated group and time effects are removed from the observed outcome and the adjusted outcome is regressed on the treatment indicator. the predicted outcome after purging the group and time fixed effects is regressed on the independent variables. This is a computationally much more flexible and faster estimator as compared to other proposed estimators in the literature. It also performs better than other estimators in terms of efficiency

Under the assumption of parallel trends. The two-stage regression results are reported in Table 10. Although all three coefficients show a slight reduction in magnitude, the primary finding of increased political participation among women post-HSA amendment remains intact. The coefficients of columns 2 and 3 suggest increase in vote share and likelihood of winning of female candidates in the treated states post-amendment. Notably, the p-value in the first column is 0.16, suggesting weak significance when examining the percentage of female candidates. Overall, the Gardner (2021) estimates align closely with the earlier DID estimates, reinforcing the conclusion that female political participation increased after the HSA amendment.

However, while the two-stage estimator is highly efficient among those robust to treatment heterogeneity in staggered treatment scenarios, its efficiency advantage diminishes if the parallel trends assumption is violated. See De Chaisemartin and d'Haultfoeuille (2023) for comparison of these (and other) estimators recently proposed in the literature. To further ensure the robustness of our results, we also present the estimator proposed by De Chaisemartin and d'Haultfoeuille (2020), which performs better when the parallel trends assumption is violated and remains robust to treatment effect heterogeneity. This estimator additionally allows us to test the parallel trends assumption by estimating placebo effects (when neither treatment nor control groups are exposed to the treatment) and dynamic effects. The confidence intervals estimated for election years before and after the amendment are reported in Figures 4 to 6. Two things stand out from these figures - One, the coefficients before the amendment was introduced are not significant in any of the three graphs. Two, the effect, while weaker for female candidates (as was the case with Gardner (2021) results as well), holds for percentage of female winners and vote share of female candidates. Additionally, figure 8 shows that the effect on female vote share gradually increases over time in the treatment states.

4.4 Mechanism

In this section, we provide suggestive evidence of a possible mechanism driving the increased political participation of females after the gender equalising property inheritance reforms. In particular, we investigate if the amendment improved financial status of women. This is an important channel to investigate as participation in politics is costly and candidates contesting for elections have to spend financial resources to campaign. While election candidates are not required to pay a fee to file their nomination, they are legally allowed to spend on their election campaign from their personal wealth. For example, candidates in the Indian state of Haryana were allowed to spend upto 2.5 million rupees on election campaigns from their date of nomination. In addition, there are multiple reports that highlight that candidates spend a considerable amount even before filing their nomination . See . It is not surprising that the median wealth of candidates in 2014 national elections was around 2.4 million rupees which is 27 times the nominal per capita income in India in 2014-15.

Improvement in property rights of women can enable women to invest their time and money in political campaigns which is otherwise difficult for them as they typically do not own assets. Additionally, having an equal claim as a man on joint family property may give women the confidence to express her political ambitions since her financial dependence on male members of the family reduces. There exists evidence that enactment of reforms to HSA improved women's bargaining power and decision making within the household (Heath and Tan, 2020; Mookerjee, 2019).

We provide suggestive evidence of increased access to financial resources for women using IHDS data conducted in the year 2004-05. IHDS is a large household survey that has a female specific questionnaire with detailed socio-economic and demographic information on women aged 15 to 49. We use the fact that the amendment was applicable to unmarried women in the treatment states and estimate the following regression equation:

$$Y_{ist} = +\beta s + \theta_t + \gamma treated_{is} * HSAA_{s,t} + \delta Z'_{i,s,t} + \epsilon_{i,s,t} \tag{3}$$

where $Y_{i,s,t}$ is the outcome for woman i born in year t residing in state s and treated takes a value 1 if the female's age lies in the bottom 10% of the age at marriage distribution in the year of amendment in state s, and 0 if the age lies in the top 90%. We use the age at marriage distribution to construct our treatment variable as the timing of the girls marriage could be endogenous to the timing of amendment. This is specially a concern if there is anticipation of the enactment of this reform and households may have married their daughter just before the amendment to prevent sharing the joint property with daughters. A similar strategy has been used by Heath and Tan (2020) who use the marriage distribution to identify the impact of the amendment. Thus, the estimated γ compares the outcomes for unmarried women living in the five treatment states with unmarried women in control states. The regression specification has state-fixed effects and birth year dummies. The standard errors have been clustered at the village/town level. Note that this equation is only estimated for individuals belonging to Hindu, Sikh, Buddha religion as this HSA was only applicable for these religions.

The results reported in Table 7 suggest that women eligible for inheriting joint property in the treatment states are more likely to have cash with them that they can spend, have a bank account and are less likely to report being financially dependent in future (although the effect is statistically weak with a p value of 0.19). These women are also more likely to participate in discussion related to expenditure in their house. Additionally, they have higher education levels and are more likely to be discussing politics with their husband as compared to ineligible women in control states.

We posit that this increase in financial status and bargaining power of women plays an instrumental role in increasing their political representation. However, we acknowledge that there could be other related mechanisms like improved decision making power of women, increased agency in the house that could, in addition, be driving our result.

5 Conclusion

Women's equal participation and leadership in political and public life are essential to achieving the Sustainable Development Goals by 2030. Political participation enables women to shape public policy and better represent women's needs and preferences. However, research shows that women are underrepresented at all levels of decision-making worldwide and that achieving gender parity in political life is far off. India, like many other nations, faces challenges in enhancing women's political participation and representation. Despite marginal improvements over time, female involvement in Indian politics remains dismally low.

We examine whether introducing laws that improve women's property ownership can increase their participation in politics in India. In theory, improving property rights, by financially empowering women, can provide women with increased access to financial resources needed to contest elections. However, existing work shows that property rights reforms targeted towards marginalised groups end up being inefficiently implemented (Albertus, 2020; Albertus and Kaplan, 2013). We utilise inheritance laws reforms in India, in the form of state-level amendments to the HSA enacted by five Indian states between 1976 and 1994, to explore whether and to what extent such efforts have been effective in improving political participation of women. Using administrative data on elections at the constituency level and employing a DID methodology, our findings suggest that improved claims to family property increases the percentage of female candidates contesting in elections as well the likelihood of their winning. We also show that there is increased entry of females who do not have prior experience of contesting in elections. We rule out pre-existing trend in political participation in treatment states driving our result.

We provide evidence that this increase in political participation of women is driven by her improved financial autonomy as measured by her bank account ownership, having cash in hand, being less financially dependent on her kids. While there is some evidence that has shown that these reforms have led to unintended consequences like increased dowry, female infant mortality among others, our paper presents encouraging results that suggest

that access to land and family property is an important tool to improve women's financial status which can lead to their increased representation in politics. We thus add to a series of papers showing positive impact of these reforms a range of women's outcomes.

6 Tables and figures

Table 1: Summary statistics

Variable	Obs	Mean	Std. Dev.
Female candidates	24,933	3.85	7.99
Female voteshare	24,933	3.75	11.34
Female winner	24,933	0.05	0.21
National party	24,933	1.40	0.32
State Party	24,933	0.05	0.24
Local Party	24,933	0.04	0.19
Independent	24,933	1.44	4.34

Notes: Source: Author's own calculations. *Femalecandidates* is the percentage of female candidates in a constituency year. *Femalevoteshare* is the average vote share received by females in a constituency year. *Femalewinner* is a dummy variable indicating if the constituency year has a female winner. *Nationalparty* is the percentage of candidates who are females and belong to national political parties. *Stateparty* is the percentage of candidates who are females and belong to state political parties. *Localparty* is the percentage of candidates who are females and belong to local political parties. *Independent* is the percentage of candidates who are females and are not affiliated with any political party.

Table 2: Inheritance rights and political participation of women

	(1)	(2)	(3)
	Female candidates	Female voteshare	Female winner
Amendment	0.98**	2.11***	0.05***
	(0.03)	(0.00)	(0.00)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

p-values in parentheses

Notes: *Femalecandidates* is the percentage of female candidates in a constituency year. *Femalevoteshare* is the average vote share received by females in a constituency year. *Femalewinner* is a dummy variable indicating if the constituency year has a female winner. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Inheritance rights and political participation of women

	(1)	(2)	(3)	(4)
	National Party	State Party	Local Party	Independent
Amendment	0.00	0.04***	0.03*	-0.00
	(0.86)	(0.01)	(0.06)	(0.99)
Observations	23852	23852	23852	23852
Constituency FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

p-values in parentheses

Notes: Nationalparty is the percentage of candidates who are females and belong to national political parties. *Stateparty* is the percentage of candidates who are females and belong to state political parties. *Localparty* is the percentage of candidates who are females and belong to local political parties. *Independent* is the percentage of candidates who are females and are not affiliated with any political party. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Inheritance rights and political participation

	(1)	(2)
	Incumbent vote	New female cand
Amendment	-3.16*	1.21***
	(0.07)	(0.01)
Observations	23852	23852
Constituency FE	Yes	Yes
Year FE	Yes	Yes

p-values in parentheses

Notes: Incumbentvote is the vote share percentage of male incumbents in a constituency. *Newfemalecand* is the percentage of female candidates who do not have prior political experience. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Differential impact by Hindu population

	(1) Female candidates	(2) Female voteshare	(3) Female winner
Amendment	-20.74	-28.98	-0.35
	(0.11)	(0.13)	(0.11)
ammendment × hinduprop	0.25*	0.36	0.00*
	(0.09)	(0.11)	(0.08)
Hindu (%)	-0.45**	-0.30	0.01
	(0.04)	(0.25)	(0.15)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

p-values in parentheses

Notes: Femalecandidates is the percentage of female candidates in a constituency year. *Femalevoteshare* is the average vote share received by females in a constituency year. *Femalewinner* is a dummy variable indicating if the constituency year has a female winner. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Political participation of Muslim women

	(1) Female candidates	(2) Female voteshare	(3) Female winner
Amendment	0.87*	2.12***	0.05***
	(0.06)	(0.00)	(0.00)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

p-values in parentheses

Notes: Femalecandidates is the percentage of female candidates in a constituency year. *Femalevoteshare* is the average vote share received by females in a constituency year. *Femalewinner* is a dummy variable indicating if the constituency year has a female winner. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Mechanism using IHDS data

	(1)	(2)	(3)	(4)	(5)	(6)
	Cashinhand	Bankaccount	Discusspolitics	Discussexp	Findep	Education
UnmarriedXtreated states	0.02	0.03**	0.06***	0.06***	-0.01	0.75***
	(0.10)	(0.03)	(0.00)	(0.00)	(0.19)	(0.00)
Observations	25314	22802	24859	24876	24878	25028
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Birth year FE	Yes	Yes	Yes	Yes	Yes	Yes

p-values in parentheses

Notes: Cashinhand is a dummy variable that takes a value 1 if female reports having cash in hand to spend on household expenditure. *Bankaccount* is a dummy variable that takes a value 1 if female reports having a bank account. *Discusspolitics* is a dummy variable that takes a value 1 if female discusses election or politics with her husband. *Findep* is a dummy variable that takes a value 1 if female expects to be financially dependent on her son or daughter in future. *Education* is the years of education for the female. *UnmarriedXtreatedstates* is an interaction between a dummy variable that takes a value 1 for the female eligible for HSA amendment and a dummy variable that takes a value 1 for treatment states.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Robustness to region specific trends

	(1)	(2)	(3)
	Female candidates	Female voteshare	Female winner
ammendment	0.54	1.23**	0.04***
	(0.28)	(0.02)	(0.00)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Region-trends	Yes	Yes	Yes

p-values in parentheses

Standard errors are clustered in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Placebo test - Impact on Muslim female candidates

	(1)	(2)	(3)
	Female candidates	Female voteshare	Female winner
Amendment	0.11	0.01	-0.00
	(0.13)	(0.91)	(0.95)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

p-values in parentheses

Standard errors are clustered in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Robustness check using Garnder (2021)

	(1) Female candidates	(2) Female voteshare	(3) Female winner
Amendment	0.80	1.62*	0.03*
	(0.16)	(0.07)	(0.09)
Observations	23852	23852	23852
Constituency FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

p-values in parentheses

Notes: Femalecandidates is the percentage of female candidates in a constituency year. *Femalevoteshare* is the average vote share received by females in a constituency year. *Femalewinner* is a dummy variable indicating if the constituency year has a female winner. *Amendment*, a dummy variable, is an interaction between states that amended their inheritance laws and the year in which the amendment was made. Standard errors are clustered at the state level in all specifications.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1: Female political participation in State Assembly Elections
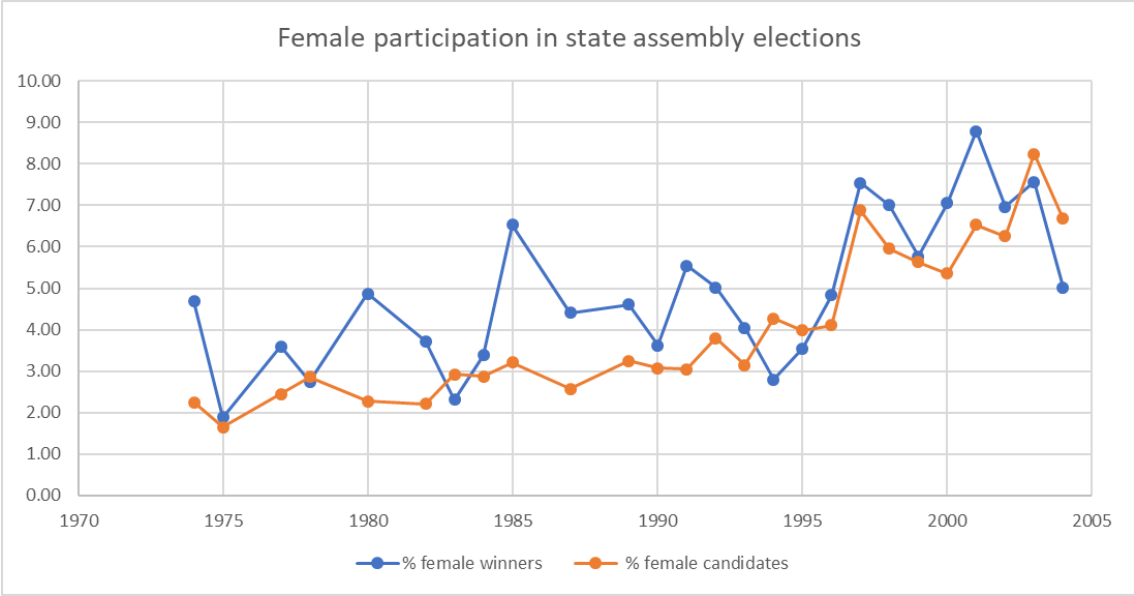
Figure 2: Female political participation in State Assembly Elections
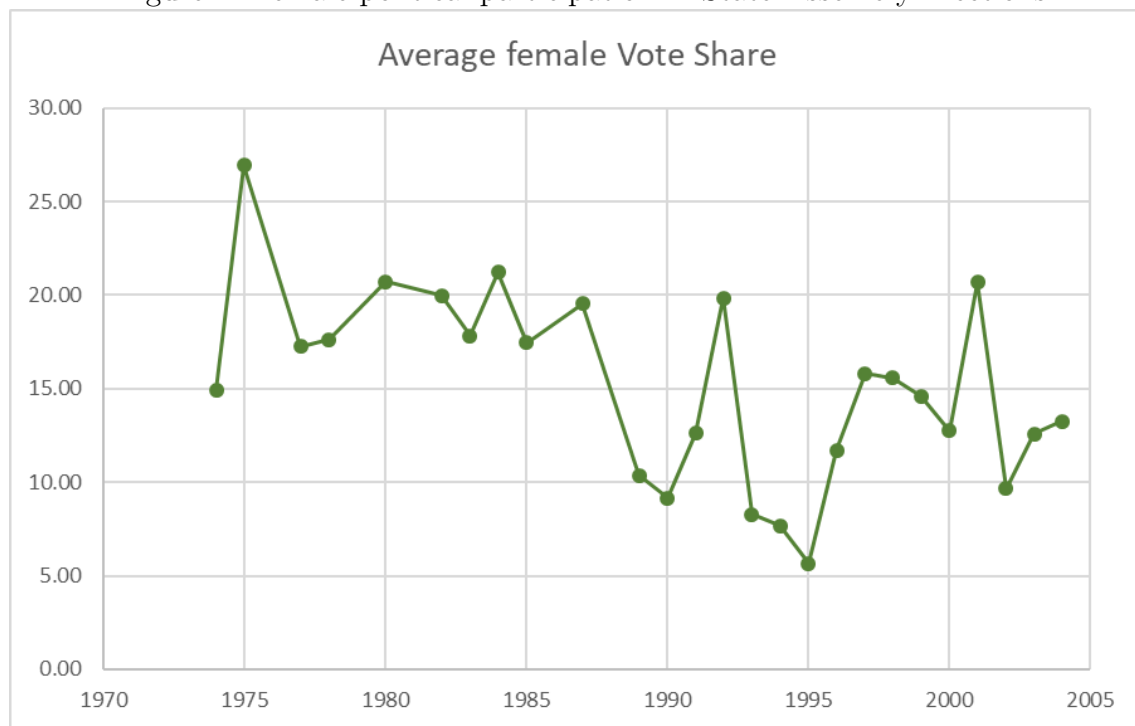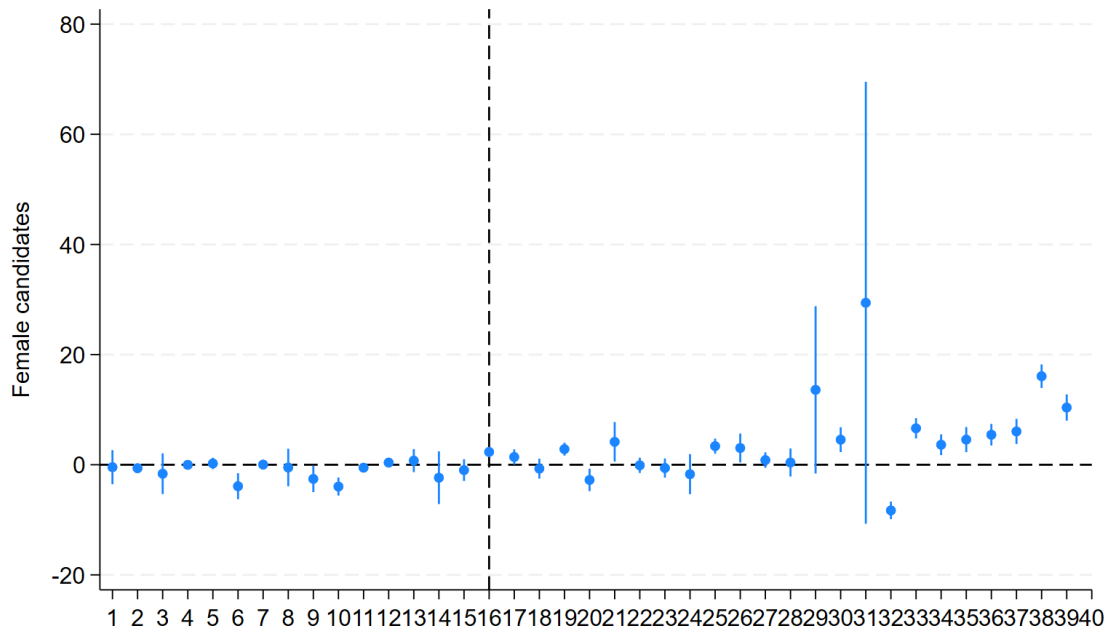
Figure 3: Event study specification
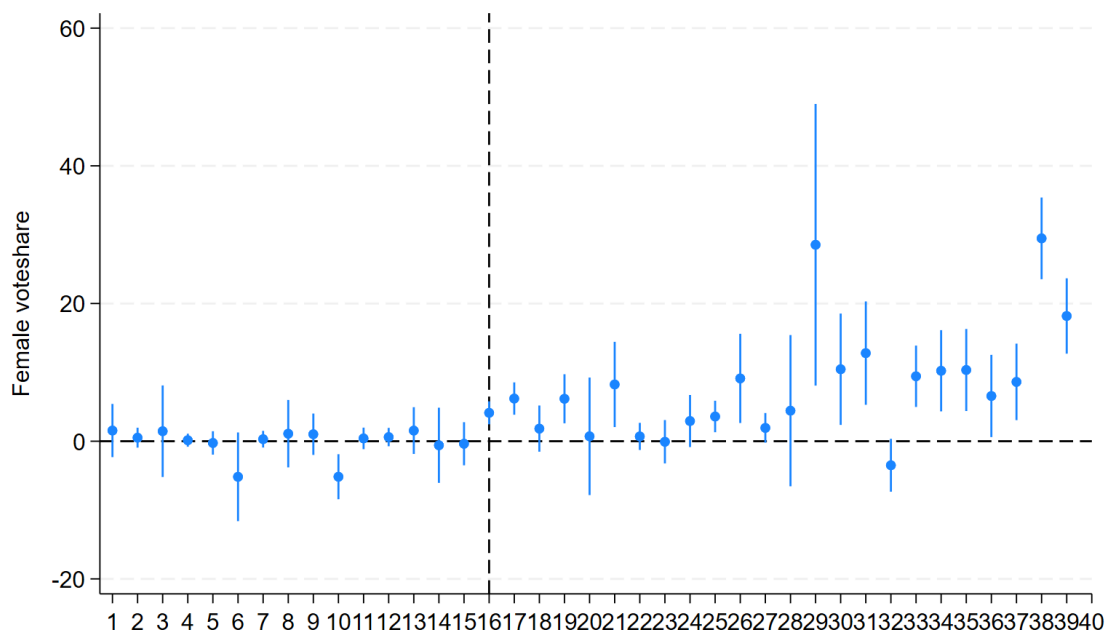
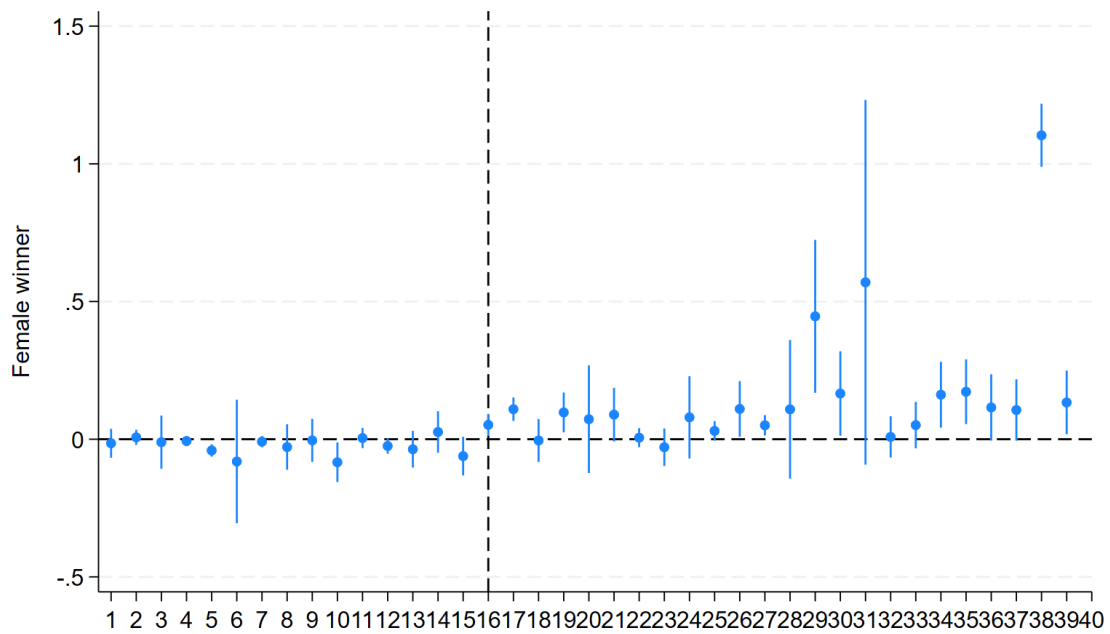Figure 4: Event study specification

Figure 5: Event study specification

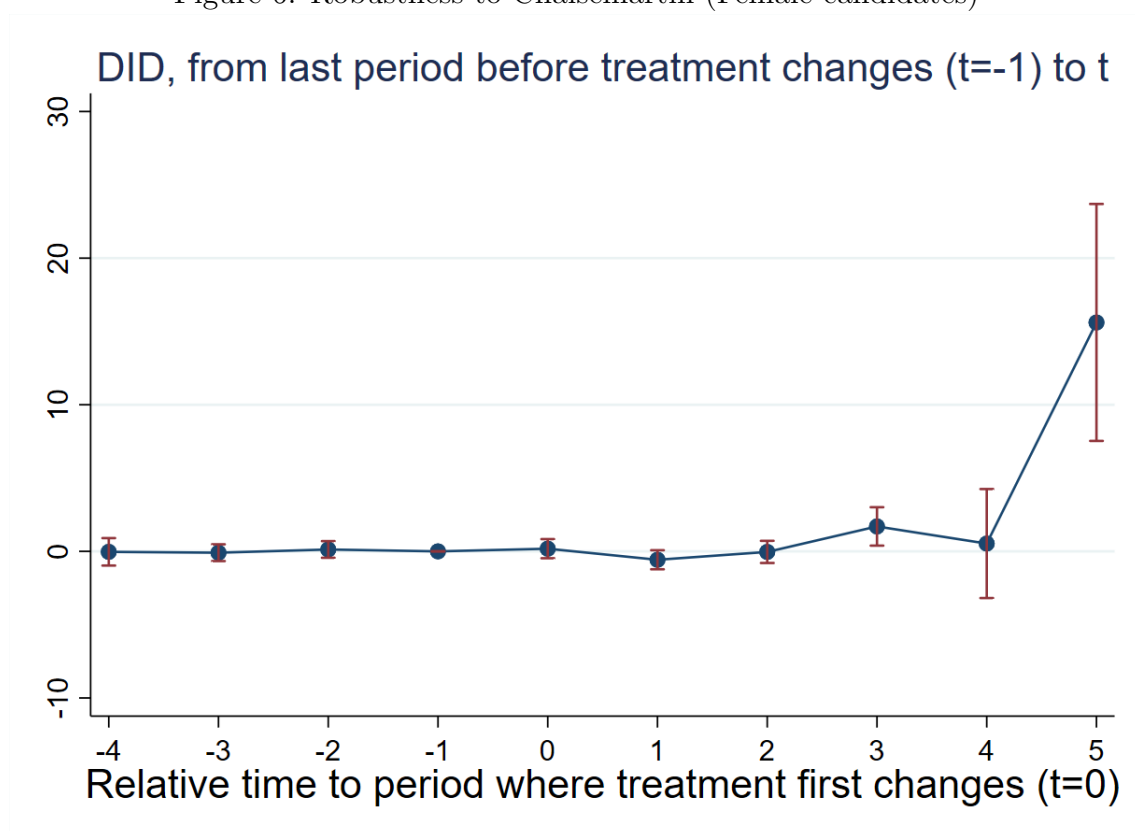Figure 6: Robustness to Chaisemartin (Female candidates)

Figure 7: Robustness to Chaisemartin (Female winner)
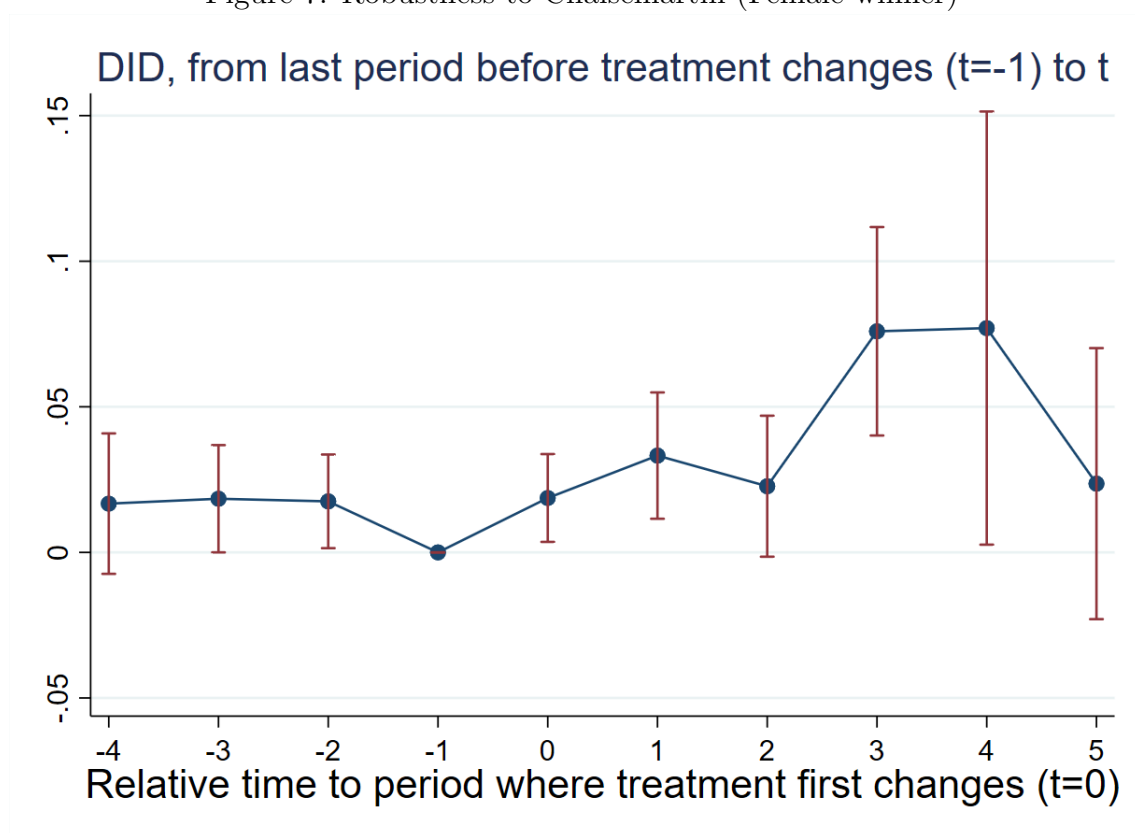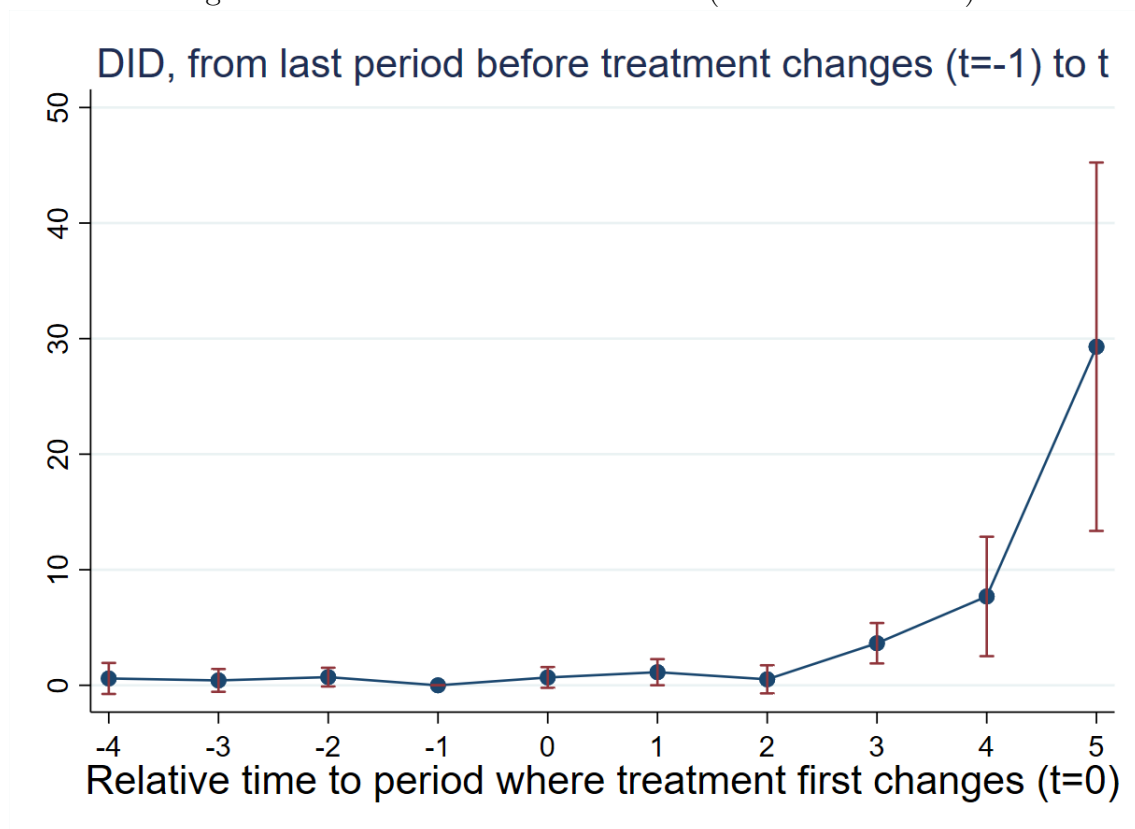
Figure 8: Robustness to Chaisemartin (Female vote share)

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