Online Appendix – Not for Print

Maternal Mortality and Women's Political Participation

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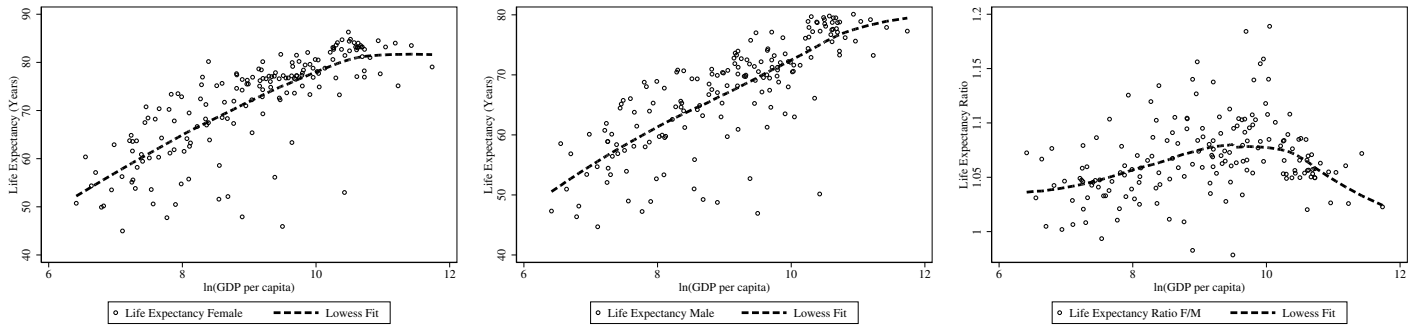
Online Appendix Figures

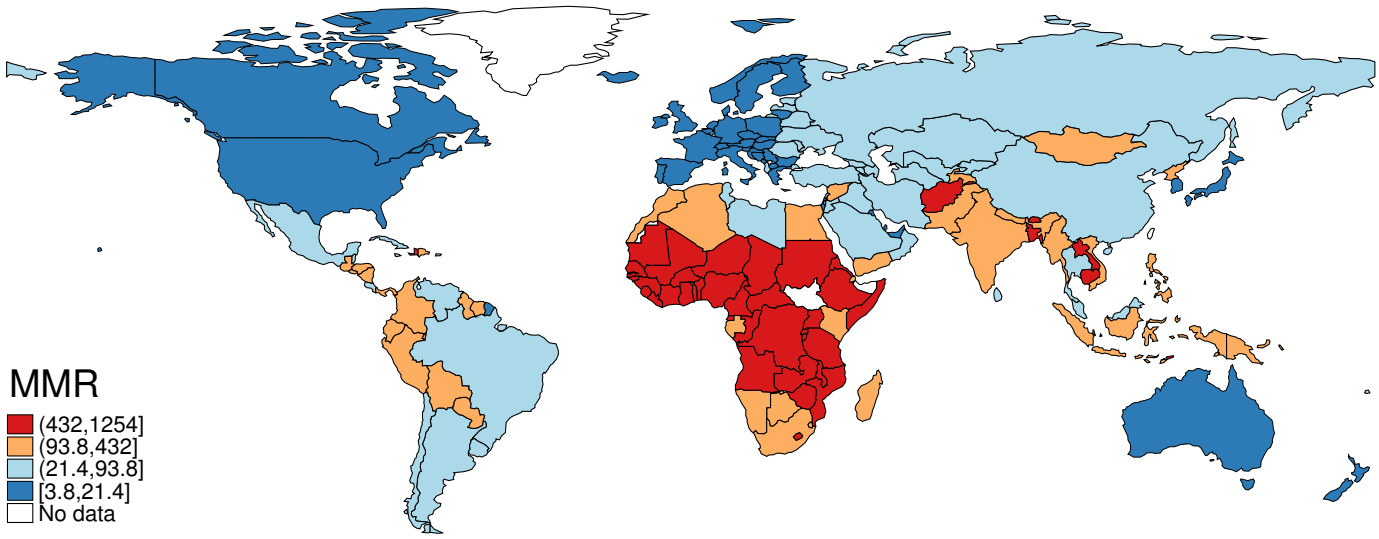
Figure B1: Life expectancy in 2010

(a) Female life expectancy (b) Male life expectancy (c) Female/male life expectancy ratio



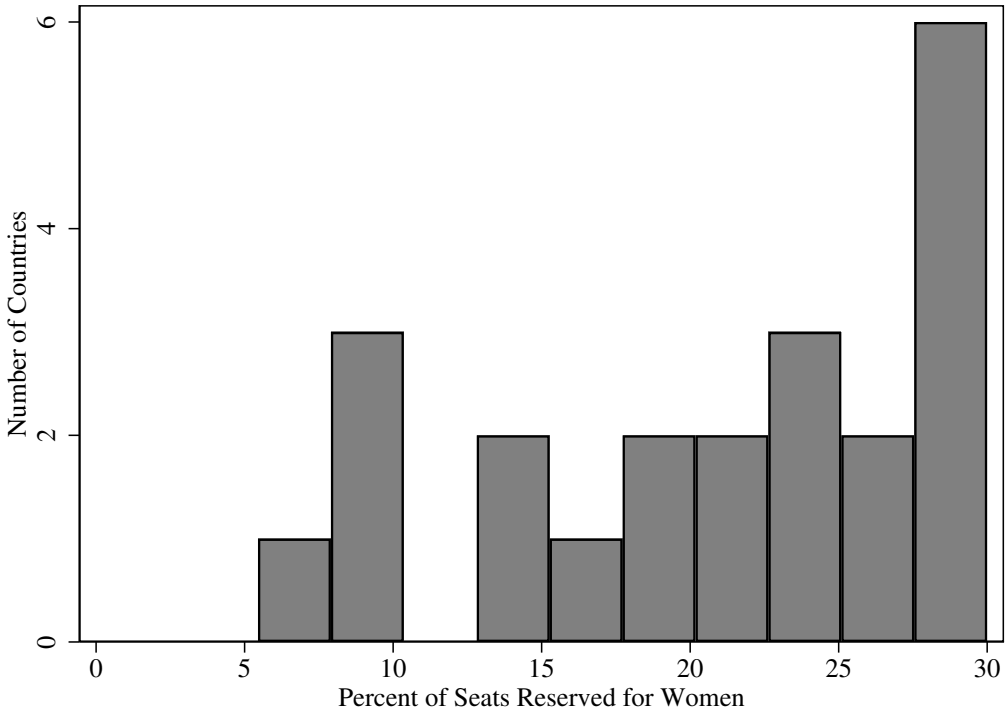
Notes: Life expectancy at birth and PPP-adjusted GDP per capita data are collated by the World Bank Data Bank. These indicators are SP.DYN.LE00.FE.IN (Female life expectancy) SP.DYN.LE00.MA.IN (Male life expectancy) and NY.GDP.PCAP.PP.KD (PPP adjusted GDP per capita). The life expectancy ratio is calculated as female life expectancy divided by male life expectancy for each country. Lowess fits are overlaid on scatter plots, using a bandwidth of 0.8 for local linear smoothing.

Figure B2: Maternal mortality ratio: 1990–2015



Notes: Average rates by country for the period 1990–2015. Values are calculated as deaths per 100,000 live births, and are provided by the MMEIG, an inter-agency project of the WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division.

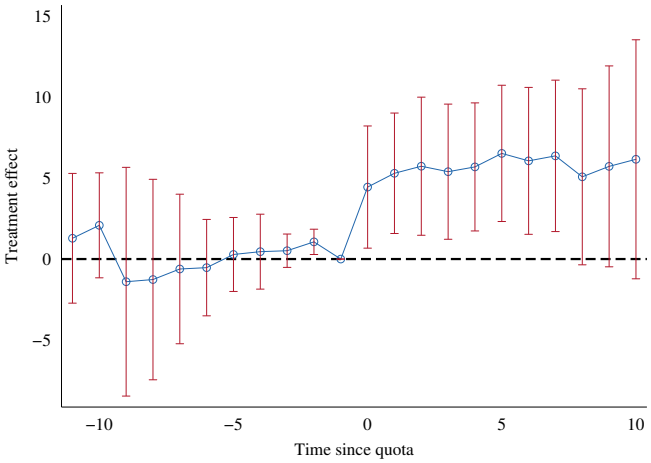
Figure B3: Reserved seat quota sizes



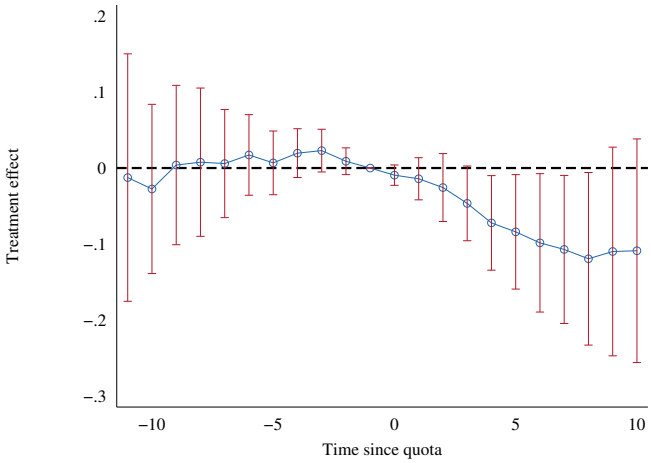
Notes: This histogram describes the quota size for each country which adopts a reserved seat quota. Each country (quota) is included as a single observation.

Figure B4: de Chaisemartin and D'Haultfoeuille (2022)'s DID_M estimator with long placebos

(a) % of women in parliament



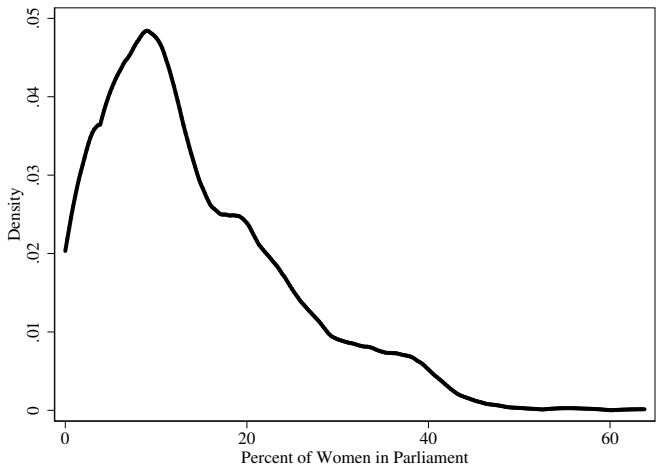
(b) ln(maternal mortality ratio)



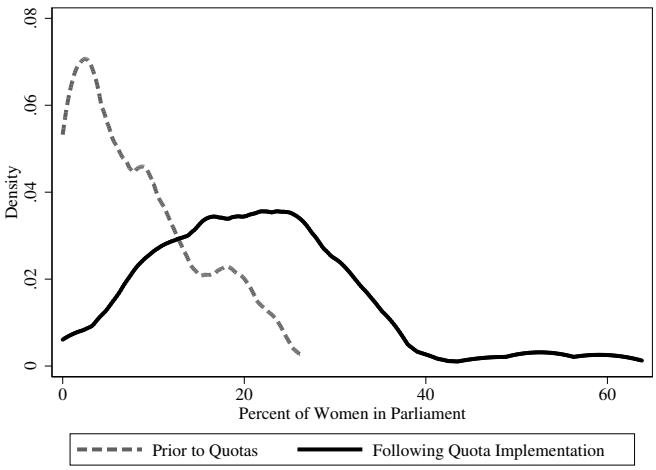
Notes: Results replicate those in Figure 2, however now using 'long placebos' described in de Chaisemartin and D'Haultfoeuille (2022) which consider movements in pre-periods consistently coared with period -1, rather than short placebos based on movements of one period (eg from -5 to -4, or -3 to -2) during the pre-treatment period. Post-treatment estimators are identical in both cases.

Figure B5: Proportion of women in parliament

(a) All Countries

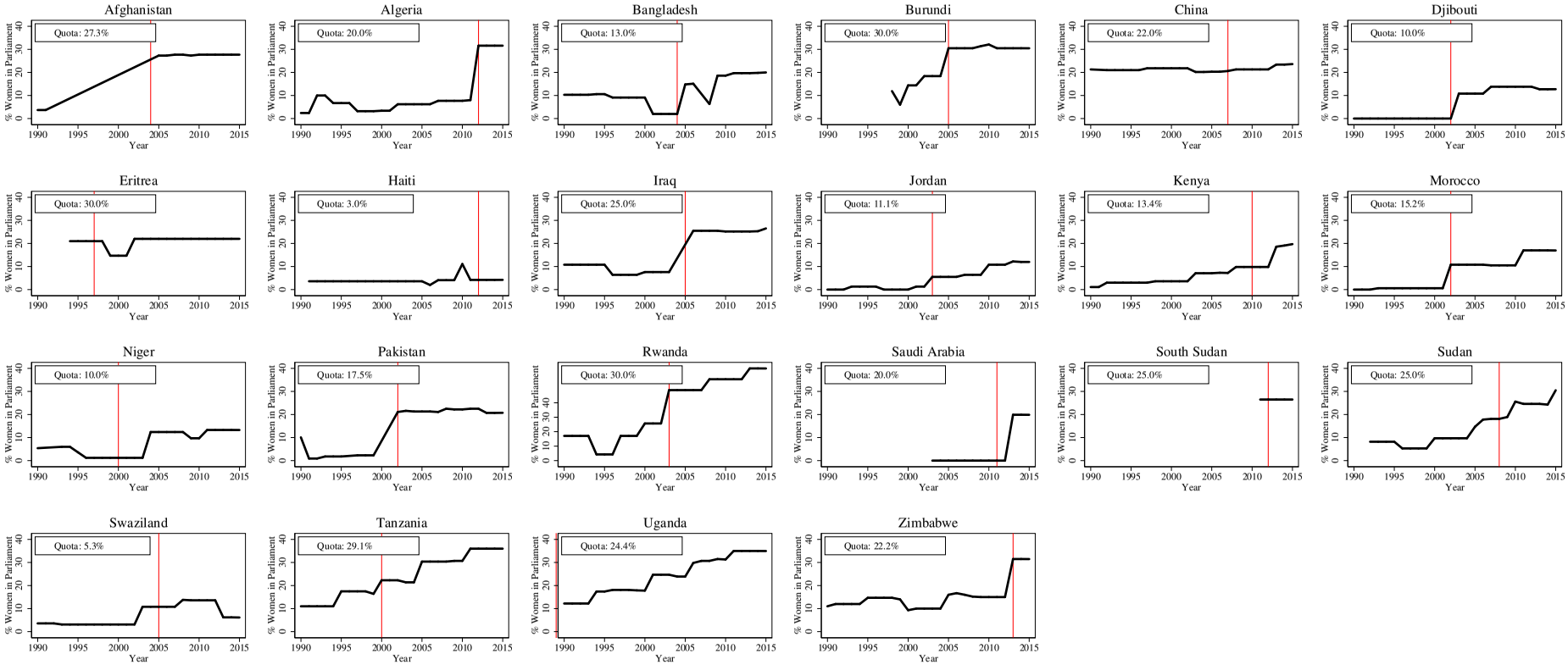


(b) Reserved Seat Countries Only



Notes: Density plots describe the proportion of women in parliament in all countries and years under study (figure (a)), and the proportion of women in parliament in countries which at some point adopt a reserved seat quota (figure (b)). Plots are based on each country by year observation in the women in parliament data.

Figure B6: Country-specific changes in women in parliament after reserved seat quotas

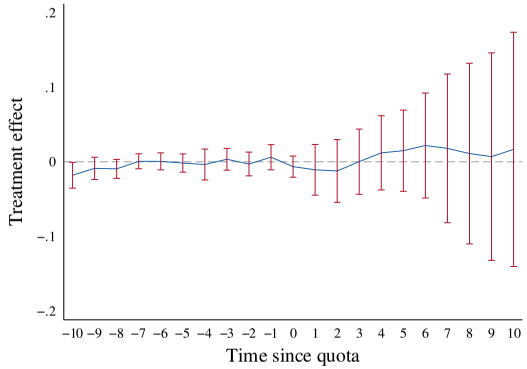


Notes: In each panel, the vertical lines display the recorded date of the passage of a reserved seat quota for women in the national parliament, and the plots show the evolution of the percentage of women in parliament. Each figure shares a common y-axis for ease of comparison.

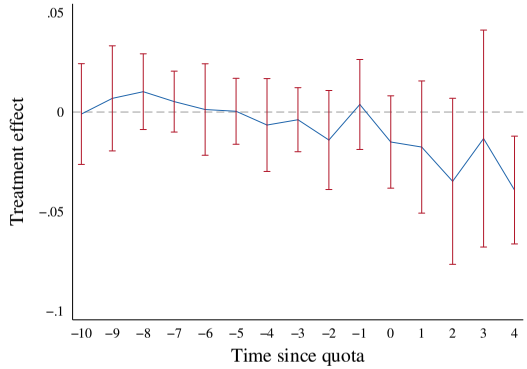
Figure B7: Impact of quotas on MMR by size of gender quota (DID_M estimates)

Panel A: By Quota Size

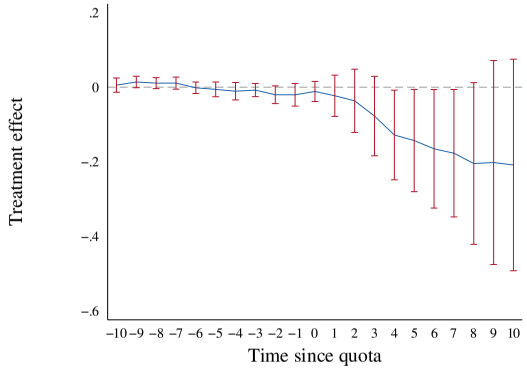
(a) Quota Size: 0-10



(b) Quota Size: 10-20

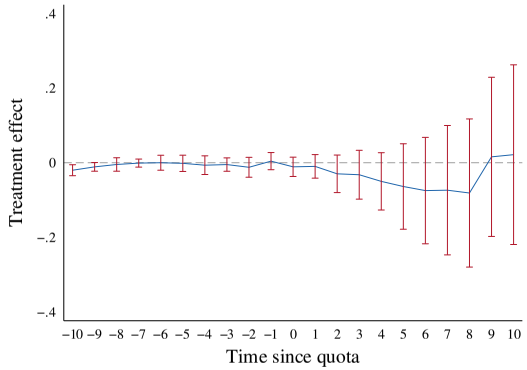


(c) Quota Size: 20-30

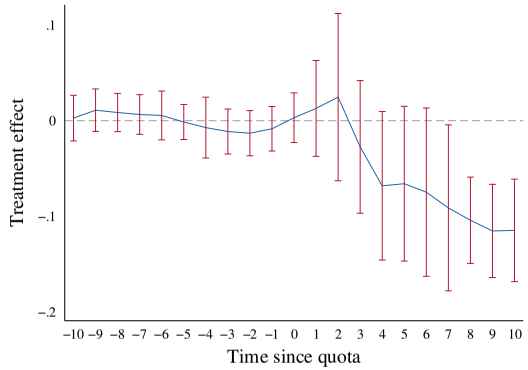


Panel B: By Baseline Rates of Maternal Mortality

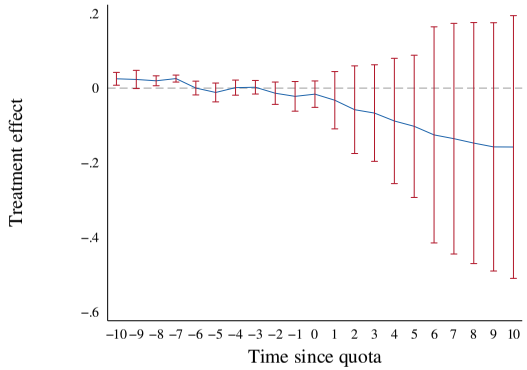
(d) "Low" baseline Rates (MMR <400)



(e) "Medium" baseline Rates (MMR [400,800))



(f) "High" baseline Rates (MMR ≥800)

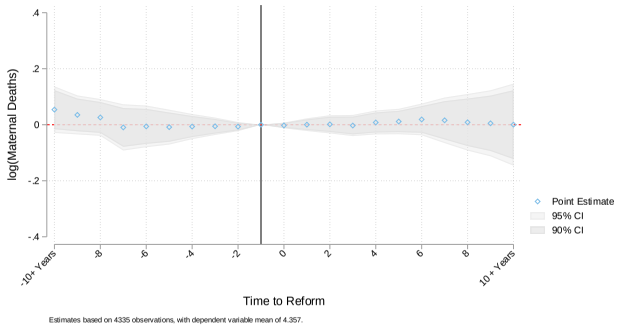


Notes: de Chaisemartin and D'Haultfœuille (2020) DID_M estimates are presented separately for countries with a different proportion of seats reserved in their quota (Panel A) or with different rates of maternal mortality at baseline (Panel B). These are presented in three bins. Bins approximately separate quota countries into three evenly sized groups. Baseline rates of maternal mortality are calculated as average values in countries prior to the year 2000. Each set of coefficients is estimated as separate DID_M models, removing all quota countries which are not classified as part of that group, and using all non-quota countries as untreated controls. Remaining details follow Figure 2.

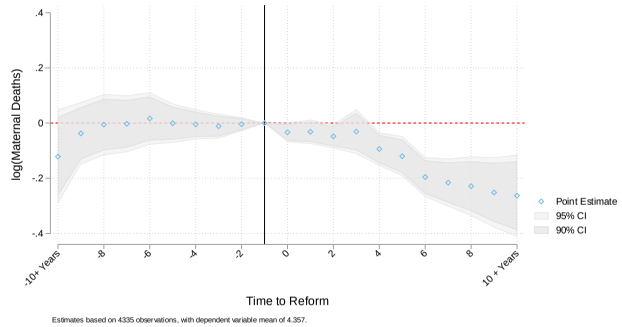
Figure B8: Impact of quotas on MMR by size of gender quota (event study models)

Panel A: By Quota Size

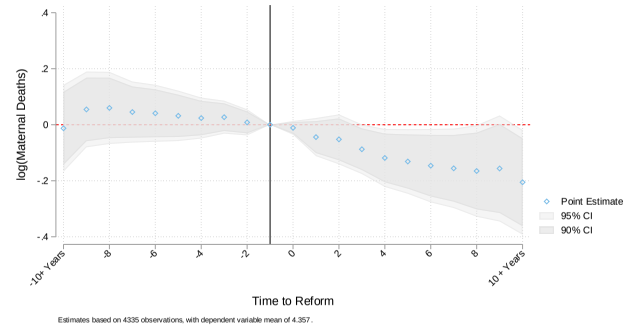
(a) Quota Size: 0-10



(b) Quota Size: 10-20

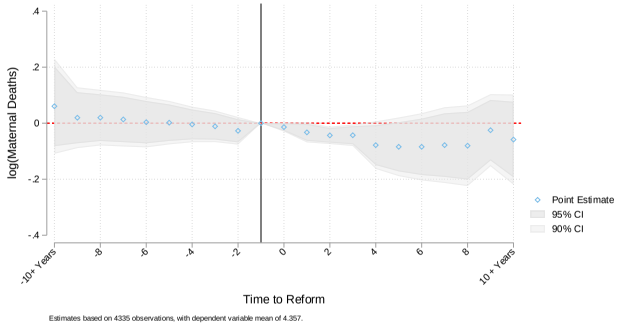


(c) Quota Size: 20-30

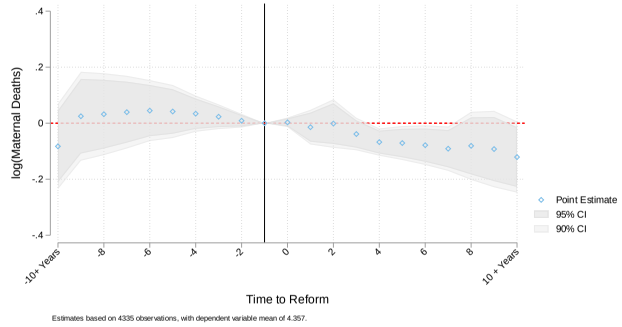


Panel B: By Baseline Rates of Maternal Mortality

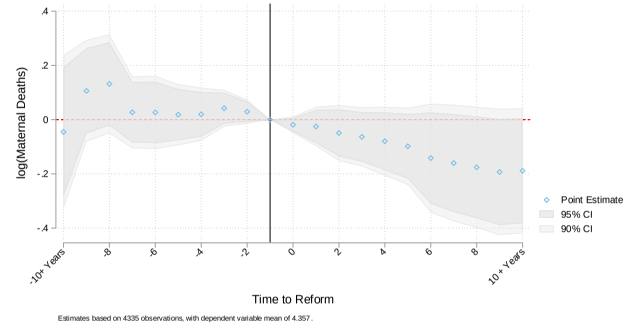
(d) "Low" baseline Rates (MMR <400)



(e) "Medium" baseline Rates (MMR [400,800))



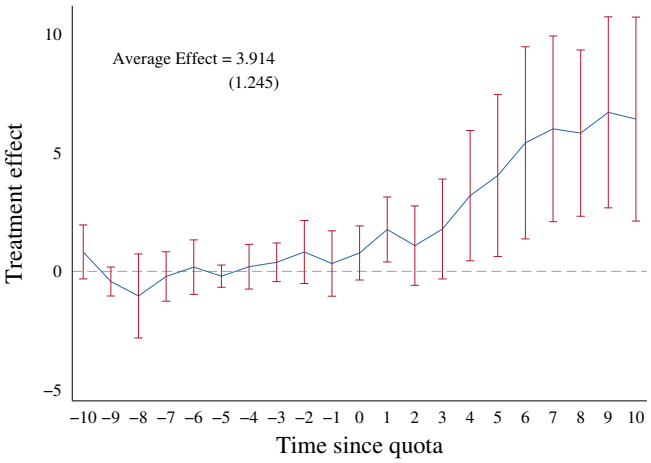
(f) "High" baseline Rates (MMR ≥800)



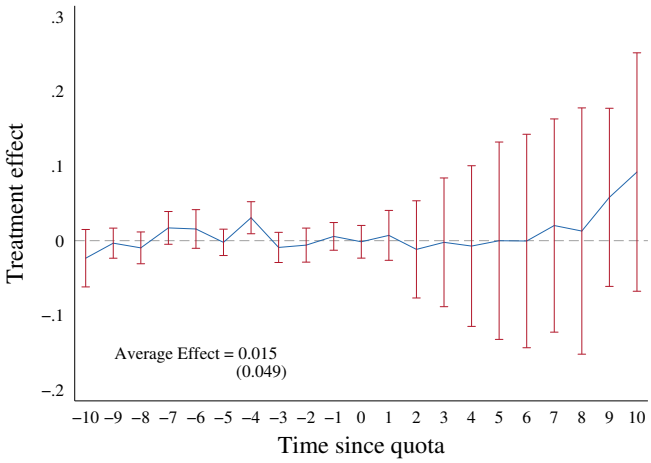
Notes: Event study estimates are presented separately for countries with a different proportion of seats reserved in their quota (Panel A) or with different rates of maternal mortality at baseline (Panel B). These are presented in three bins. Bins approximately separate quota countries into three evenly sized groups. Baseline rates of maternal mortality are calculated as average values in countries prior to the year 2000. Each set of coefficients is estimated in a single event study (one in Panel A and one in Panel B), and so are conditional on all other groups in the panel. In each case, the baseline group consists of countries which do not implement a quota. Remaining details follow Figure A3.

Figure B9: Candidate list quotas: DID_M estimates for women in parliament and maternal mortality

(a) Women in parliament



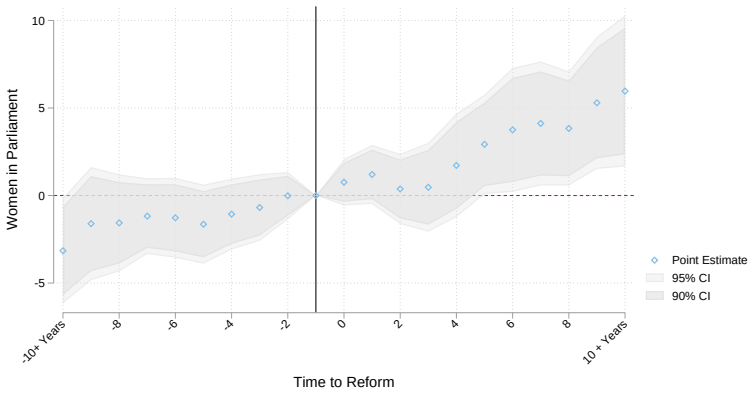
(b) ln(MMR)



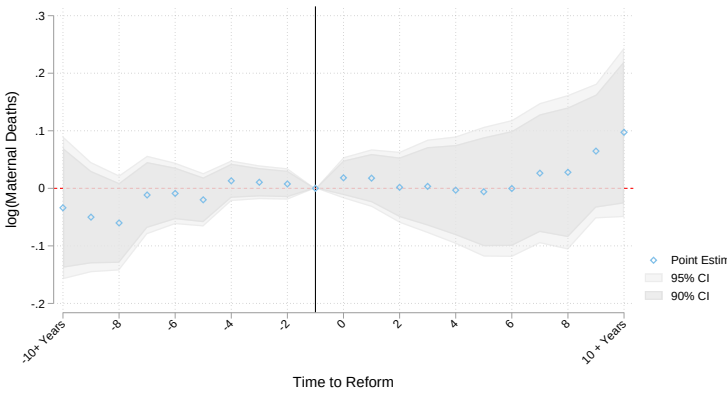
Notes: Identical specifications are estimated as in Figure 2 panels (a) and (b), however now with countries passing candidate list quotas. Average post-quota estimates and their block bootstrapped standard errors are provided in text on the plot. Countries implementing candidate list quotas in the period under study are Albania, Angola, Argentina, Armenia, Belgium, Bolivia, Bosnia and Herzegovina, Brazil, Burkina Faso, Costa Rica, Croatia, Dominican Republic, Ecuador, El Salvador, France, Greece, Guinea, Guyana, Honduras, Indonesia, Ireland, South Korea, Kyrgyz Republic, Lesotho, Macedonia, Mauritania, Mexico, Mongolia, Montenegro, Nepal, Nicaragua, Panama, Paraguay, Peru, Poland, Portugal, Senegal, Serbia, Slovenia, Spain, Tunisia and Uruguay.

Figure B10: Candidate list quotas: event studies for women in parliament and maternal mortality

(a) Women in parliament

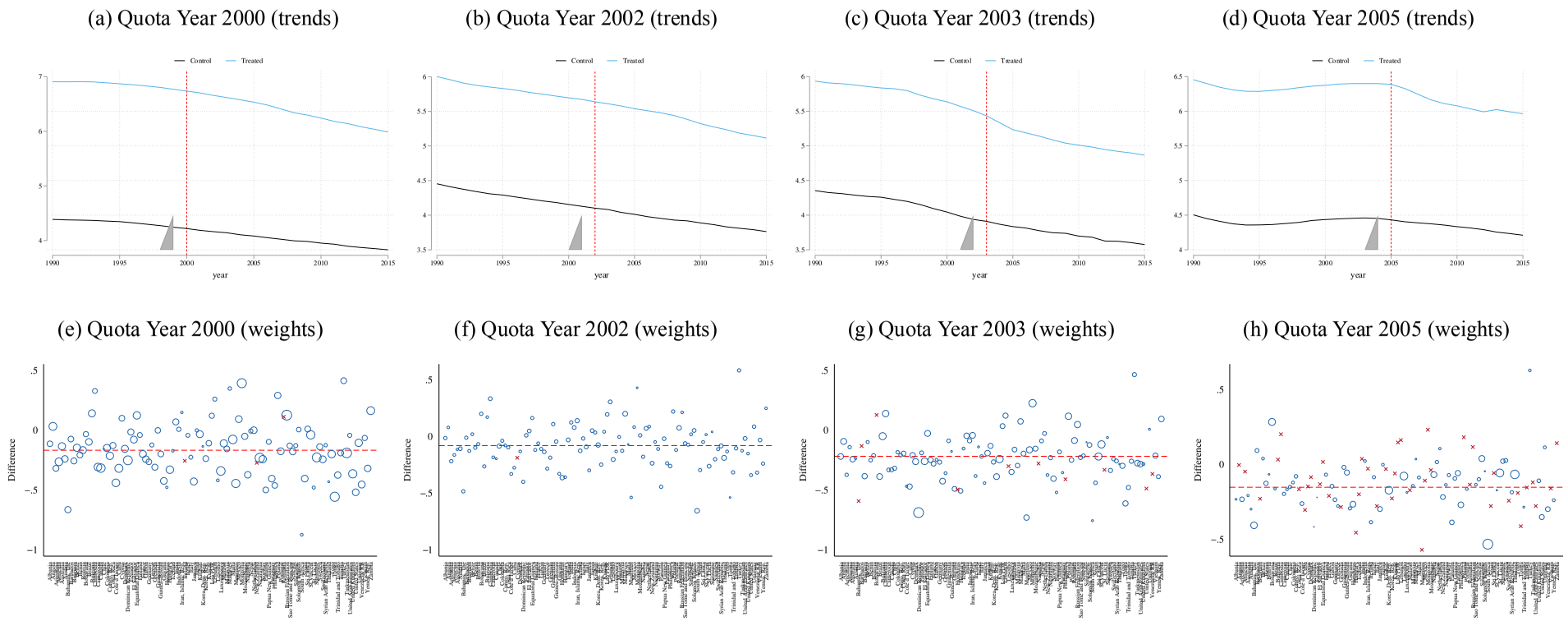


(b) ln(MMR)



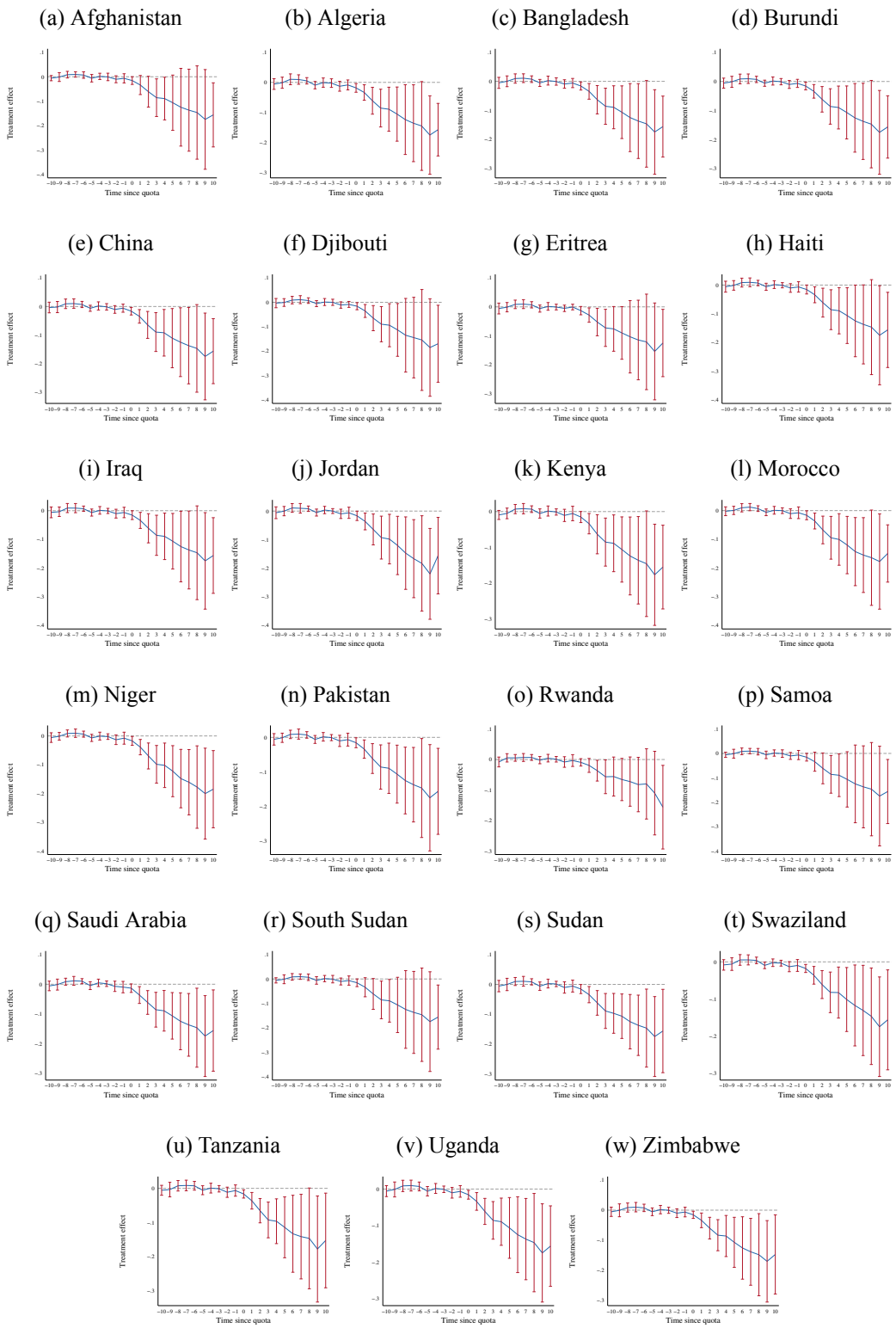
Notes: Identical specifications are estimated as in Figure A3, however now with countries passing candidate list quotas. Difference-in-difference estimates from a single-coefficient model suggest an increase in 1.776 (standard error 2.172) in the proportion of women in parliament following reserved seat quotas, and a reduction of 0.017 (standard error 0.071) in log(MMR). Countries implementing candidate list quotas in the period under study are provided in notes to Figure B9.

Figure B11: Synthetic Difference-in-Differences, Outcome Trends and Synthetic Weights



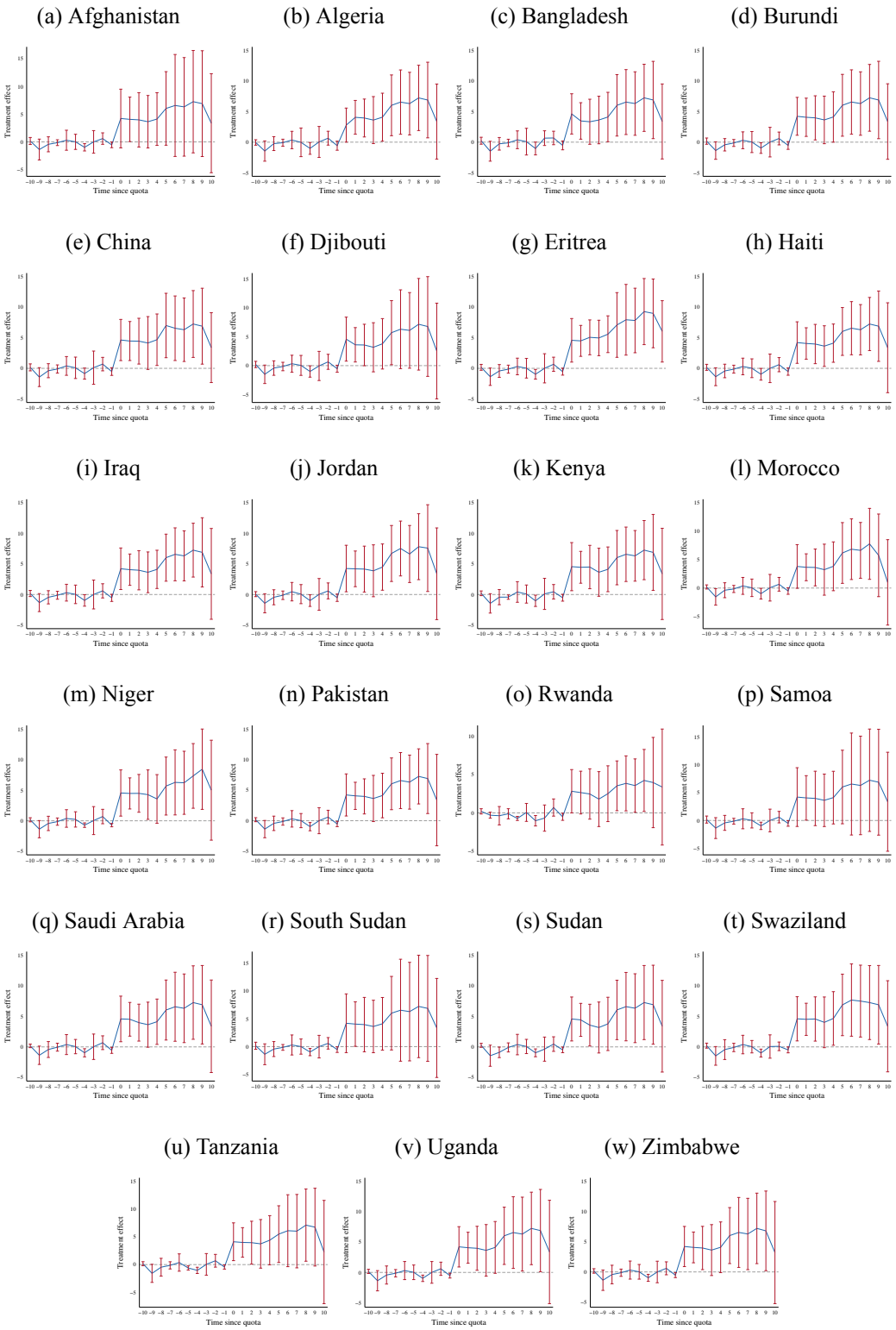
Notes: Adoption-specific synthetic difference-in-differences estimates are displayed following Arkhangelsky et al. (2021). Top panels display average outcomes for maternal mortality in treated and synthetic control units, along with time-specific weights calculated according to Arkhangelsky et al. (2021). Lower panels display weights assigned to each untreated country (size of points), as well as state-by-state observed differences calculated as $\hat{\delta}_{tr} - \hat{\delta}_i$ following Arkhangelsky et al. (2021), and the vertical dotted line presents the weighted averages of these differences (the estimated effect). Observations with 0 weight are denoted using an x symbol. Full synthetic DID estimates are based on weighted averages of adoption year specific estimates. In the interests of space, here we only present the first four adoption years (adoption years 2010, 2012, and 2013 are not displayed).

Figure B12: Leave-one-out analysis: maternal mortality



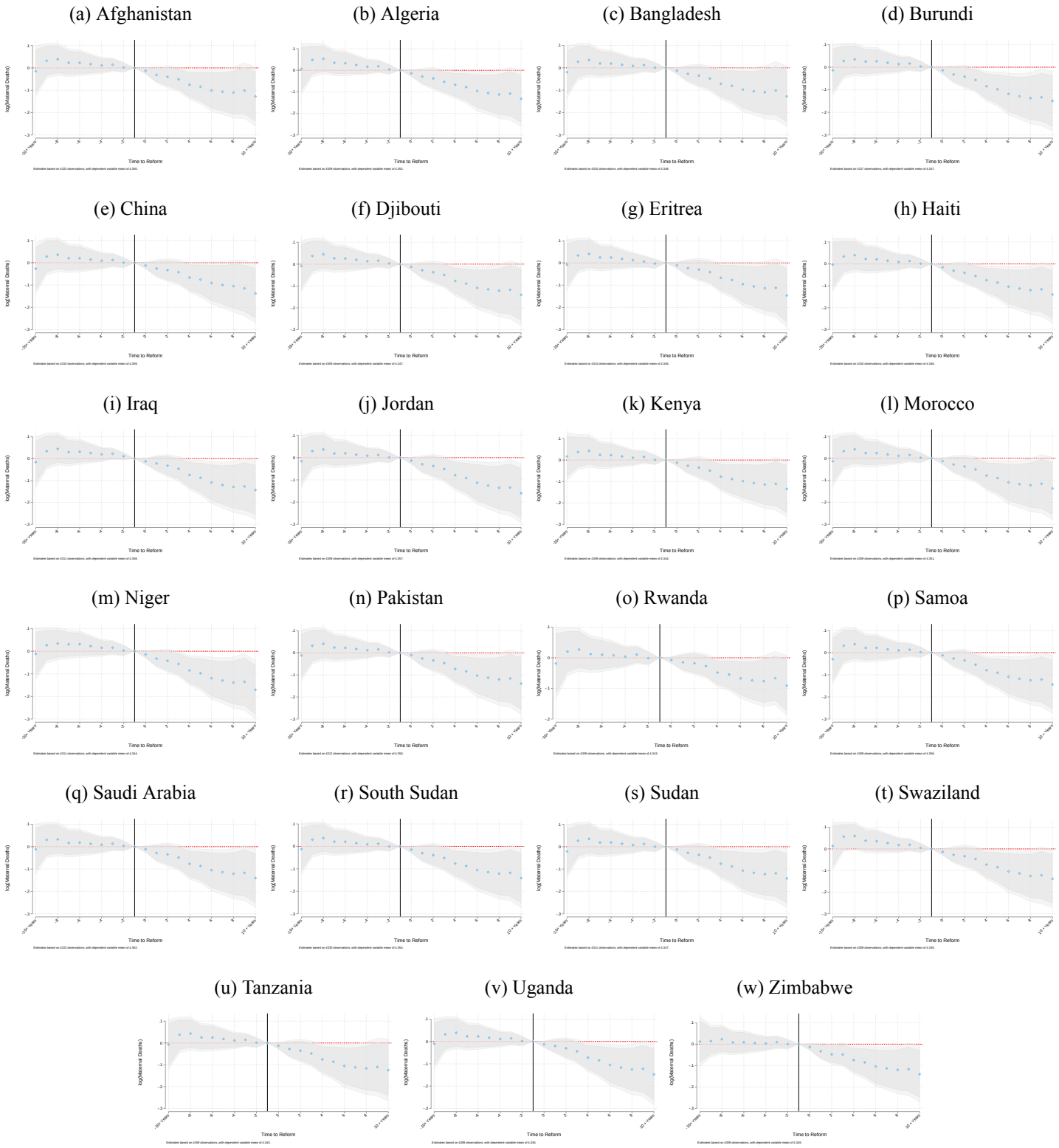
Notes: Plots replicate panel (b) of Figure 2, however leave out one quota-adopting country at a time. The title of each plot refers to the country which is removed when estimating each DID_M model. All additional details follow the model presented in Figure 2.

Figure B13: Leave-one-out analysis: women in parliament



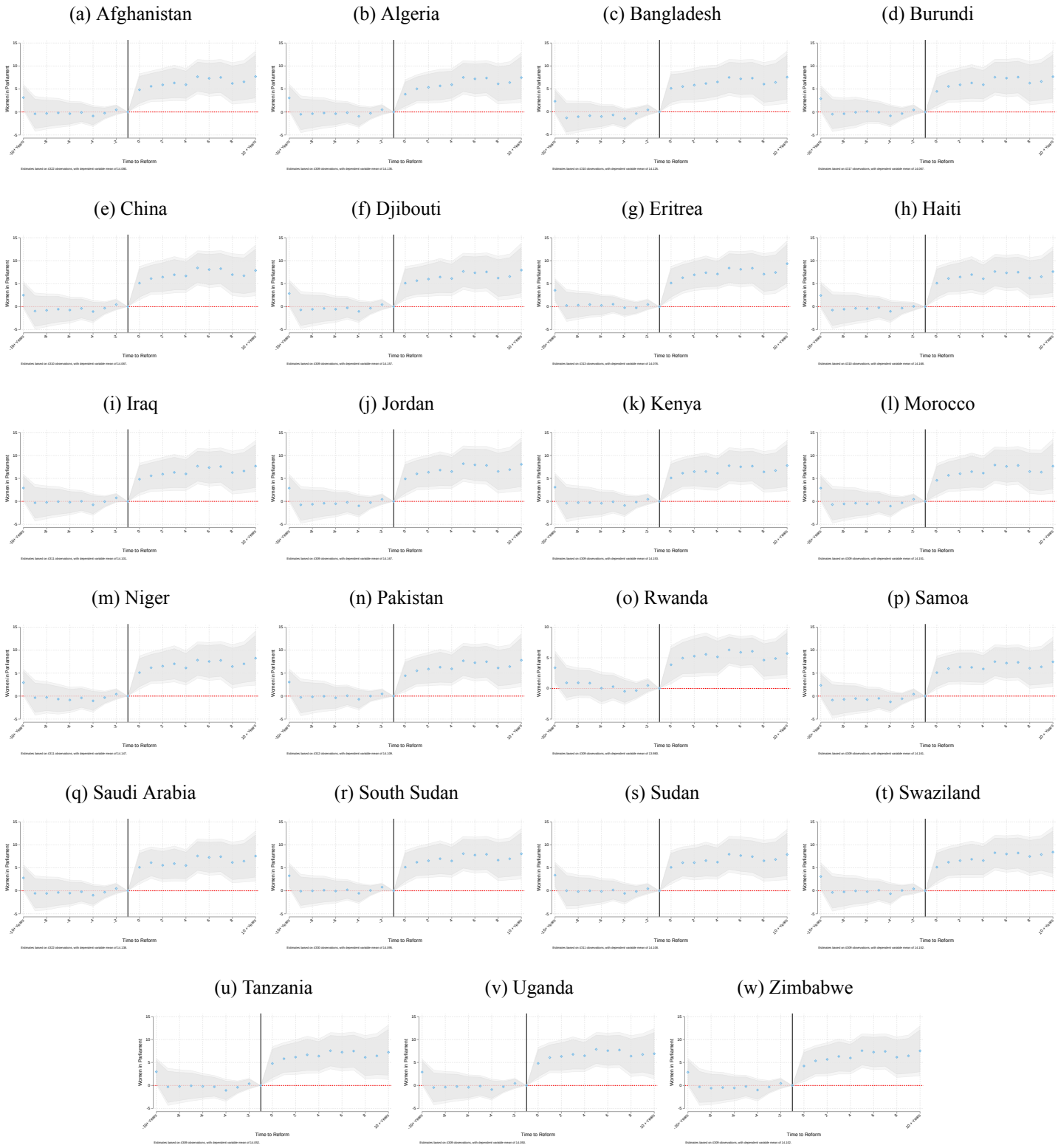
Notes: Plots replicate panel (a) of Figure 2, however leave out one quota-adopting country at a time. The title of each plot refers to the country which is removed when estimating each DID_M model. All additional details follow the model presented in Figure 2.

Figure B14: Leave-one-out analysis: maternal mortality



Notes: Plots replicate panel (a) of Figure A3, however leave out one quota-adopting country at a time. The title of each plot refers to the country which is removed when estimating each DIDM study model. All additional details follow the baseline model presented in Figure A3.

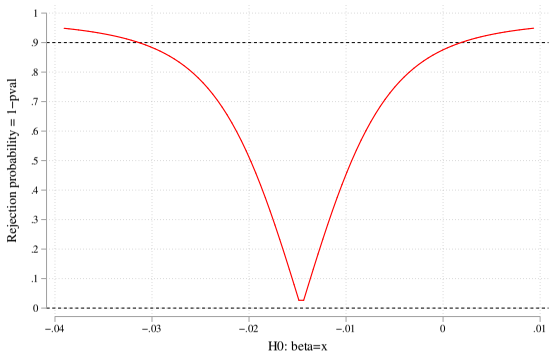
Figure B15: Leave-one-out analysis: women in parliament



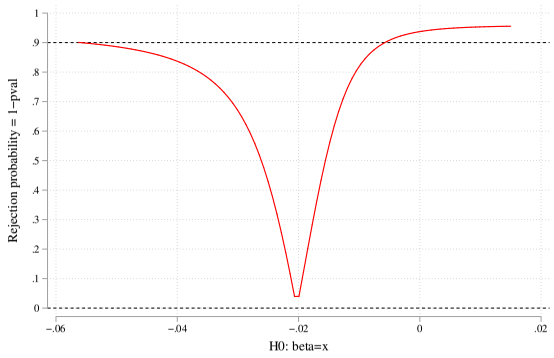
Notes: Plots replicate panel (b) of Figure A3, however leave out one quota-adopting country at a time. The title of each plot refers to the country which is removed when estimating each event study model. All additional details follow the baseline model presented in Figure A3.

Figure B16: Weak-IV Robust Rejection Levels

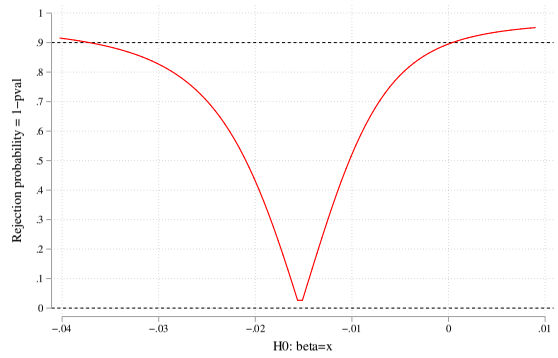
(a) Baseline model



(b) GDP and democracy controls

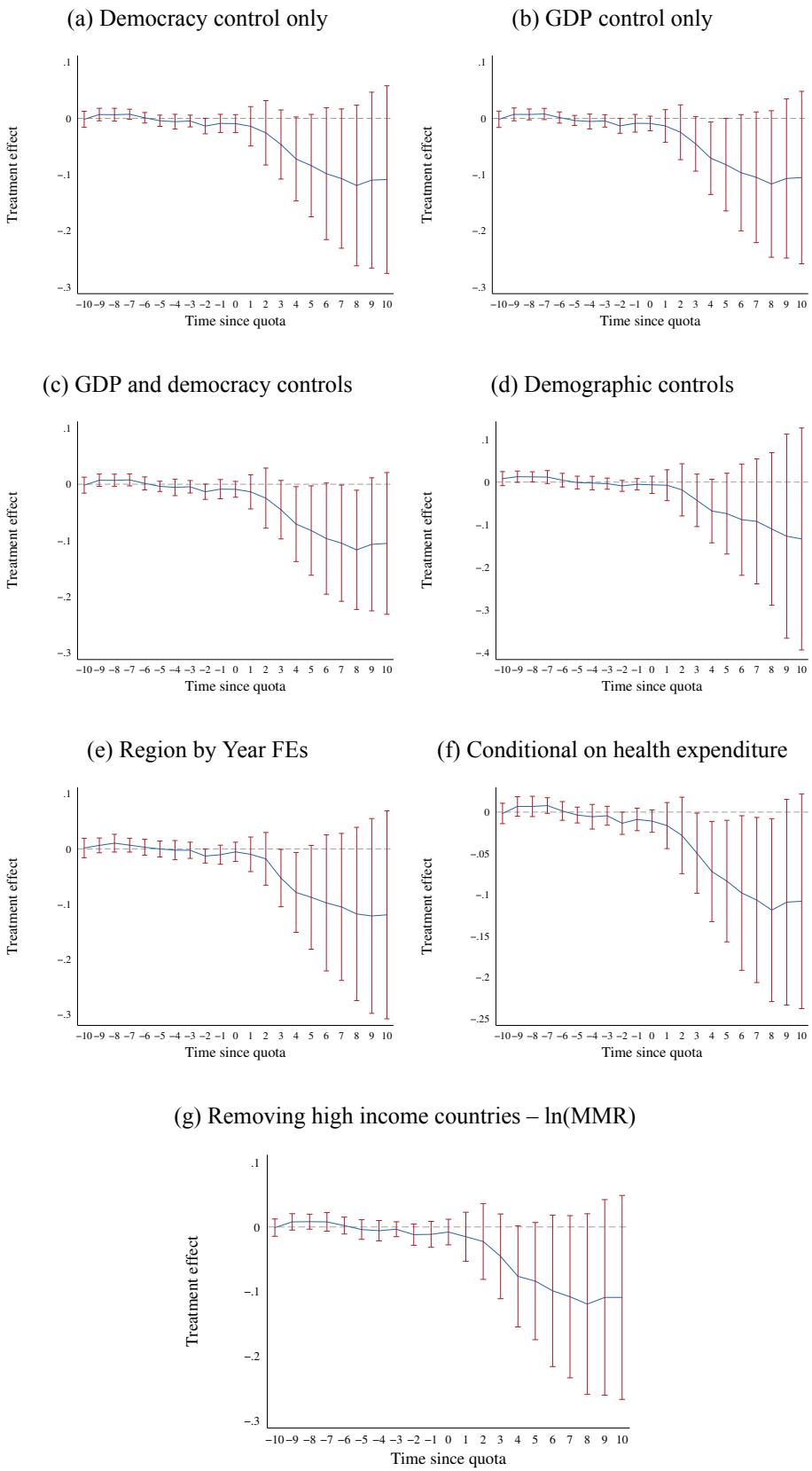


(c) Empowerment and predictor controls



Notes: The graphs plot the rejection probabilities of null hypotheses estimated in IV models described in Table A4, where the horizontal axis plots the (hypothesised) value of the population parameter, and the vertical axis reports the rejection probability of the null that the population parameter is equal to the value on the horizontal axis, robust to weak instruments following Anderson-Rubin. The plot shows which parameters can be rejected at the 90% level based on the A-R test– any part of the red curve above the dashed black line is a null that can be rejected, even if the IV is weak. The Anderson Rubin confidence sets described in Table A4 correspond to all values for which the null cannot be rejected (values for which the rejection curve falls below the dashed line). Plots are generated based on Finlay et al. (2013).

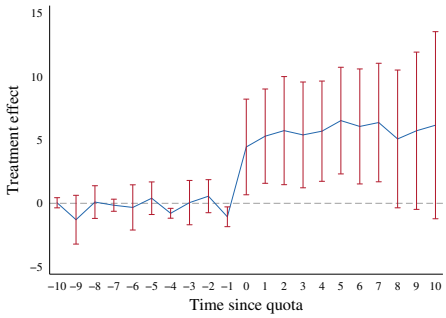
Figure B17: Alternative samples and specifications in DID_M models (maternal mortality)



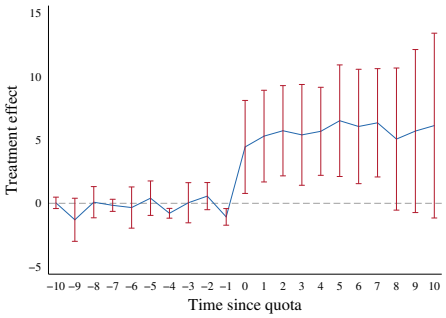
Notes: Each panel documents an alternative specification of de Chaisemartin and D'Haultfœuille (2020)'s DID_M estimates, as displayed in Figure 2. Specifications are shown with alternative controls, estimation samples, or modelling choics. Demographic controls in panel (d) refer to time-varying controls of the education of fertile aged women, the proportion of the population in fertile ages, and the ethnic fractionalization of the population. Region by year FEs include separate year fixed effects for every sub-region based on the United Nations classification. Panel (f) additionally controls for health expenditure as a proportion of GDP, and Development Aid receipts for maternal health. Panel (h) removes high income countries from the control group. A static (2015) measure of high income is used to ensure consistency of the sample across years. Additional notes are provided in Figure 2.

Figure B18: Alternative samples and specifications in DID_M models (women in parliament)

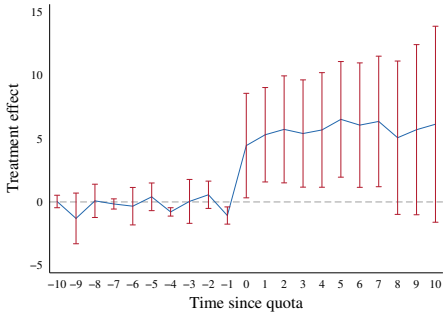
(a) Democracy control only



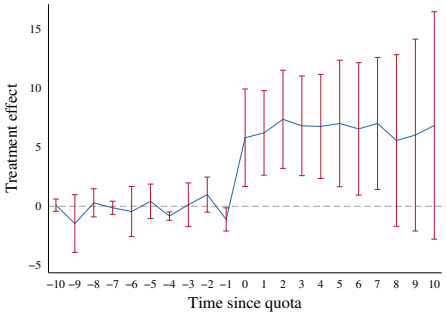
(b) GDP control only



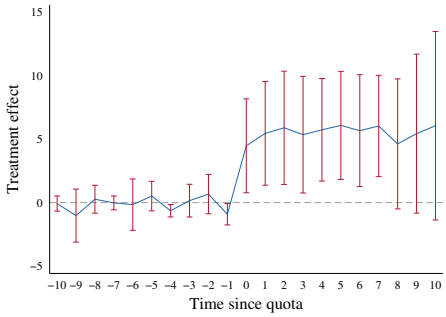
(c) GDP and democracy controls



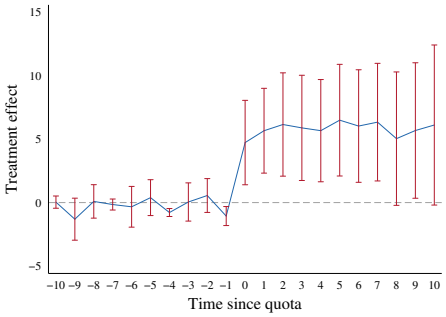
(d) Demographic controls



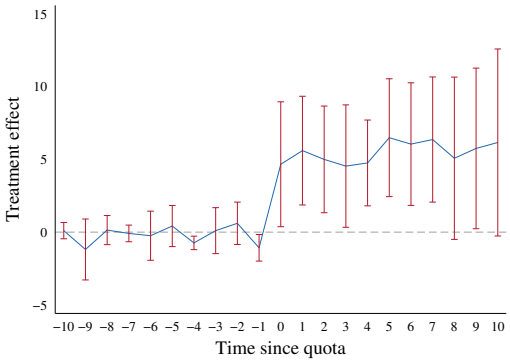
(e) Region by Year FEs



(f) Conditional on health expenditure



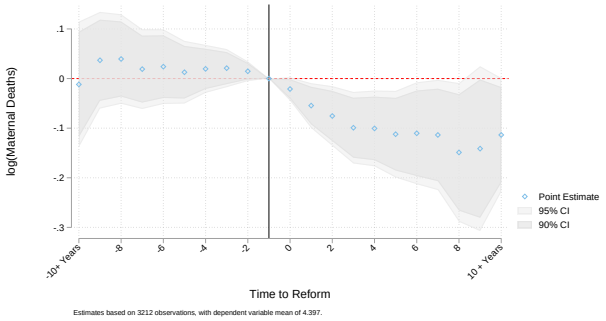
(g) Removing high income countries – women in parliament



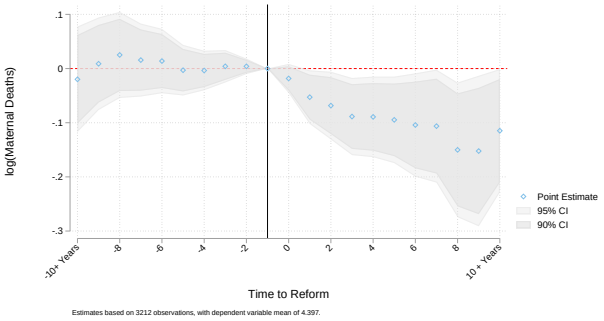
Notes: Refer to notes to Figure B17. Identical plots or shown where the outcome is women in parliament.

Figure B19: Alternative samples and specifications in quota event study (maternal mortality)

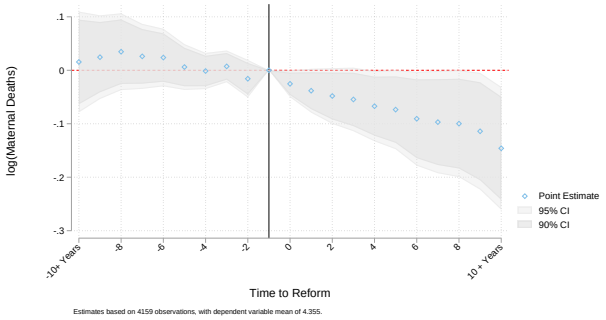
(a) Democracy control only



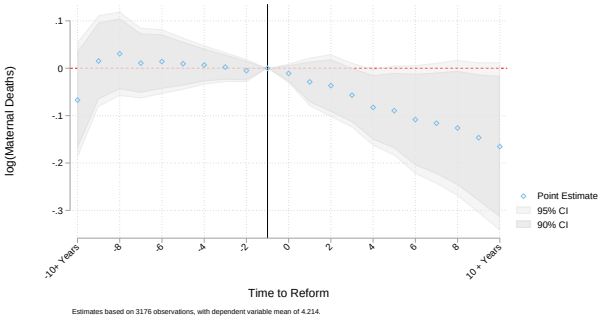
(b) GDP control only



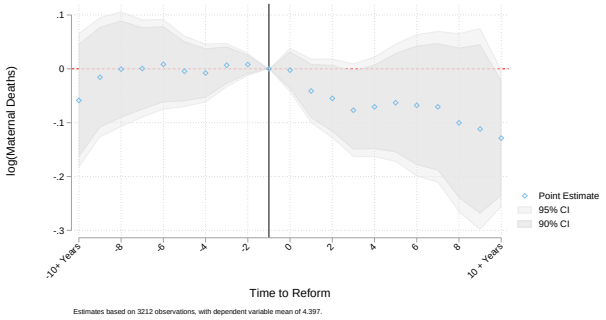
(c) GDP and democracy controls



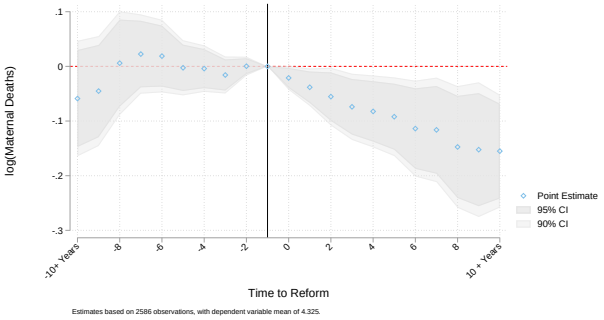
(d) Demographic controls



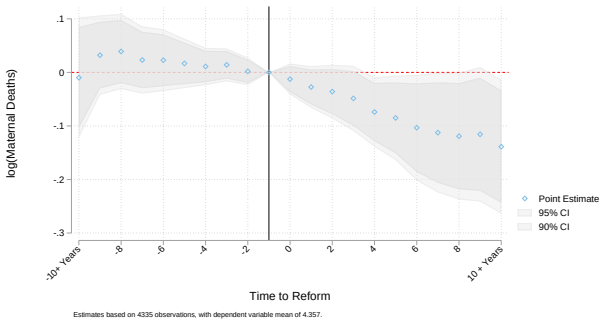
(e) Region by Year FEs



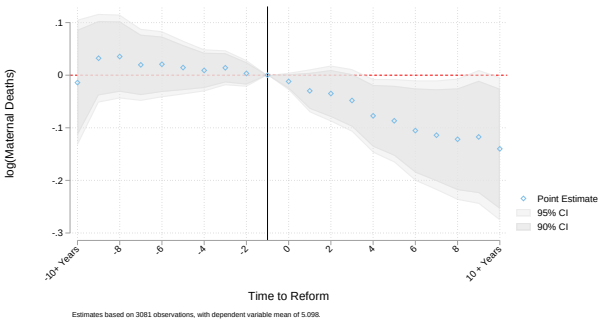
(f) Conditional on health expenditure



(g) Clustering by country and time – ln(MMR)



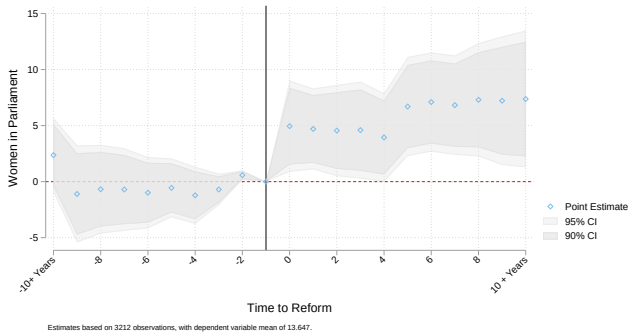
(h) Removing high income countries – ln(MMR)



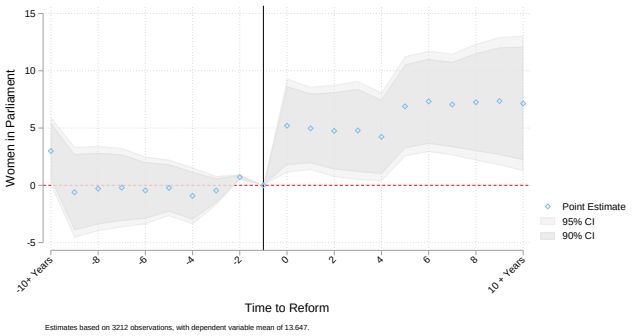
Notes: Each panel documents an alternative specification of the event study shown in Figure A3 panel (a). Specifications are shown with alternative controls, estimation samples, or modelling choics. Demographic controls in panel (d) refer to time-varying controls of the education of fertile aged women, the proportion of the population in fertile ages, and the ethnic fractionalization of the population. Region by year FEs include separate year fixed effects for every sub-region based on the United Nations classification. Panel (f) additionally controls for health expenditure as a proportion of GDP, and Development Aid receipts for maternal health. Panel (g) estimates standard errors with double clustering (by country and year). Panel (h) removes high income countries from the control group. A static (2015) measure of high income is used to ensure consistency of the sample across years. Additional notes are provided in Figure A3.

Figure B20: Alternative samples and specifications in quota event study (women in parliament)

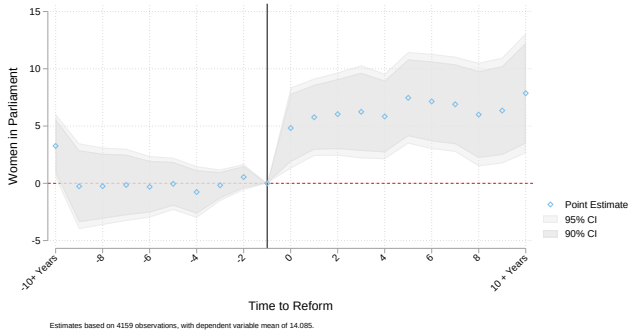
(a) Democracy control only



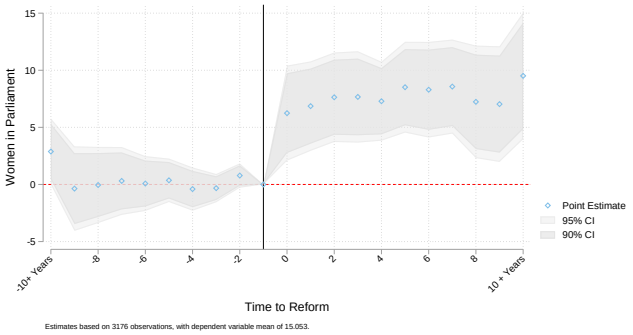
(b) GDP control only



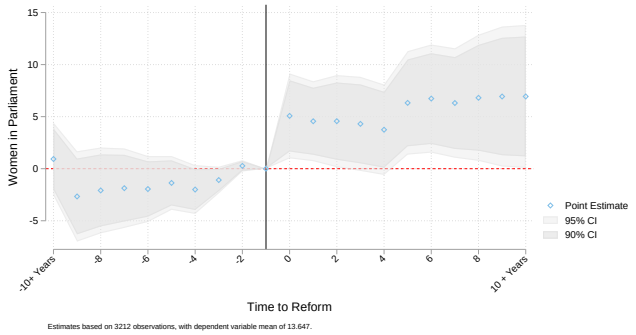
(c) GDP and democracy controls



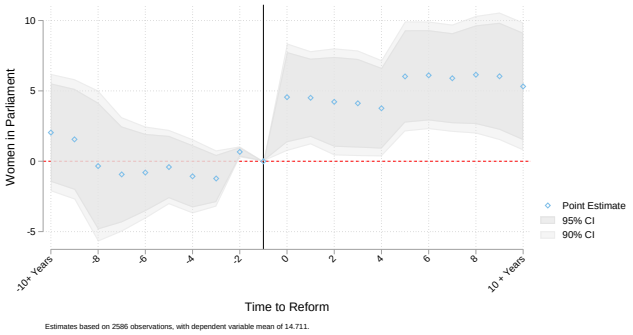
(d) Demographic controls



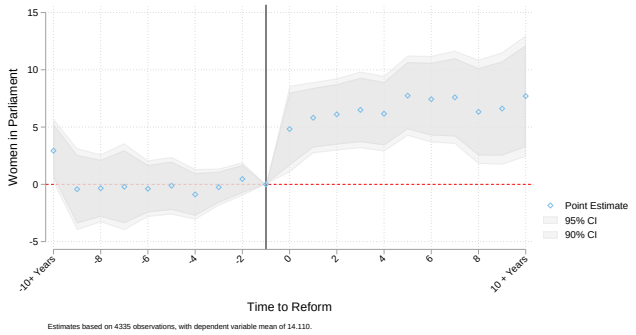
(e) Region by Year FEs



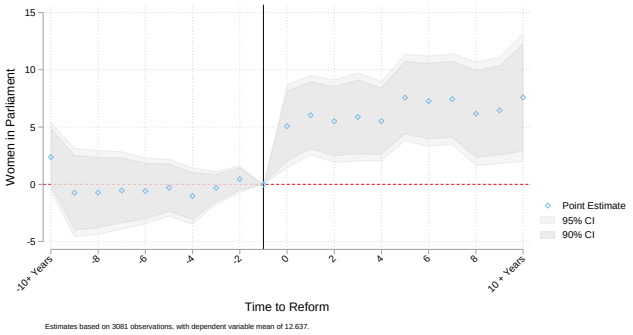
(f) Conditional on health expenditure



(g) Clustering by country and time – women in parliament

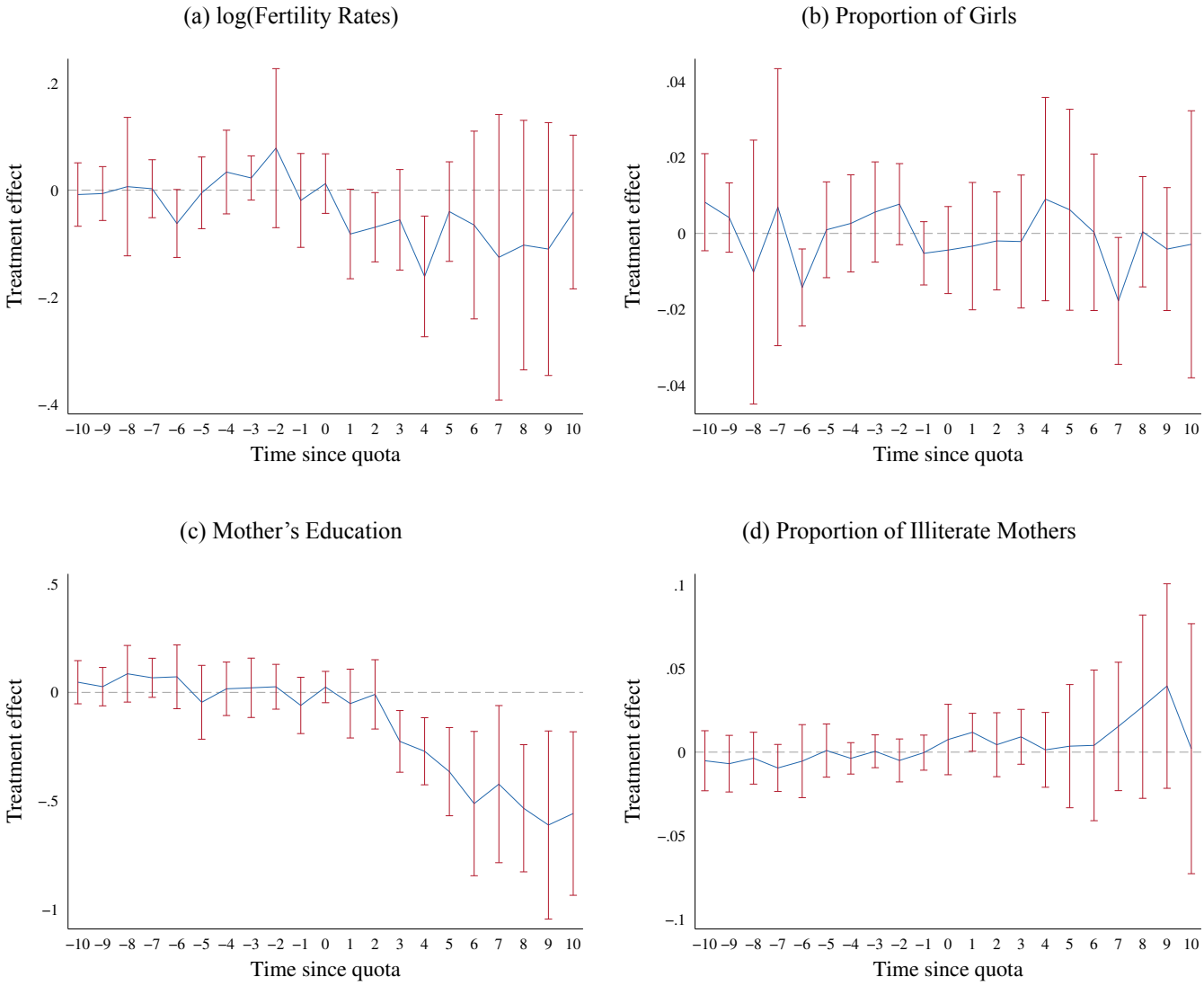


(h) Removing high income countries – women in parliament



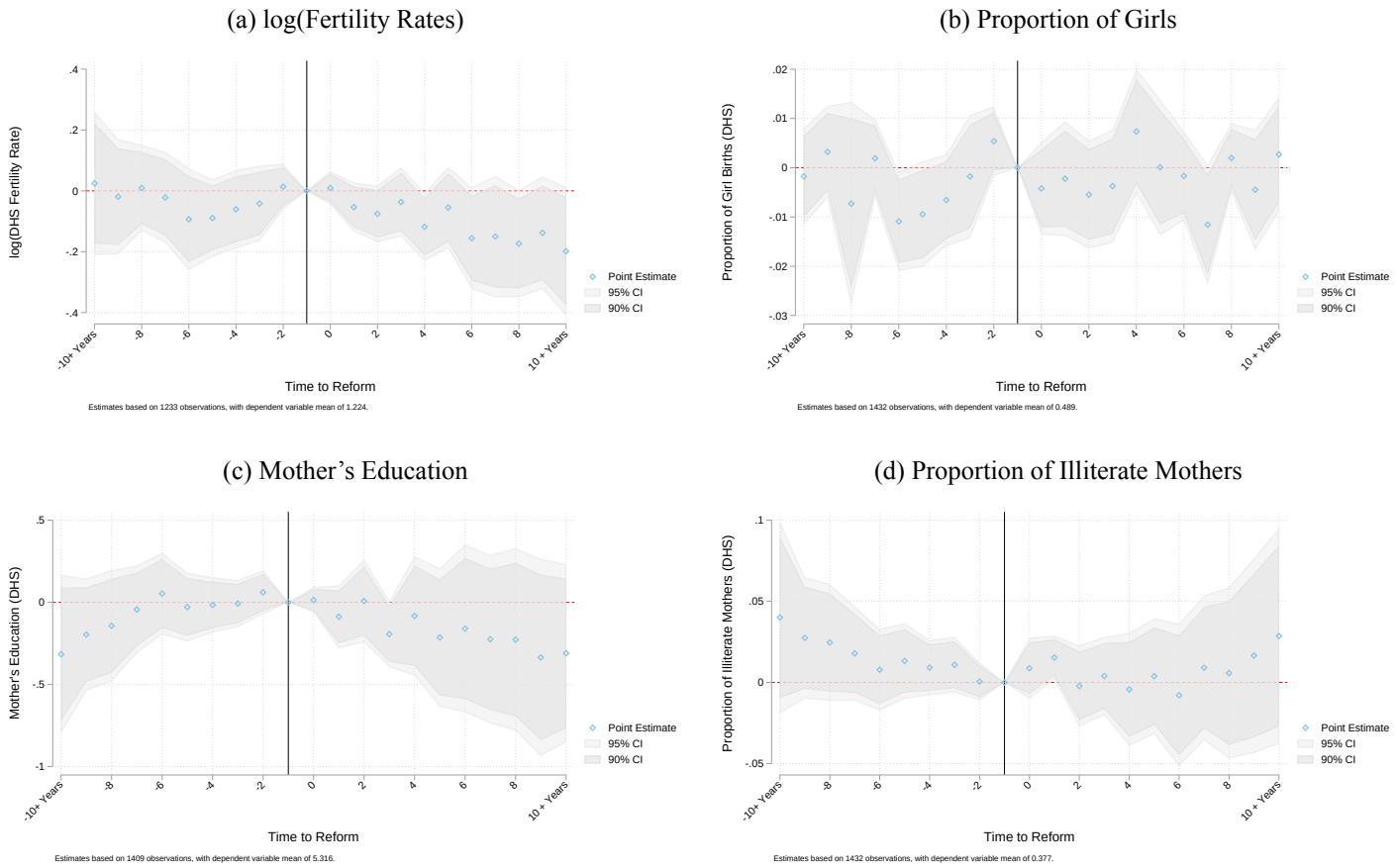
Notes: Refer to notes to Figure B19. Identical plots or shown where the outcome is women in parliament.

Figure B21: Characteristics of births and mothers: DID_M estimates from DHS birth pseudo-panel



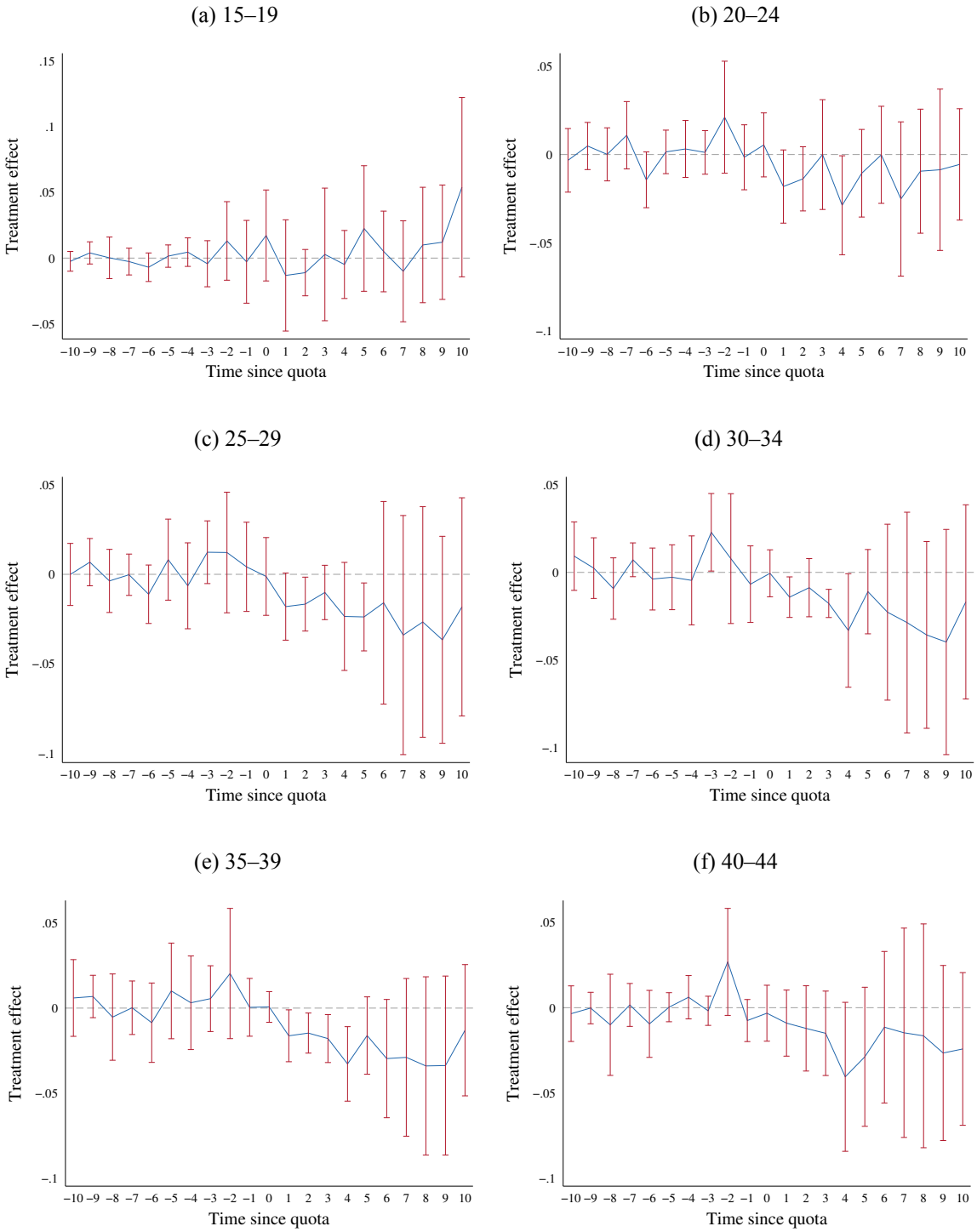
Notes: de Chaisemartin and D'Haultfœuille (2020) DID_M estimates are presented based on country by year averages generated from a pseudo-panel of births created from Demographic and Health Survey data. Fertility rates refers to the log of the total fertility rate, calculated as the total number of births a woman would have if completing her fertile life based on current age-specific fertility rates. The proportion of girls refers to the proportion of girl births among all births. Mother's education refers to the average years of education of mothers (women having given birth) in each country and year. Proportion of illiterate mothers refers to the total proportion of all mothers (women having given birth) in each country and year who report not being able to read and write. All additional details follow notes to Figure 2.

Figure B22: Characteristics of births and mothers: Event study estimates from DHS birth pseudo-panel



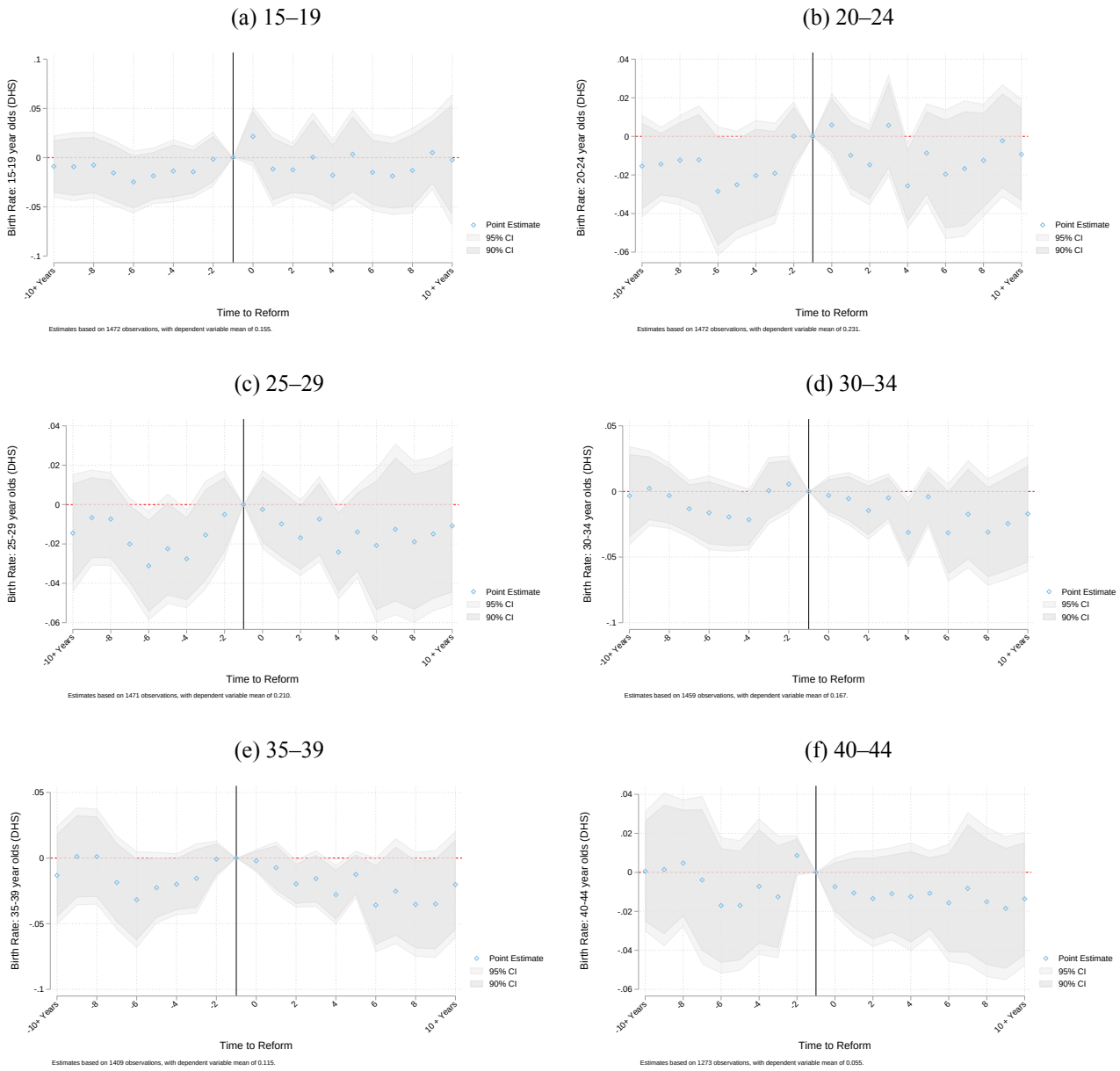
Notes: Event studies are estimated using country by year averages generated from a pseudo-panel of births created from Demographic and Health Survey data. Fertility rates refers to the log of the total fertility rate, calculated as the total number of births a woman would have if completing her fertile life based on current age-specific fertility rates. The proportion of girls refers to the proportion of girl births among all births. Mother's education refers to the average years of education of mothers (women having given birth) in each country and year. Proportion of illiterate mothers refers to the total proportion of all mothers (women having given birth) in each country and year who report not being able to read and write. All additional details follow notes to Figure A3.

Figure B23: de Chaisemartin and D'Haultfœuille estimates for impacts of gender quotas on age-specific birth rates calculated from DHS birth pseudo-panel



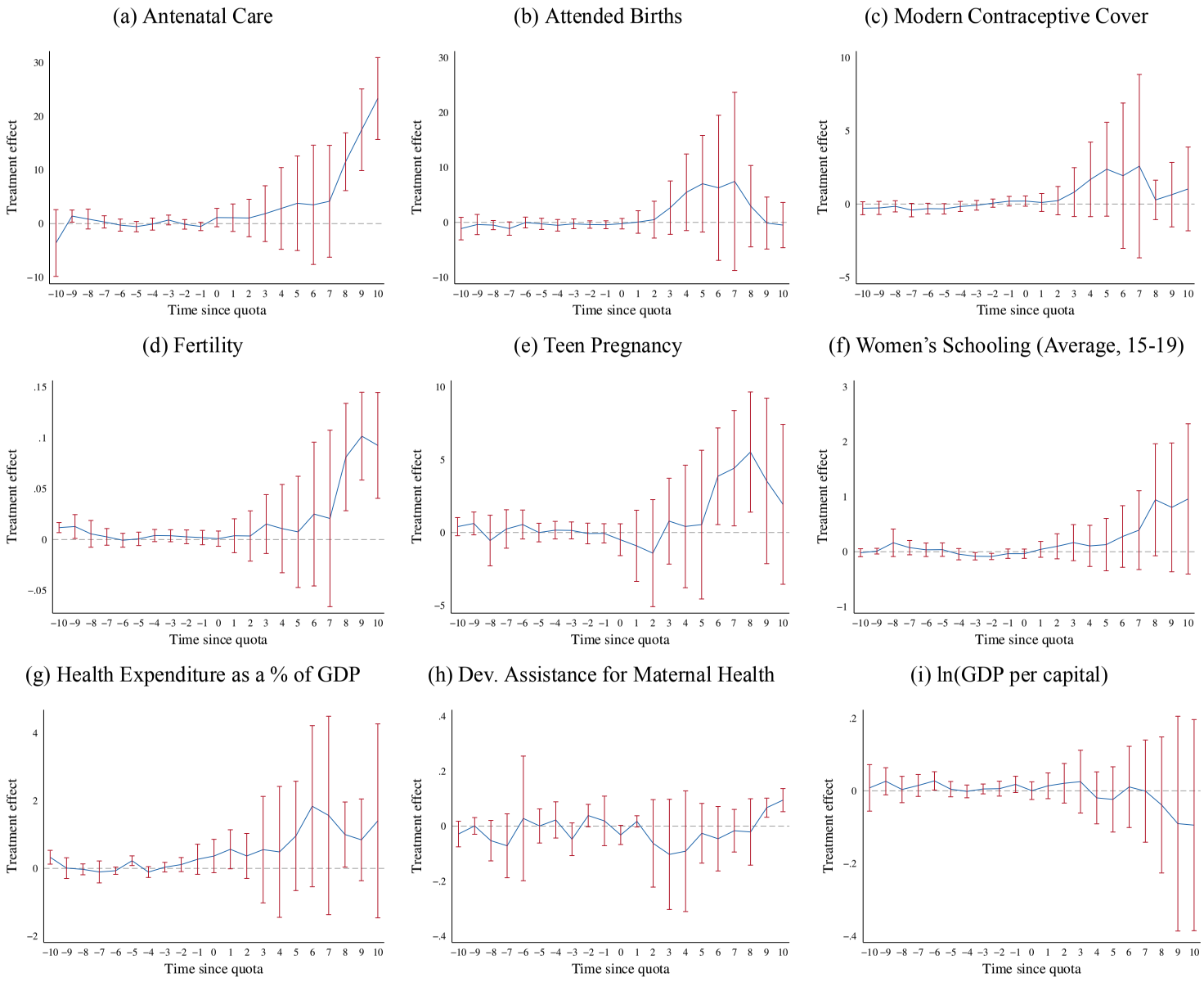
Notes: de Chaisemartin and D'Haultfœuille (2020)'s "DID_M" models are estimated using country by year averages generated from a pseudo-panel of births created from Demographic and Health Survey data. Birth rates in each figure are calculated from birth indicators in the pseudo-panel based on women in each quinquennial age group in each country and year, where 1 indicates a surveyed woman (of this age) reported a birth in a given year, and 0 indicates they did not have a birth.

Figure B24: Age-specific birth rates calculated from DHS birth pseudo-panel



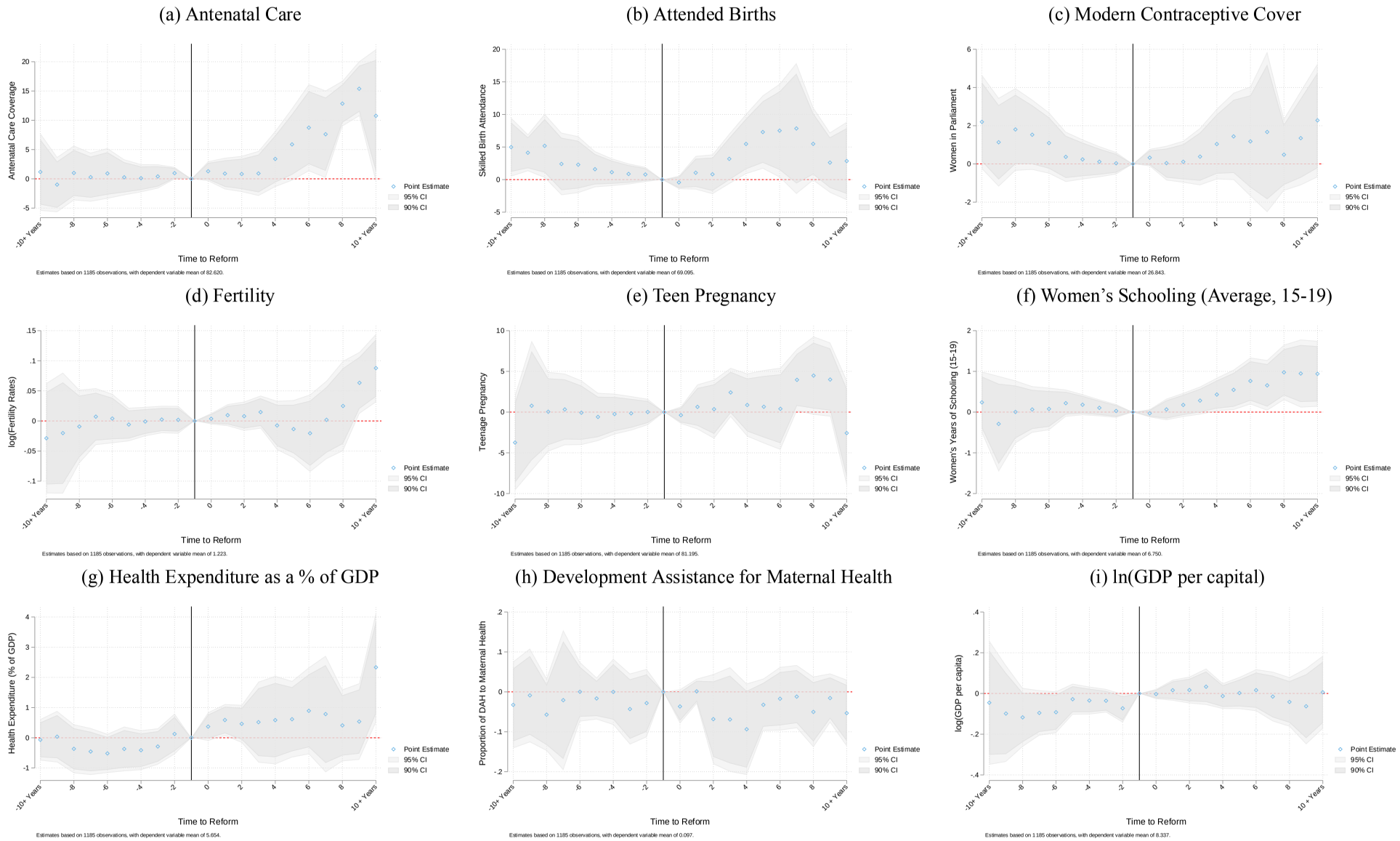
Notes: Event studies are estimated using country by year averages generated from a pseudo-panel of births created from Demographic and Health Survey data. Birth rates in each figure are calculated from birth indicators in the pseudo-panel based on women in each quinquennial age group in each country and year, where 1 indicates a surveyed woman (of this age) reported a birth in a given year, and 0 indicates they did not have a birth. Average birth rates across the full age range of 15–49 year-olds are documented in panel (a) of Figure B22.

Figure B25: Mechanisms: DID_M estimates for impacts of gender quotas on intermediate outcomes based on a constant sample



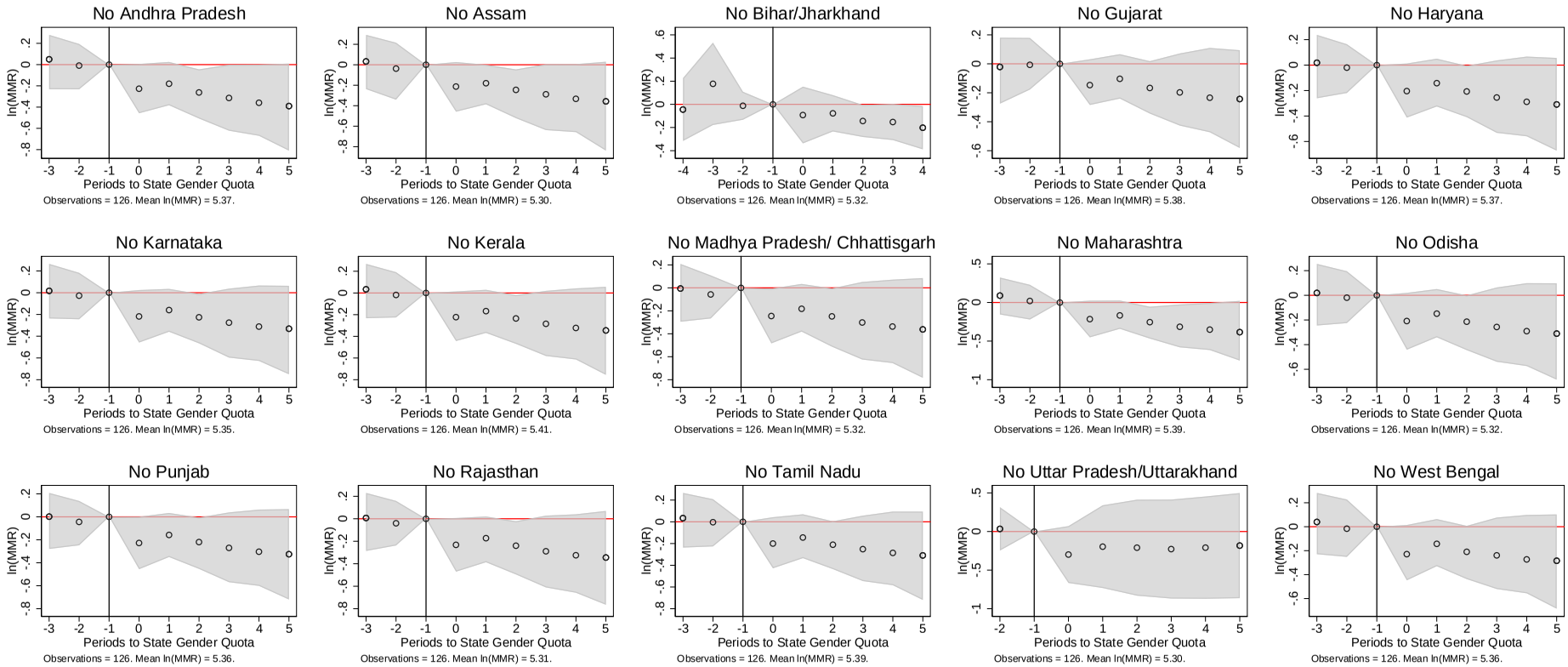
Notes: de Chaisemartin and D'Haultfœuille (2020) DID_M estimates of intermediate outcomes replicate those displayed in the paper in Figure 6. However here all models work with a common sample containing observations for each intermediate outcome considered. For additional notes, refer to Figure 6.

Figure B26: Mechanisms: event studies for impacts of gender quotas on intermediate outcomes based on a constant sample



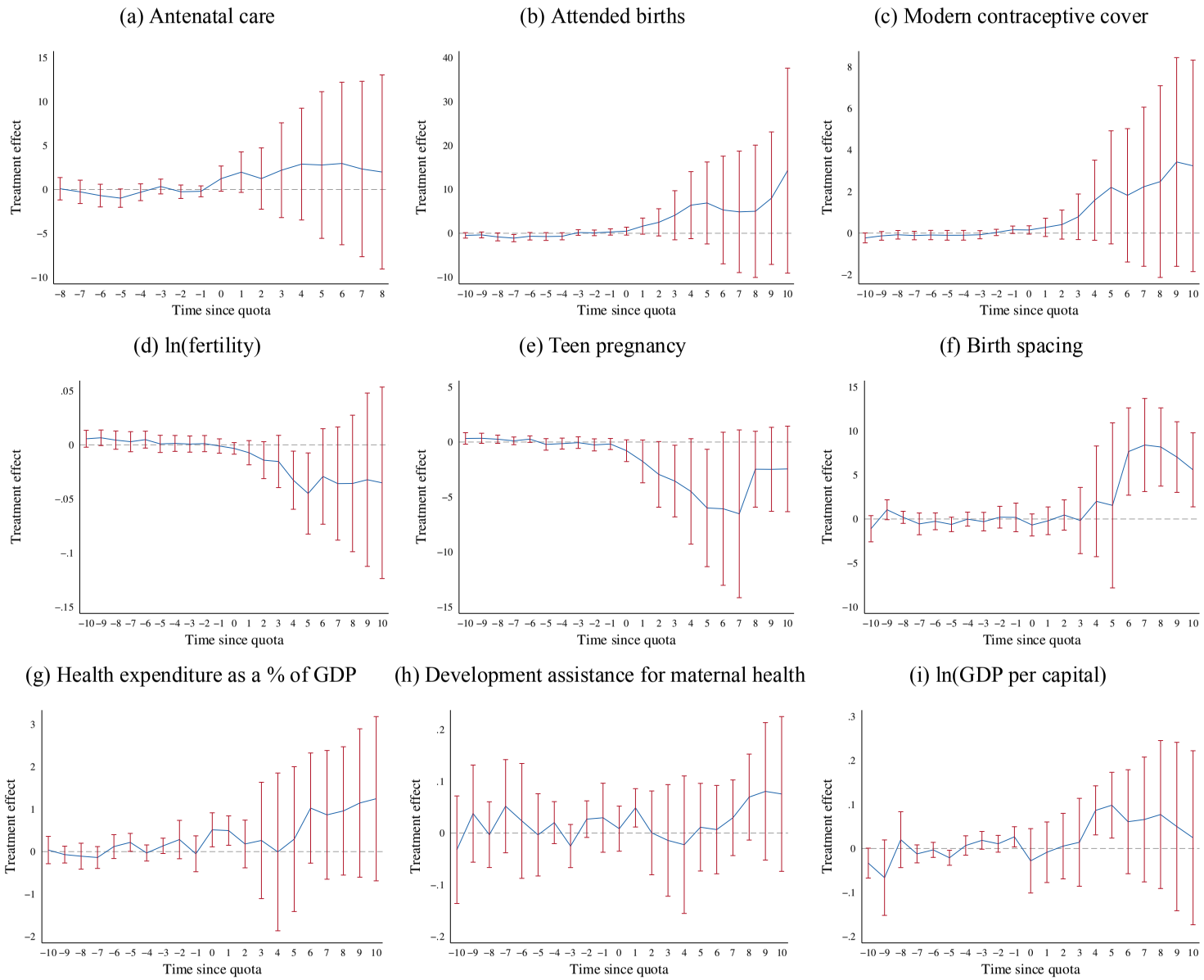
Notes: Event study estimates of intermediate outcomes replicate those displayed in the paper in Figure A16. However here all models work with a common sample containing observations for each intermediate outcome considered. For additional notes, refer to Figure A16.

Figure B27: Leave-one-out event study estimates (India state reforms)



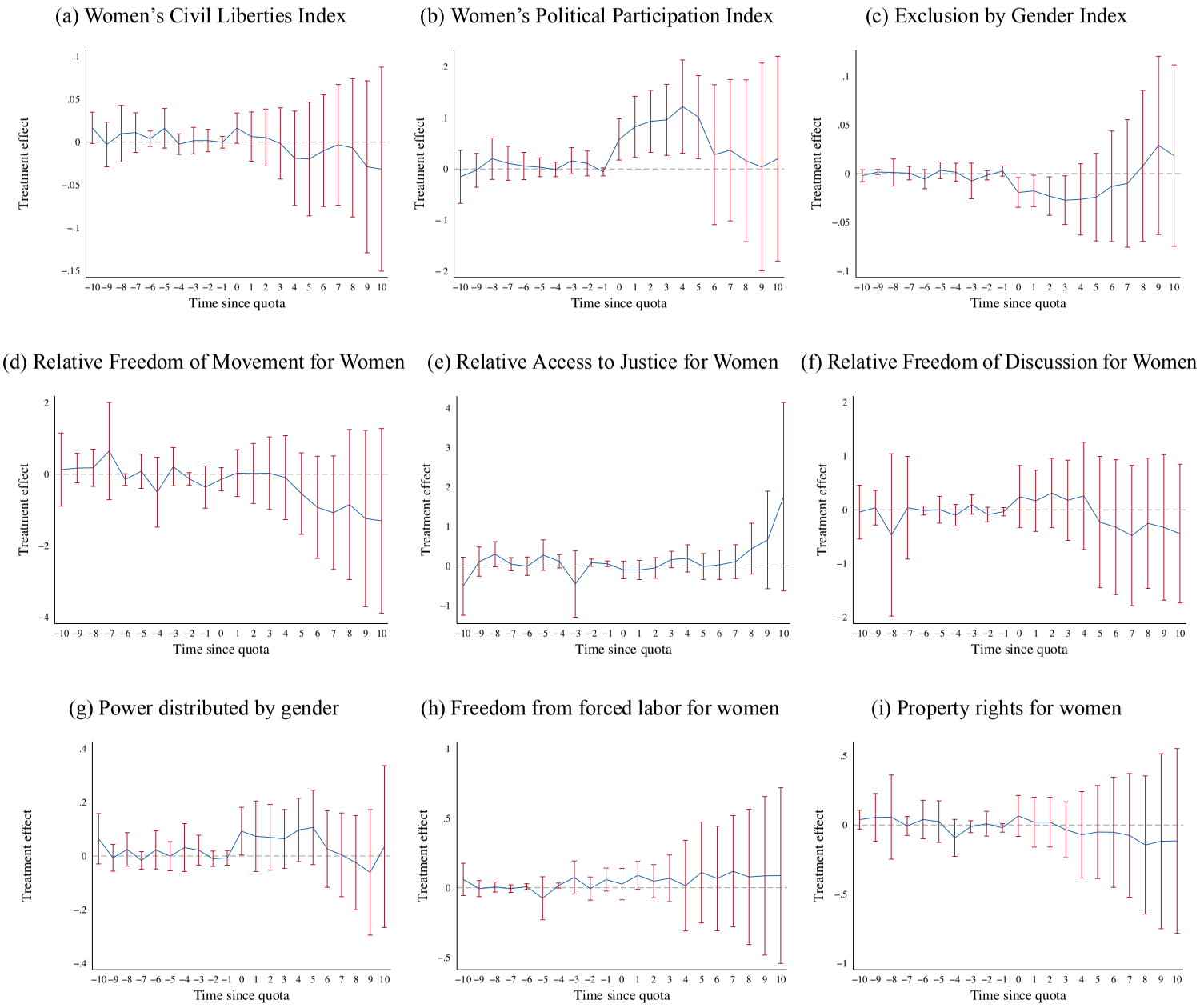
Notes: Refer to notes to Figure A15. Here identical event studies are estimated, however removing one state in each case on a leave-one-out basis. The left-out state is indicated in each subplot's title.

Figure B28: Mechanisms: de Chaisemartin and D'Haultfœuille estimates for impacts of gender quotas on intermediate outcomes with country-specific linear trends



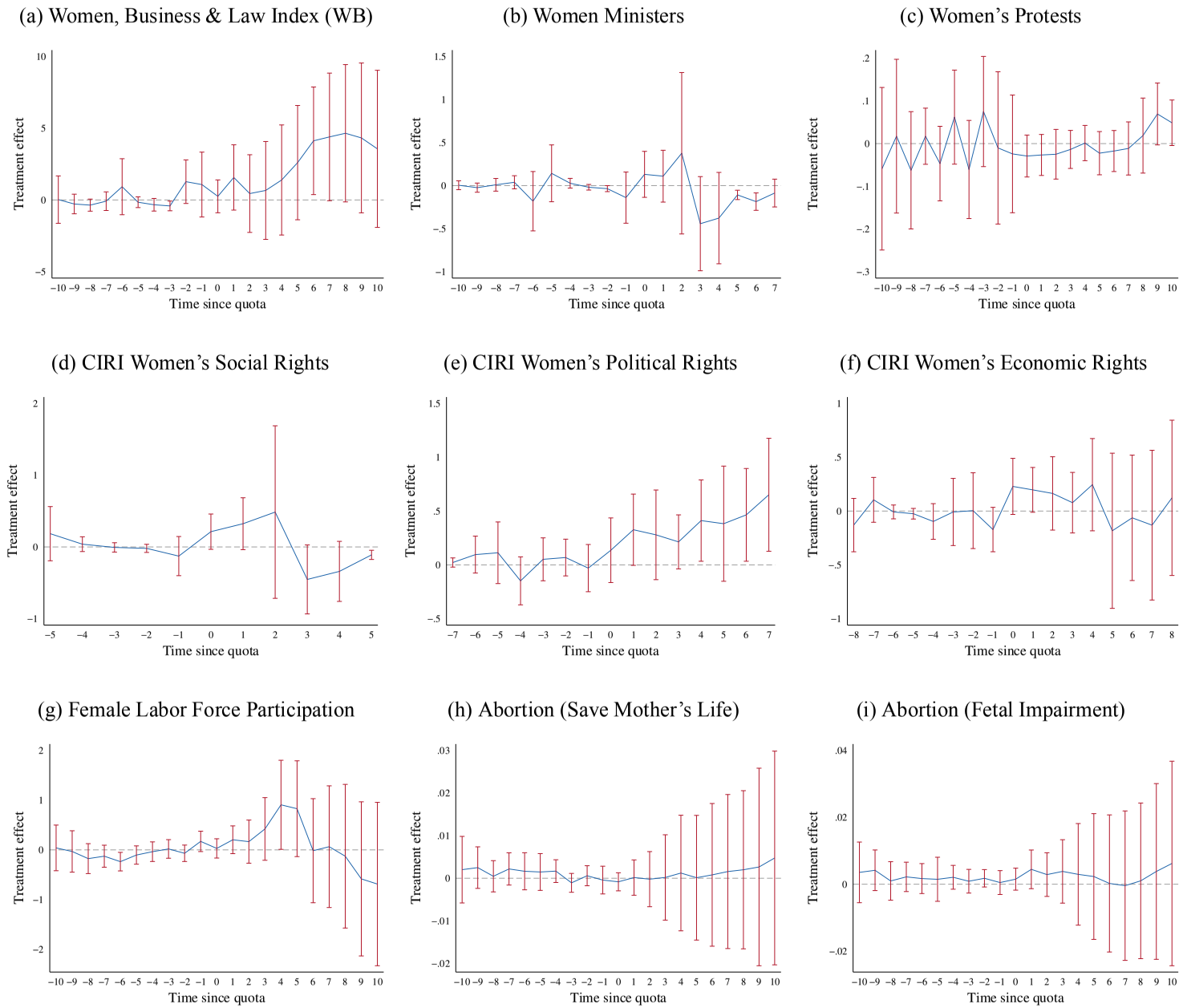
Notes: Refer to notes to Figure 6. Identical models are estimated, however here including country-specific linear trends over time.

Figure B29: de Chaisemartin and D'Haultfœuille estimates with country-specific time trends: women's rights and social standing from "Varieties of Democracy" data



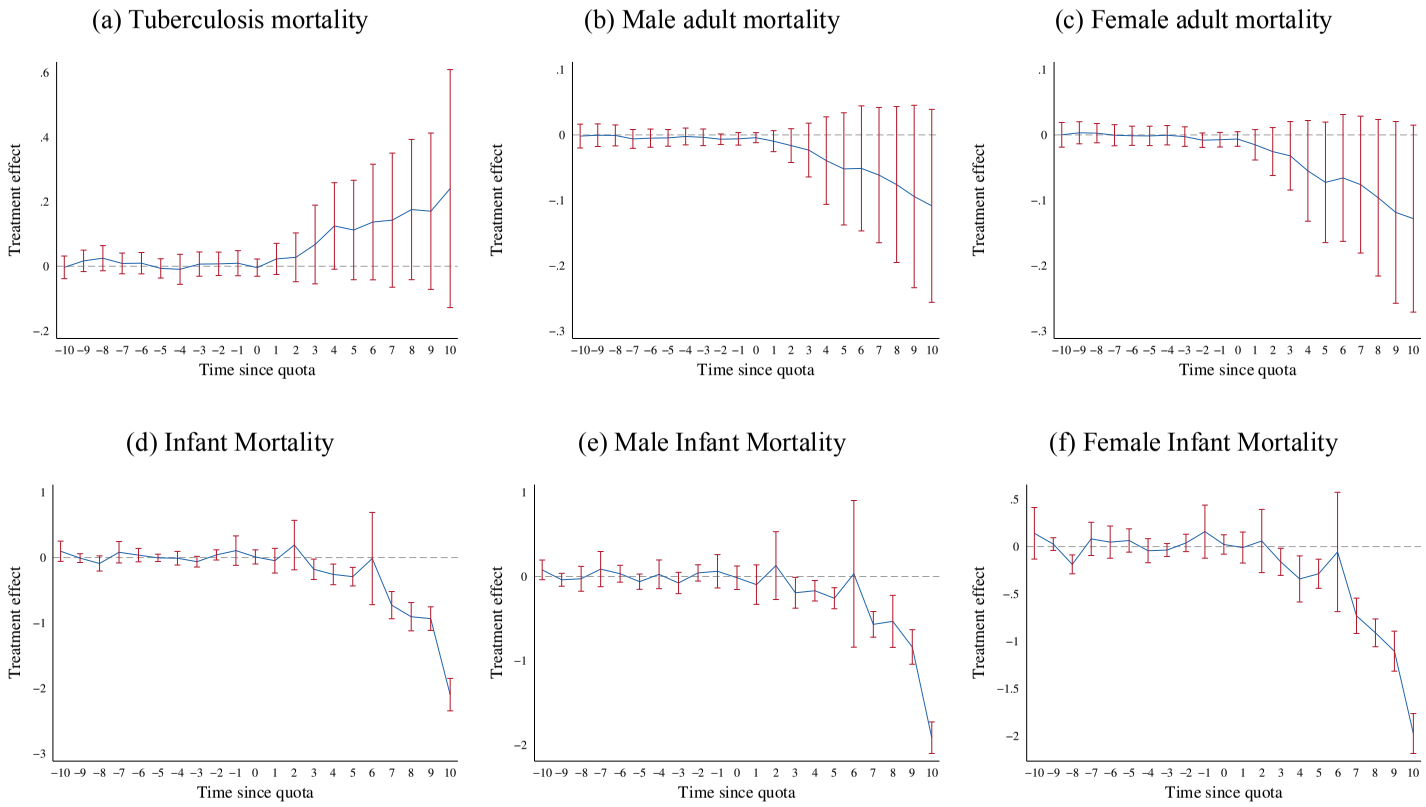
Notes: Refer to notes to Figure A5. Identical models are estimated, however here including country-specific linear trends over time.

Figure B30: de Chaisemartin and D'Haultfœuille estimates with country-specific time trends: women's rights, empowerment, and women in politics



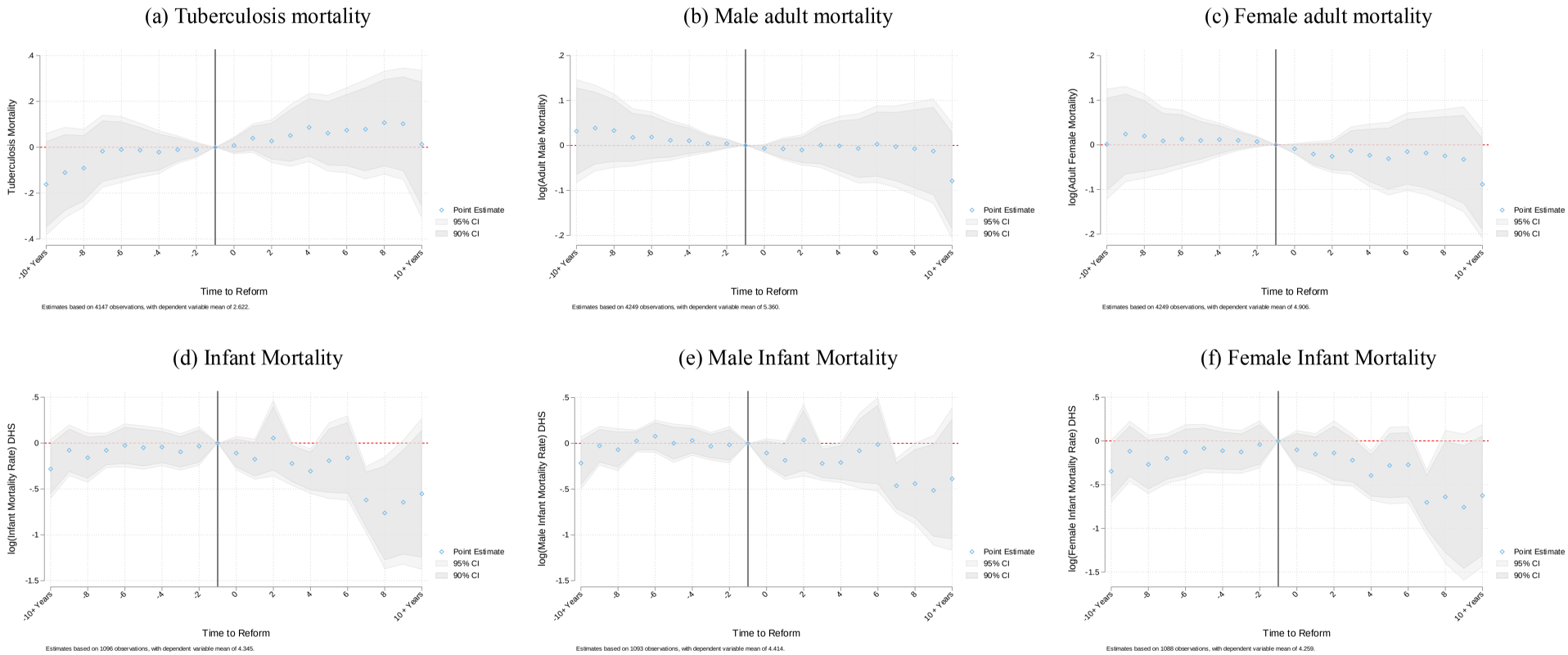
Notes: Refer to notes to Figure A6. Identical models are estimated, however here including country-specific linear trends over time.

Figure B31: de Chaisemartin and D'Haultfœuille (2020) DID_M estimates for the impact of gender quotas on alternative health outcomes



Notes: Identical DID_M estimates are plotted to those in Figure 2, however examining quota impacts on alternative health outcomes. These outcomes are the rate of death due to TB per 100,000 individuals, and infant mortality per 1,000 live births, male mortality per 1,000 adult males (ages 15–60), and female mortality per 1,000 adult females (ages 15–60). For comparison with Figure A3d, the natural logarithm of each variable is used, with the exception of TB mortality, where an inverse sine transformation is used, given a small number of country-year observations where a rate of zero is observed. Infant mortality is recorded from Demographic and Health Survey (DHS) microdata where mothers report their full fertility history, any children who have died, their child's age at death (if relevant) and the year of death (if relevant). We generate infant mortality rates using retrospective fertility and survival histories for DHS surveys in the 68 publicly available DHS countries.

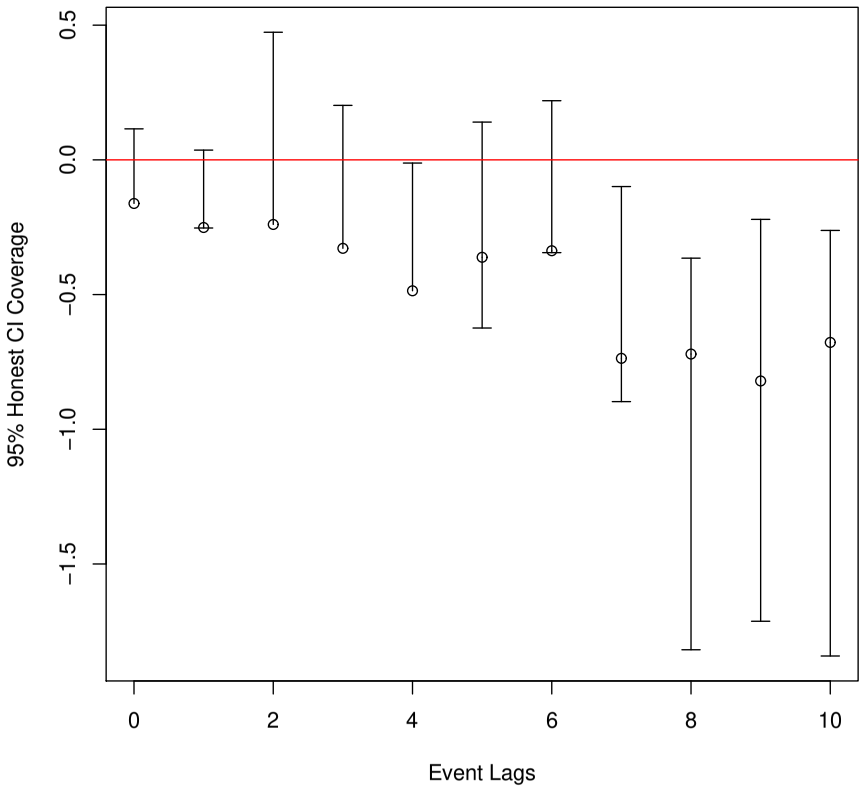
Figure B32: Event Studies for the impact of gender quotas on alternative health outcomes



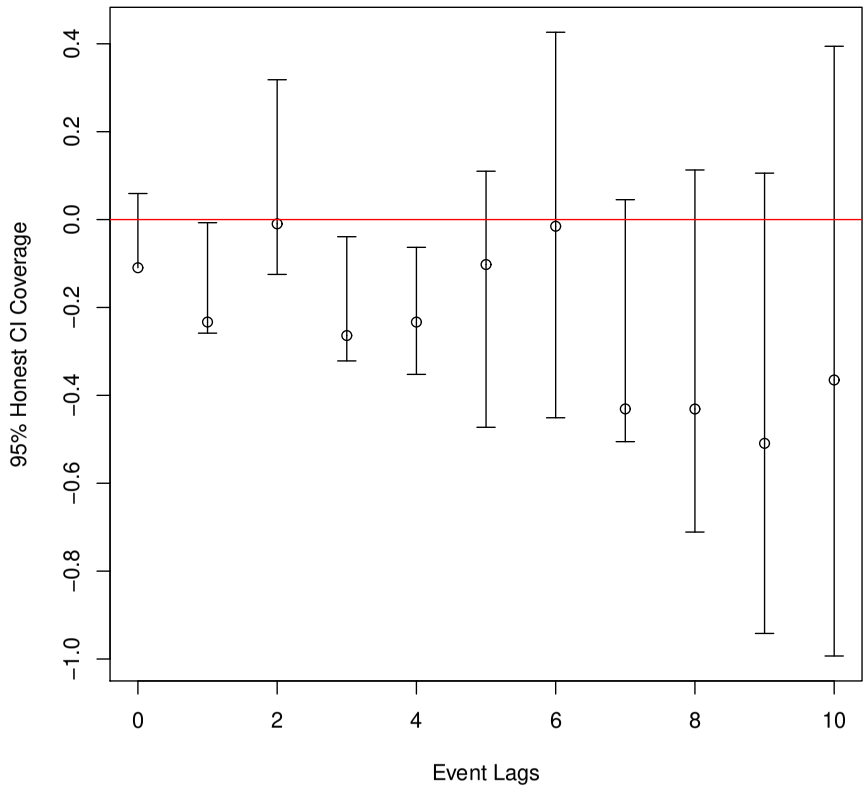
Notes: Identical event studies are plotted to those in Figure A3, however examining quota impacts on alternative health outcomes. These outcomes are the rate of death due to TB per 100,000 individuals, and infant mortality per 1,000 live births, male mortality per 1,000 adult males (ages 15–60), and female mortality per 1,000 adult females (ages 15–60). For comparison with Figure A3d, the natural logarithm of each variable is used, with the exception of TB mortality, where an inverse sine transformation is used, given a small number of country-year observations where a rate of zero is observed. Infant mortality is recorded from Demographic and Health Survey (DHS) microdata where mothers report their full fertility history, any children who have died, their child's age at death (if relevant) and the year of death (if relevant). We generate infant mortality rates using retrospective fertility and survival histories for DHS surveys in the 68 publicly available DHS countries.

Figure B33: Post-quota coefficients based on "Honest DiD": female and male infant mortality using DHS microdata

(a) ln(female infant mortality)



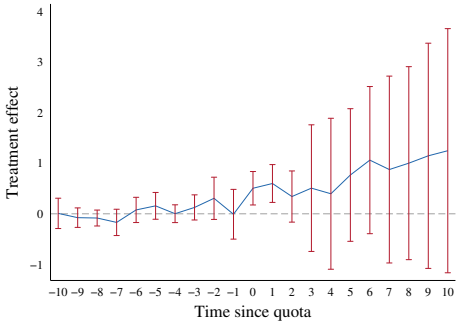
(b) ln(male infant mortality ratio)



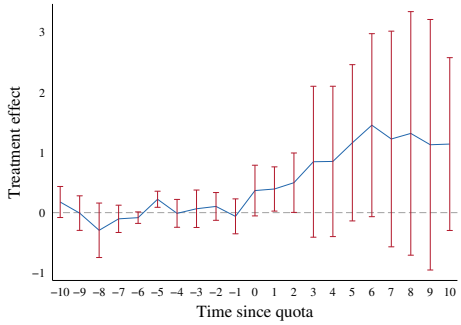
Notes: Refer to notes to Figure 4. Identical procedures are estimated, however now examining female and male infant mortality measures considered in Figure B32.

Figure B34: Health spending – various DID_M estimates

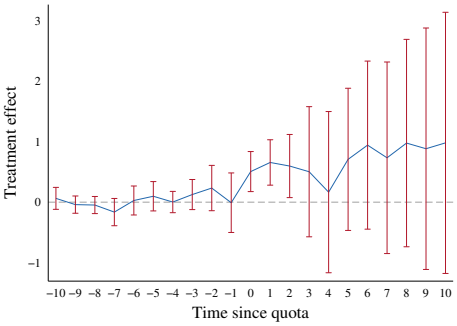
(a) Original model with no controls



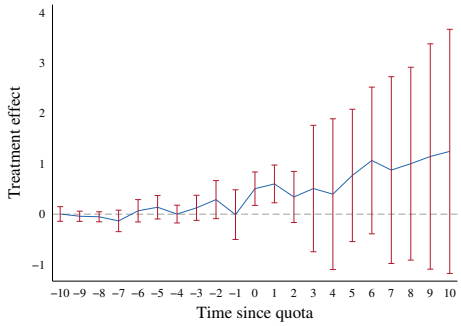
(b) Original model adding controls



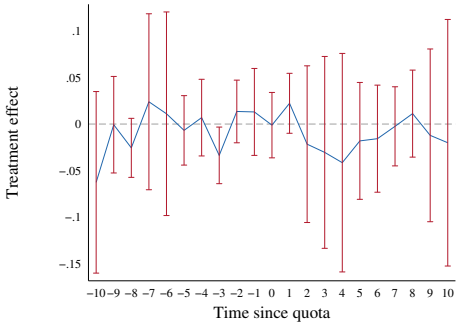
(c) Extrapolating to cover 1990–1994



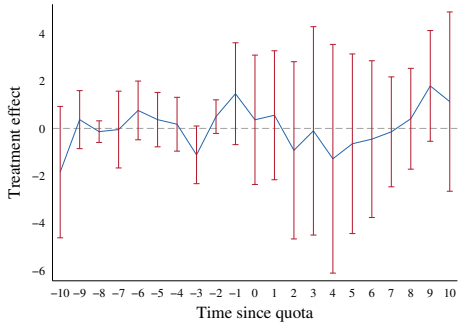
(d) Imputing 1990–1994 with 1995



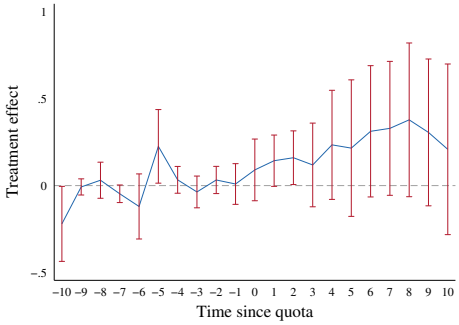
(e) Proportion of Aid to Maternal Health



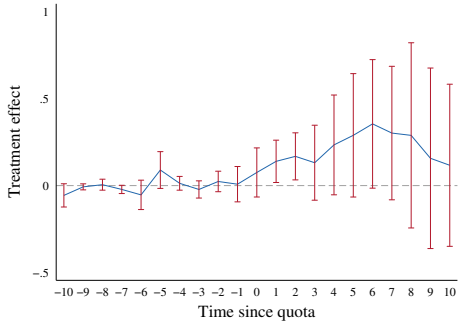
(f) Maternal Health Aid p.c.



(g) ln(Government Health Spending p.c.)



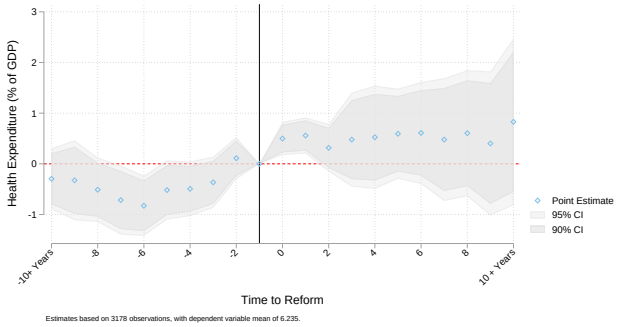
(h) ln(Gov't Health Spend) Imputing '90–'99 with 2000



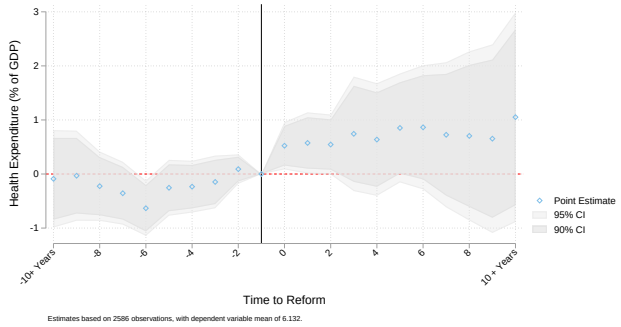
Notes: Alternative DID_M estimates are displayed examining the impact of quota reform on health spending. A baseline model is displayed in Figure 6 (replicated in panel (a) here). Health spending as a proportion of GDP is available world-wide from 1995 onwards. Panels (a) and (b) use original data removing 1990–1994 from the sample. Panels (c) and (d) linearly extrapolate to cover 1990–1994, or use values from 1995 to impute for 1990–1994. Panels (e)–(g) use alternative measures of health spending (proportion of all overseas aid receipts for health dedicate to maternal health, maternal health aid per capita, or the log of total government health spending per capita. The log of government health spending per capita in panel (g) is only measured from 2000 onwards, and so is subset to the period of 2000 and later. Panel (h) re-estimates panel (g), however additionally imputing values from 1990-1999 with the value for each country in 2000.

Figure B35: Health spending – various event study specifications

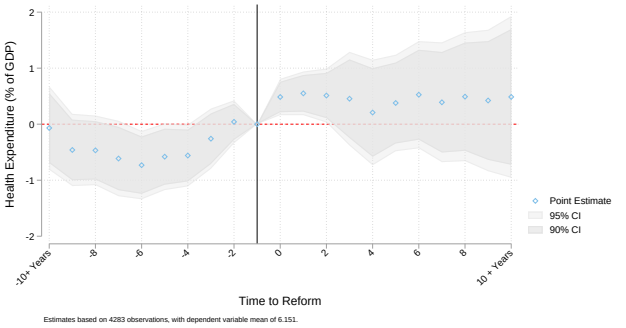
(a) Original model with no controls



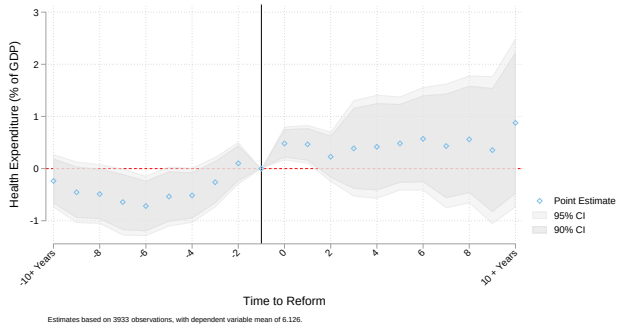
(b) Original model adding controls



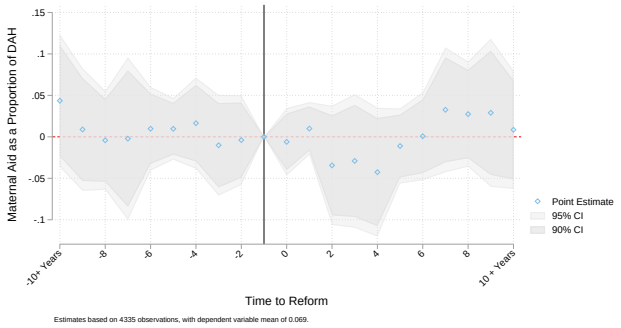
(c) Extrapolating to cover 1990–1994



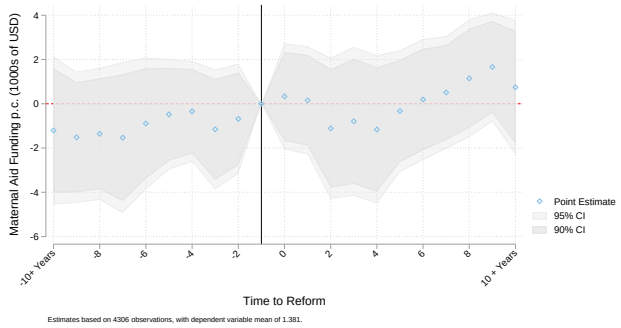
(d) Imputing 1990–1994 with 1995



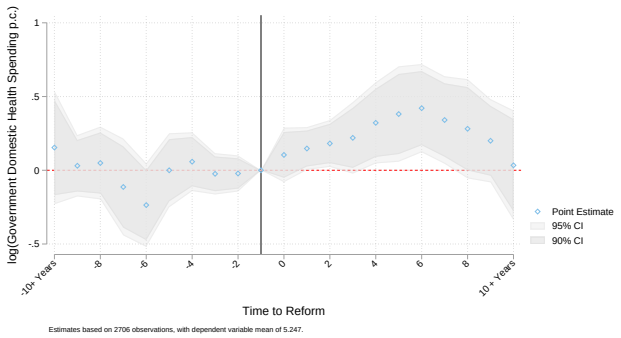
(e) Proportion of Aid to Maternal Health



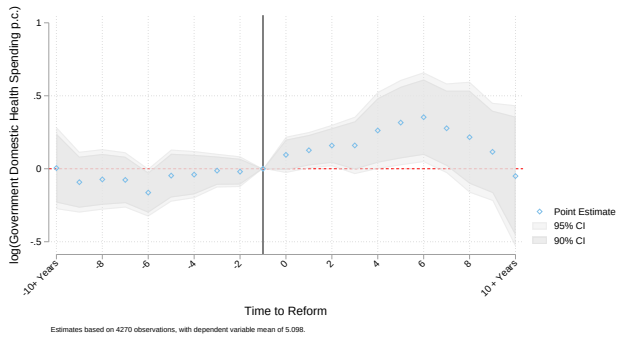
(f) Maternal Health Aid p.c.



(g) ln(Government Health Spending p.c.)

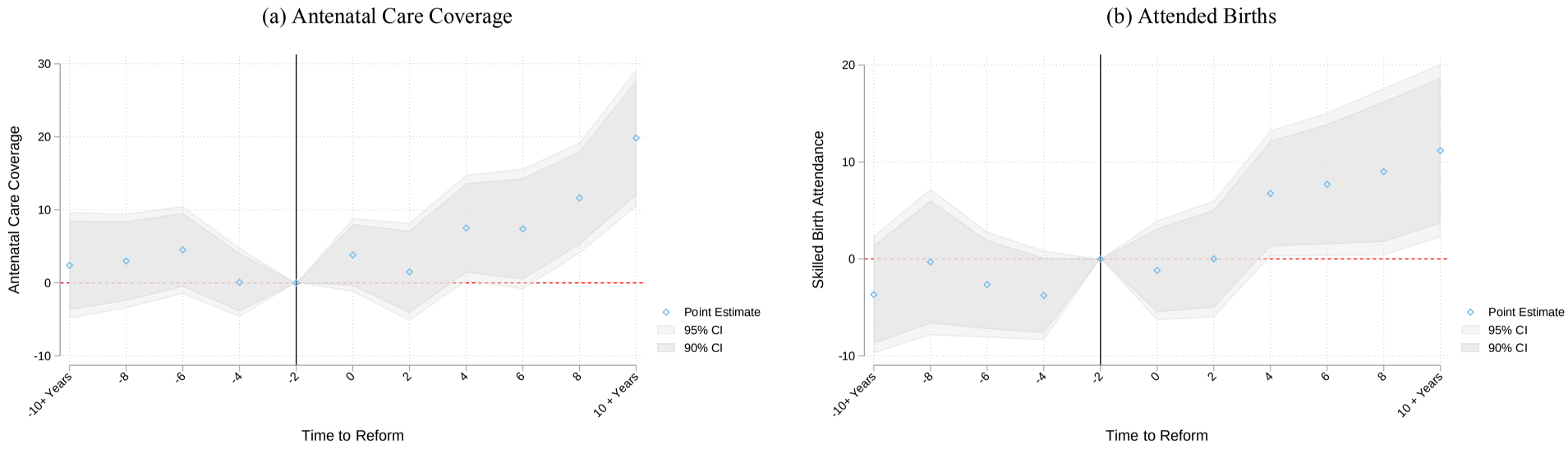


(h) ln(Gov't Health Spend) Imputing 1990–'99 with 2000



Notes: Alternative event-study models are displayed examining the impact of quota reform on health spending. A baseline model is displayed in Figure A16 (replicated in panel (a) here), and Honest DiD lags are presented in Figure 8. Health spending as a proportion of GDP is available world-wide from 1995 onwards. Panels (a) and (b) use original data removing 1990–1994 from the sample. Panels (c) and (d) linearly extrapolate to cover 1990–1994, or use values from 1995 to impute for 1990–1994. Panels (e)–(g) use alternative measures of health spending (proportion of all overseas aid receipts for health dedicate to maternal health, maternal health aid per capita, or the log of total government health spending per capita. The log of government health spending per capita in panel (g) is only measured from 2000 onwards, and so is subset to the period of 2000 and later. Panel (h) re-estimates panel (g), however additionally imputing values from 1990-1999 with the value for each country in 2000.

Figure B36: Mechanisms: event studies for impacts of quotas on non-interpolated antenatal care and birth attendance

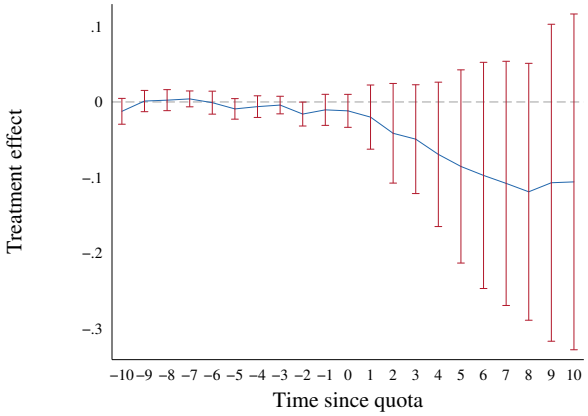


Notes: Event studies replicate panels (a) and (b) of Figure A16 using non-interpolated data. Given the unbalanced coverage of antenatal care and attended birth measures by countries and years, we present estimates for these outcomes pooling in 2 yearly bins, rather than yearly bins, to avoid unbalanced coverage in particular lag and lead terms where possible.

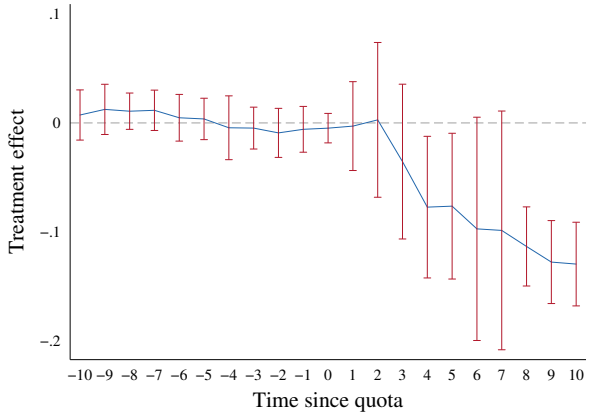
Figure B37: Estimates of the impact of quotas on maternal mortality, stratified by whether or not the country transitions regime

Panel A: DID$_M$ Estimates

(a) Transitioning Regime

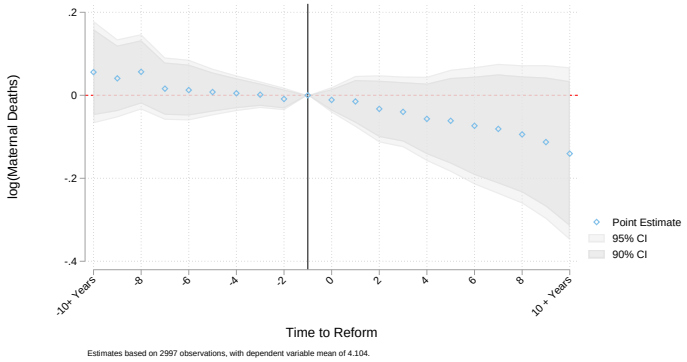


(b) Non-Transitioning Regime

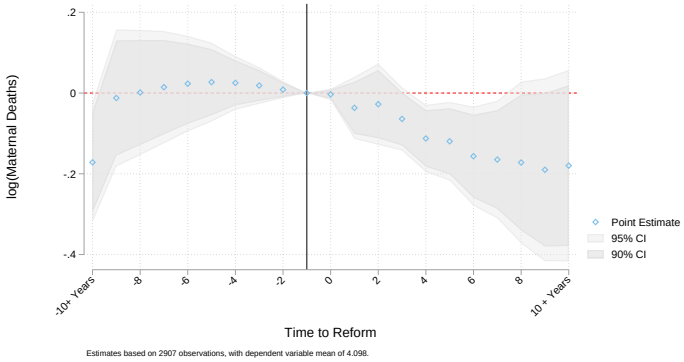


Panel B: Event study estimates

(c) Transitioning Regime



(d) Non-Transitioning Regime

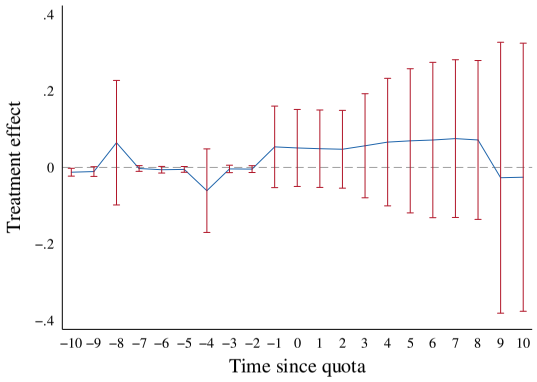


Notes: DID$_M$ and event studies estimates are presented of the impact of quota adoption on maternal mortality following Figures 2 (DID$_M$ estimates) and A3 (event studies). Here, estimates are presented based only on quota-adopting countries which experienced a regime transition within 5 years of quota adoption (left-hand panels), and based only on quota-adopting countries which *did not* experience a regime transition within 5 years of quota adoption (right hand panels).

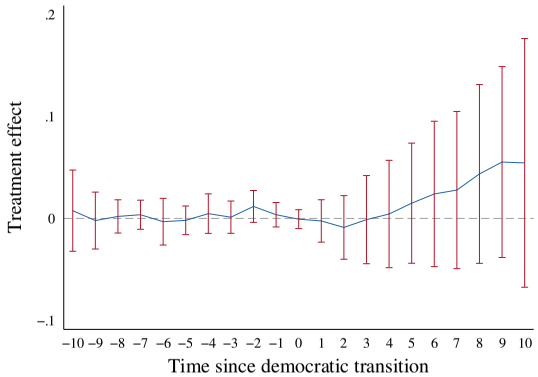
Figure B38: Quotas, Democratic Transitions and Maternal Mortality Declines

Panel A: DID$_M$ Estimates

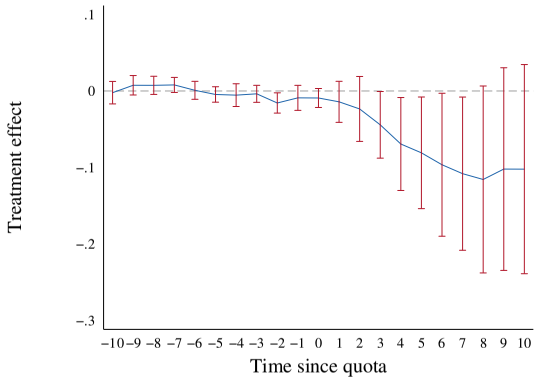
(a) Quotas and Democracy



(b) Democracy and Maternal Mortality

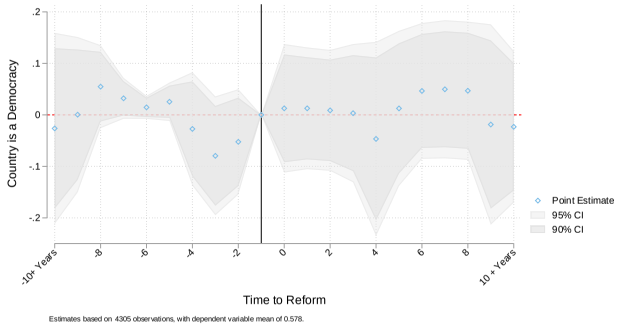


(c) Quotas and MMR, conditional on Democracy

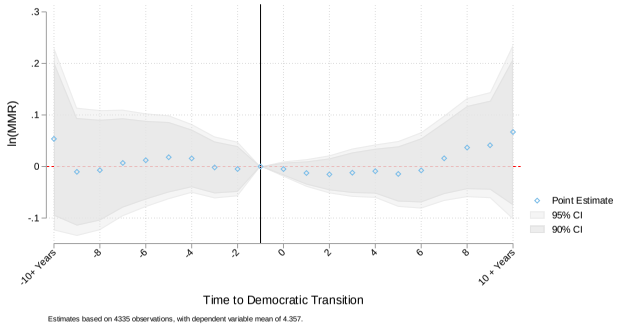


Panel B: Event study estimates

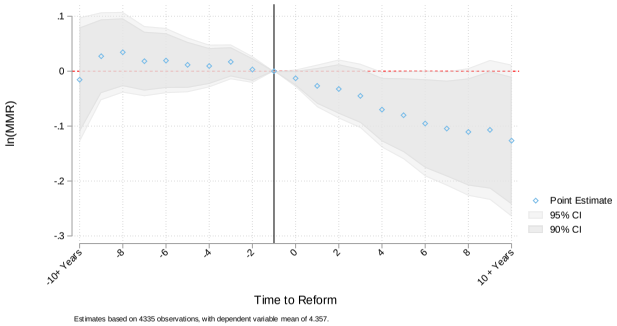
(d) Quotas and Democracy



(e) Democracy and Maternal Mortality



(f) Quotas and MMR, conditional on Democracy



Notes: Here we consider the potential role of democratization in observed impacts of quota adoption on maternal mortality. Left-hand panels estimate the impact of quota adoption on whether or not a country is classified as a democracy. Center panels estimate the impact of transition to a democracy (rather than quota adoption) on rates of maternal mortality. And right-hand panels report the impacts of quota adoption on maternal mortality when additionally including as controls full lags and leads to the adoption of democracy in cases where countries are classified as moving from non-democratic to democratic. All other estimation details follow those in Figure 2 (panel A), and A3 (panel B).

Online Appendix Tables

Table B1: Quota countries: quota size, and quota baseline MMR level

Country	Quota Size		Baseline MMR	
	Size	Category	Value	Category
Afghanistan	27.3	High	821	High
Algeria	20	Medium	192	Low
Bangladesh	13	Low	481	Medium
Burundi	30	High	993	High
China	22	Medium	73	Low
Djibouti	10	Low	452	Medium
Eritrea	30	High	931	High
Haiti	3	Low	522	Medium
Iraq	25	High	85	Low
Jordan	11.1	Low	93	Low
Kenya	13.4	Low	708	High
Morocco	15.2	Medium	261	Low
Niger	10	Low	825	High
Pakistan	17.5	Medium	374	Low
Rwanda	30	High	1220	High
Saudi Arabia	20	Medium	20	Low
South Sudan	25	High	857	High
Sudan	25	High	626	Medium
Swaziland	5.26	Low	569	Medium
Tanzania	29.1	High	946	High
Uganda	24.4	Medium	673	High
Zimbabwe	22.2	Medium	475	Medium

Table B2: Women's rights and maternal mortality

	(1) ln(MMR)	(2) ln(MMR)	(3) ln(MMR)	(4) ln(MMR)	(5) ln(MMR)	(6) ln(MMR)	(7) ln(MMR)	(8) ln(MMR)
World Bank Women, Business & Law Index	0.000							-0.000
	[0.002]							[0.004]
CIRI Women's Economic Rights		0.009						0.025
		[0.014]						[0.033]
CIRI Women's Political Rights			-0.010					0.039
			[0.020]					[0.037]
CIRI Women's Social Rights				-0.002				0.021
				[0.016]				[0.051]
Female Labour Force Participation					0.002			0.004
					[0.005]			[0.008]
Proportion of Women Ministers						0.002**		-0.000
						[0.001]		[0.001]
Proportion of Women's Protests							-0.002	0.060
							[0.025]	[0.045]
Observations	4,257	3,322	3,335	2,234	4,234	1,444	4,138	355
R-Squared	0.987	0.990	0.990	0.993	0.987	0.989	0.987	0.997

Each column displays a regression of ln(MMR) on country and year FEs and a particular measure of women's rights or women's standing in society. These are regressed column by column in columns 1-7, and jointly in column 8. Standard errors clustered by country are displayed in parentheses. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table B3: Women's empowerment, rights and maternal mortality

	(1) ln(MMR)	(2) ln(MMR)	(3) ln(MMR)	(4) ln(MMR)	(5) ln(MMR)	(6) ln(MMR)	(7) ln(MMR)	(8) ln(MMR)	(9) ln(MMR)	(10) ln(MMR)
Women Civil Liberty Index	-0.227									-0.058
	[0.141]									[0.225]
Women Political Particip. Index		-0.064								-0.145
		[0.093]								[0.118]
Exclusion by Gender Index			0.266							0.226
			[0.287]							[0.325]
Relative Freedom of Movement Women				-0.016*						-0.016*
				[0.009]						[0.008]
Relative Access to Justice Women					0.001					0.000
					[0.009]					[0.009]
Relative Freedom of Discussion						0.007				0.008
						[0.008]				[0.009]
Power Distributed by Gender							0.023			0.068*
							[0.033]			[0.036]
Freedom from Forced Labour Women								-0.091***		-0.088*
								[0.034]		[0.049]
Property Rights for Women									-0.009	0.034
									[0.035]	[0.045]
Observations	4,104	4,104	4,094	4,012	4,014	3,998	4,014	4,014	4,014	3,963
R-Squared	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988	0.988

Each column displays a regression of ln(MMR) on country and year FEs and a particular measure of women's empowerment or women's rights. These are regressed column by column in columns 1-9, and jointly in column 10. Standard errors clustered by country are displayed in parentheses. * p<0.10; ** p<0.05; *** p<0.01.

Table B4: Potential predictors of quota adoption and maternal mortality

	(1) ln(MMR)	(2) ln(MMR)	(3) ln(MMR)	(4) ln(MMR)	(5) ln(MMR)	(6) ln(MMR)	(7) ln(MMR)	(8) ln(MMR)	(9) ln(MMR)
Development Assistance p.c.	-0.000								-0.000
	[0.000]								[0.000]
Peace Keeper Presence		0.000							0.000
		[0.000]							[0.000]
Right Wing Executive			-0.004						0.027
			[0.022]						[0.034]
Left Wing Executive				0.023					0.043
				[0.020]					[0.031]
Years Exectuve in Power					-0.003				-0.003
					[0.002]				[0.002]
Herfindahl Index (parties)						-0.043			-0.036
						[0.048]			[0.049]
Opposition Vote Share							-0.001**		-0.001*
							[0.000]		[0.001]
Transitioning Regime								0.025	0.005
								[0.018]	[0.021]
Observations	4,335	4,335	3,683	3,683	3,619	3,432	3,684	4,335	3,420
R-Squared	0.987	0.987	0.988	0.988	0.988	0.989	0.988	0.987	0.989

Each column displays a regression of ln(MMR) on country and year FEs and a particular measure flagged as a predictor of quota adoption in the political science literature. These are regressed column by column in columns 1-8, and jointly in column 9. Standard errors clustered by country are displayed in parentheses. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table B5: Test of trend break in ln(maternal mortality) around quota passage

	True Model	Placebo Breaks (Year Pre-Quota Treated as Placebo)							
	(1) Adoption	(2) -10	(3) -9	(4) -8	(5) -7	(6) -6	(7) -5	(8) -4	(9) -3
Pre-Quota Trend	0.001	0.005	0.005	0.005	0.005	0.006	0.006	0.007	0.007
	[0.006]	[0.006]	[0.006]	[0.006]	[0.007]	[0.007]	[0.008]	[0.008]	[0.008]
Post-Quota Trend	-0.012**	0.002	0.002	0.003	0.005	0.008	0.013	0.019	0.025
	[0.006]	[0.004]	[0.005]	[0.006]	[0.008]	[0.011]	[0.015]	[0.019]	[0.024]
Observations	4,335	4,090	4,090	4,090	4,090	4,090	4,090	4,090	4,090
R-Squared	0.547	0.520	0.520	0.520	0.520	0.520	0.520	0.520	0.520
Test of Trend Break (p-value)	0.12	0.39	0.36	0.45	0.98	0.54	0.36	0.31	0.29

Each column presents specifications where the log of the maternal mortality ratio is regressed on country and year fixed effects, and separate trends are fit in pre- and post-quota implementation periods. Column 1 presents the true model where trends are fit around quota implementation. Columns 2-9 present similar models using only pre-quota periods, with placebo trend breaks allowed at the number of years pre-quota implementation indicated in column headings. In each case we formally test for equality of trends around the true or placebo reform date, with p-values of this trend presented in the Table footer. Standard errors clustered by country are displayed in parentheses. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table B6: Mechanism variables and maternal mortality

	(1) ln(MMR)	(2) ln(MMR)	(3) ln(MMR)	(4) ln(MMR)	(5) ln(MMR)	(6) ln(MMR)	(7) ln(MMR)	(8) ln(MMR)	(9) ln(MMR)	(10) ln(MMR)
Antenatal Care	-0.005***									-0.005
	[0.002]									[0.003]
Attended Births		-0.004**								-0.003
		[0.002]								[0.002]
Modern Contraceptives			-0.004							-0.008
			[0.004]							[0.007]
Fertility Rates				0.095**						-0.093
				[0.047]						[0.106]
Teen Pregnancy					0.003					0.003
					[0.002]					[0.004]
Birth Spacing						-0.007				-0.003
						[0.005]				[0.003]
Health Expenditure							0.011			-0.018
							[0.010]			[0.011]
DAH Maternal Health								0.086		0.109
								[0.062]		[0.078]
log(GDP p.c.)									-0.338***	-0.478***
									[0.061]	[0.144]
Observations	2,109	2,751	4,182	4,303	4,309	1,429	3,178	3,338	4,186	915
R-Squared	0.989	0.987	0.987	0.987	0.987	0.968	0.991	0.978	0.989	0.986

Each column displays a regression of ln(MMR) on country and year FEs and a particular measure considered as a potential explanation of the observed impacts of quotas on maternal mortality. These are regressed column by column in columns 1-9, and jointly in column 10. Standard errors clustered by country are displayed in parentheses. * p<0.10; ** p<0.05; *** p<0.01.

Table B7: Event study results with alternative time windows (ln(MMR))

	Lag/Lead Time Period Only			Accumulating Final Periods		
	(1)	(2)	(3)	(4)	(5)	(6)
10 Years Prior to Adoption	0.016			-0.010		
	[0.041]			[0.058]		
9 Years Prior to Adoption	0.027			0.032		
	[0.040]			[0.041]		
8 Years Prior to Adoption	0.034	0.035		0.039	0.002	
	[0.036]	[0.035]		[0.037]	[0.049]	
7 Years Prior to Adoption	0.022	0.024		0.023	0.023	
	[0.031]	[0.031]		[0.032]	[0.032]	
6 Years Prior to Adoption	0.020	0.022		0.023	0.023	
	[0.029]	[0.029]		[0.030]	[0.030]	
5 Years Prior to Adoption	0.016	0.018	0.022	0.017	0.017	0.007
	[0.024]	[0.023]	[0.023]	[0.024]	[0.024]	[0.039]
4 Years Prior to Adoption	0.011	0.013	0.016	0.011	0.011	0.011
	[0.018]	[0.017]	[0.016]	[0.019]	[0.019]	[0.019]
3 Years Prior to Adoption	0.016	0.018	0.020	0.014	0.014	0.014
	[0.014]	[0.014]	[0.013]	[0.016]	[0.016]	[0.016]
2 Years Prior to Adoption	0.004	0.005	0.007	0.002	0.002	0.002
	[0.011]	[0.010]	[0.009]	[0.012]	[0.012]	[0.012]
Year of Quota Adoption	-0.011	-0.011	-0.010	-0.013	-0.013	-0.013
	[0.008]	[0.008]	[0.007]	[0.008]	[0.008]	[0.008]
1 Year Following Adoption	-0.021	-0.020	-0.019	-0.027	-0.027	-0.027
	[0.019]	[0.018]	[0.016]	[0.019]	[0.019]	[0.019]
2 Years Following Adoption	-0.030	-0.029	-0.027	-0.036	-0.036	-0.035
	[0.027]	[0.025]	[0.024]	[0.026]	[0.025]	[0.025]
3 Years Following Adoption	-0.040	-0.039	-0.039	-0.049*	-0.049*	-0.048*
	[0.029]	[0.028]	[0.026]	[0.028]	[0.028]	[0.028]
4 Years Following Adoption	-0.058*	-0.056*	-0.054*	-0.074**	-0.075**	-0.075**
	[0.034]	[0.033]	[0.031]	[0.033]	[0.033]	[0.033]
5 Years Following Adoption	-0.068*	-0.066*	-0.066*	-0.085**	-0.085**	-0.119**
	[0.040]	[0.039]	[0.037]	[0.039]	[0.039]	[0.055]
6 Years Following Adoption	-0.079*	-0.076		-0.103**	-0.104**	
	[0.047]	[0.046]		[0.047]	[0.047]	
7 Years Following Adoption	-0.088*	-0.085*		-0.112**	-0.113**	
	[0.052]	[0.051]		[0.052]	[0.052]	
8 Years Following Adoption	-0.095*	-0.094*		-0.119**	-0.132**	
	[0.057]	[0.056]		[0.058]	[0.063]	
9 Years Following Adoption	-0.095			-0.116*		
	[0.062]			[0.063]		
10 Years Following Adoption	-0.102			-0.139**		
	[0.068]			[0.067]		
Mean of Dep. Var.	4.305	4.284	4.251	4.357	4.357	4.357
Observations	4187	4126	4025	4335	4335	4335
R-Squared	0.535	0.529	0.523	0.548	0.548	0.548

Coefficients and standard errors are displayed for lags and leads to the adoption of quotas. These follow the style of event studies displayed in Figure A3, however varying time periods considered. Columns 1-3 consider only observations within 10/8/5 years of quota adoption for quota countries, while columns 4-6 consider all observations, accumulating so that the final lag and lead refers to greater than or equal to this length from the policy adoption. All other details follow Figure A3. * p<0.10; ** p<0.05; *** p<0.01.

Table B8: Event study results with alternative time windows (women in parliament)

	Lag/Lead Time Period Only			Accumulating Final Periods		
	(1)	(2)	(3)	(4)	(5)	(6)
10 Years Prior to Adoption	1.535			2.939**		
	[1.430]			[1.465]		
9 Years Prior to Adoption	-0.215			-0.423		
	[1.873]			[1.955]		
8 Years Prior to Adoption	-0.161	-0.133		-0.343	2.110	
	[1.680]	[1.664]		[1.764]	[1.521]	
7 Years Prior to Adoption	-0.082	-0.056		-0.209	-0.199	
	[1.568]	[1.550]		[1.636]	[1.633]	
6 Years Prior to Adoption	-0.220	-0.195		-0.382	-0.377	
	[1.332]	[1.323]		[1.401]	[1.399]	
5 Years Prior to Adoption	-0.027	-0.004	-0.026	-0.121	-0.117	1.361
	[1.142]	[1.130]	[1.110]	[1.208]	[1.204]	[1.446]
4 Years Prior to Adoption	-0.783	-0.774	-0.790	-0.880	-0.872	-0.872
	[1.122]	[1.105]	[1.088]	[1.191]	[1.187]	[1.191]
3 Years Prior to Adoption	-0.300	-0.330	-0.391	-0.251	-0.246	-0.248
	[0.711]	[0.714]	[0.736]	[0.697]	[0.694]	[0.693]
2 Years Prior to Adoption	0.464	0.470	0.450	0.466	0.466	0.466
	[0.576]	[0.573]	[0.589]	[0.583]	[0.580]	[0.581]
Year of Quota Adoption	4.768***	4.763***	4.716***	4.826***	4.832***	4.836***
	[1.786]	[1.787]	[1.783]	[1.798]	[1.800]	[1.797]
1 Year Following Adoption	5.816***	5.788***	5.712***	5.812***	5.811***	5.817***
	[1.702]	[1.694]	[1.683]	[1.717]	[1.721]	[1.718]
2 Years Following Adoption	6.123***	6.068***	5.993***	6.109***	6.104***	6.113***
	[1.839]	[1.835]	[1.829]	[1.845]	[1.844]	[1.839]
3 Years Following Adoption	6.393***	6.307***	6.060***	6.498***	6.511***	6.547***
	[1.926]	[1.909]	[1.863]	[1.964]	[1.966]	[1.966]
4 Years Following Adoption	6.056***	6.001***	5.901***	6.165***	6.210***	6.276***
	[1.756]	[1.732]	[1.698]	[1.805]	[1.820]	[1.825]
5 Years Following Adoption	7.605***	7.555***	7.446***	7.740***	7.777***	7.519***
	[1.880]	[1.845]	[1.785]	[1.904]	[1.920]	[2.259]
6 Years Following Adoption	7.313***	7.270***		7.435***	7.484***	
	[1.940]	[1.898]		[1.982]	[2.001]	
7 Years Following Adoption	7.469***	7.423***		7.596***	7.643***	
	[1.946]	[1.905]		[1.986]	[2.004]	
8 Years Following Adoption	6.225***	6.242***		6.330***	7.323***	
	[2.221]	[2.172]		[2.271]	[2.540]	
9 Years Following Adoption	6.425***			6.619***		
	[2.271]			[2.325]		
10 Years Following Adoption	6.589**			7.708***		
	[2.658]			[2.781]		
Mean of Dep. Var.	14.144	14.149	14.153	14.110	14.110	14.110
Observations	4187	4126	4025	4335	4335	4335
R-Squared	0.459	0.453	0.445	0.470	0.468	0.467

Refer to notes to Table B7. All details follow this Table, however now with women in parliament as the dependent variable rather than the log of maternal mortality. * p<0.10; ** p<0.05; *** p<0.01.

Table B9: Gender Quotas: TWFE impacts on women in parliament and maternal mortality (5 years pre/post adoption)

	% Women in Parliament			ln(Maternal Mortality Ratio)			Maternal Mortality Ratio		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Intensity by Baseline MMR									
Reserved Seats	6.040***			-0.046*			-56.135**		
	[1.705]			[0.028]			[23.932]		
Reserved Seats × Baseline MMR		0.688**			-0.012**			-16.638***	
		[0.312]			[0.006]			[4.078]	
Reserved Seats (Low Baseline MMR)			6.607**			-0.027			11.814
			[2.800]			[0.034]			[9.759]
Reserved Seats (Mid Baseline MMR)			4.673***			-0.030			-50.094***
			[1.378]			[0.020]			[12.318]
Reserved Seats (High Baseline MMR)			5.920*			-0.079			-128.876**
			[3.168]			[0.071]			[57.497]
Mean of Dep. Var.	14.153	14.223	14.153	4.251	4.245	4.251	218.745	209.709	218.745
Observations	4025	3903	4025	4025	3903	4025	4025	3903	4025
Number of Countries	178	167	178	178	167	178	178	167	178
R-Squared	0.445	0.439	0.443	0.523	0.522	0.523	0.219	0.252	0.224
Panel B: Intensity by Quota Size									
Reserved Seats	6.040***			-0.046*			-56.135**		
	[1.705]			[0.028]			[23.932]		
Reserved Seats × Quota Size		0.246***			-0.002			-3.275**	
		[0.080]			[0.002]			[1.288]	
Reserved Seats (0-10]%			3.368**			0.011			-4.617
			[1.506]			[0.027]			[11.993]
Reserved Seats (10-20]%			9.546***			-0.041			-31.898
			[2.083]			[0.026]			[21.018]
Reserved Seats (20-30]%			4.902**			-0.073			-94.126**
			[2.385]			[0.048]			[41.430]
Mean of Dep. Var.	14.153	14.153	14.153	4.251	4.251	4.251	218.745	218.745	218.745
Observations	4025	4025	4025	4025	4025	4025	4025	4025	4025
Number of Countries	178	178	178	178	178	178	178	178	178
R-Squared	0.445	0.442	0.444	0.523	0.523	0.523	0.219	0.222	0.222

Difference-in-differences (two-way fixed effect) estimates of the impact of reserved seats in parliament on women in parliament (columns 1-3), the log of the maternal mortality ratio (columns 4-6), and MMR in levels (columns 7-9) are displayed, following Table A5. However here quota adopting countries are only considered in the 5 years pre and post-quota adoption. All other details follow those in Table A5. Standard errors clustered by country are displayed in parentheses. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table B10: Examining impacts on maternal mortality removing outliers

	Main	Winsorizing				Removing			
	(1)	(2) 500	(3) 90%	(4) 95%	(5) 99%	(6) 500	(7) 90%	(8) 95%	(9) 99%
Reserved Seats	-106.107**	-33.339**	-58.942***	-83.957***	-111.504***	-50.364***	-57.398***	-60.595***	-105.547**
	[43.036]	[14.065]	[17.676]	[25.159]	[42.685]	[16.849]	[18.094]	[17.587]	[42.612]
Observations	4,335	4,335	4,335	4,335	4,335	3,526	3,901	4,117	4,290
R-Squared	0.27	0.28	0.30	0.32	0.30	0.29	0.29	0.29	0.29
Mean of Dep. Var.	233.4	177.4	206.2	218.2	229.3	103.4	150.5	183.5	218.0
Baseline Mean	448.1	337.9	398.0	424.1	447.9	223.0	323.1	362.5	441.7
Implied Percentage	-23.7	-9.9	-14.8	-19.8	-24.9	-22.6	-17.8	-16.7	-23.9

Note: Column 1 estimates a standard two-way FE model regressing MMR in levels on a reserved seat indicator along with country and year fixed effects. Columns 2-5 Winsorize MMR at the level or percentile indicated in column headings, and columns 6-9 remove values for MMR above the level or percentile indicated in column headings, in each case re-estimating the model from column 1. A formal test of equality of coefficients between columns (1) and (2) based on seemingly unrelated regression is rejected with $p < 0.01$. Mean of Dep. Var. presents the mean of the transformed dependent variable, Baseline Mean presents the mean of the transformed dependent variable in quota countries prior to quota implementation, and Implied Percentage expresses the estimated reduction in MMR as a percent of the Baseline Mean. Standard errors clustered by country are displayed in parentheses. * p<0.10; ** p<0.05; *** p<0.01.

Table B11: Two-way fixed effect models: reserved seats and maternal mortality in India

	ln(MMR)		MMR	
	(1)	(2)	(3)	(4)
Reserved Seats for Women	-0.142*	-0.204*	-107.839***	-105.096***
	(0.080)	(0.115)	(18.042)	(22.944)
Observations	135	135	135	135
R-Squared	0.95	0.92	0.91	0.88
Population Weights		Y		Y

Each column documents coefficients from two-way fixed effect models where the natural logarithm of the maternal mortality ratio (columns 1-2) or the maternal mortality ratio (columns 3-4) is regressed on an indicator for the state's reserved seat status, plus full state and time fixed effects. Data covers the period from 1986 to 2003, from Sample Registration Systems and Ram et al. (2006). Population weights based on census data are included in columns 2 and 4. Standard errors clustered by state are presented in parentheses. $^{***}p < 0.01;^{**} p < 0.05;^{*} p < 0.10$.

Table B12: Mechanisms: impacts of gender quotas on intermediate outcomes

	Antenatal Care (1)	Attended Births (2)	Contraceptive Usage (3)	Fertility Rate (4)	Teenage Pregnancy (5)	Birth Spacing (6)	Health Expenditure (7)	Development Assistance (8)	GDP per capita (9)
Reserved Seats	4.699*	5.793**	1.669	-0.061**	-1.609	1.896	0.894**	-0.009	-0.005
	[2.771]	[2.434]	[1.172]	[0.028]	[2.786]	[1.818]	[0.371]	[0.027]	[0.062]
Mean of Dep. Var.	84.210	83.726	29.913	1.040	62.366	35.491	6.235	0.089	8.903
Observations	678	1237	4182	4303	4309	1429	3178	3338	4186
Number of Countries	155	169	172	177	177	67	176	147	175
R-Squared	0.432	0.306	0.599	0.504	0.541	0.555	0.192	0.098	0.472

Two-way FE models of intermediate outcomes as a function of the passage of gender quotas are displayed. Antenatal care coverage and birth attendance are newly harmonized data available for 1990-2015 and measured as percentage coverage, however only available in a sub-sample of years for each particular country. Contraceptive usage refers to the proportion of all women aged 15–49 using modern contraceptives. Fertility rate is measured in natural logarithms, and teenage pregnancy is measured as births per 1,000 teenage women. Birth spacing is measured in months to subsequent births, generated from full DHS data. Health expenditure refers to spending as a percentage of GDP, and development assistance refers to the proportion of development assistance directed to mothers health. GDP per capita is measured in natural logarithms. Standard errors clustered by country are displayed in parentheses. * p<0.10; ** p<0.05; *** p<0.01.

Table B13: Univariate regressions of ln(MMR) on mechanism Variables

Variable	Point Estimate	Standard Error
Antenatal Care	-0.040	0.005
Attended Births	-0.044	0.002
Modern Contraceptives	-0.063	0.004
log(Fertility Rates)	0.847	0.032
Teen Pregnancy	0.028	0.001
Women's Schooling	-0.444	0.031
Health Expenditure	-0.265	0.048
DAH Maternal Health	1.408	0.389
log(GDP p.c.)	-1.181	0.042
Birth Spacing	-0.013	0.008

Each line presents the point estimate and standard error from a projection of ln(MMR) on the variable indicated. Standard errors are clustered by country, but no additional controls are included.

Table B14: Gender quotas: TWFE impacts on alternative outcomes

	Education			Mortality			Infant Mortality		
	Female Schooling (1)	Male Schooling (2)	Female/Male Ratio (3)	Tuberculosis Mortality (4)	Female Mortality (5)	Male Mortality (6)	All IMR (7)	Female IMR (8)	Male IMR (9)
Reserved Seats	0.470*	0.144	0.065**	0.118	-0.038	-0.035	-0.091	-0.087	-0.105
	[0.250]	[0.220]	[0.030]	[0.110]	[0.052]	[0.051]	[0.131]	[0.112]	[0.119]
Mean of Dep. Var.	7.471	7.565	0.985	2.622	4.906	5.360	4.345	4.259	4.414
Observations	2794	2446	2446	4147	4249	4249	1096	1088	1093
Number of Countries	141	123	123	178	177	177	68	68	68
R-Squared	0.333	0.214	0.161	0.356	0.559	0.528	0.396	0.398	0.361

Each column and panel presents estimates from a two-way FE specification following that in Table A5 (columns 1, 4 and 7). We now examine estimates for impacts of gender quotas on alternative outcomes, specifically female and male education, as well as their ratio, and various classes of morbidity or mortality outcomes. Educational data are drawn from Barro and Lee's education database, recording completed years of schooling of 15–19 year-olds in each country and are interpolated between quinquennial time period. Morbidity/mortality outcomes are examined for adults (columns 4-6), and infants (columns 7-9). For adult morbidity/mortality, tuberculosis is measured as incidence per 100,000 people, and mortality is measured as per 1,000 adults of ages 15-60. Since the TB data had the occasional zero, we use the inverse hyperbolic sine transformation rather than the log transformation for this outcome, which is used for female and male mortality. Infant mortality is estimated from all publicly available DHS waves and is expressed as the natural logarithm of infant mortality, for all births, and for males and females only. Standard errors clustered by country are displayed in parentheses. * $p<0.10$; ** $p<0.05$; *** $p<0.01$.

Table B15: A back of the envelope calculation of impacts on total maternal deaths

Baseline		$\Delta MMR \mid Fertility$	
Births = 34,735,750 Deaths = 92,928	MMR=267.5	Births = 34,735,750 Deaths = **84,843**	MMR=244.2
$\Delta Fertility \mid MMR$		$\Delta Fertility, \Delta MMR$	
Births = 32,616,869 Deaths = **87,259**	MMR=267.5	Births = 32,616,869 Deaths = **79,668**	MMR=244.2

The top left quadrant calculates maternal mortality ratios based on actual births and maternal deaths in all quota adopting countries one year prior to the quota. The top right quadrant calculates total maternal deaths if the maternal mortality ratio declines by 8.7%, but births remain fixed. The bottom left quadrant calculates total maternal deaths if the fertility rate falls by 6.1%, but the maternal mortality remains fixed at pre-quota levels. Finally, the bottom right quadrant calculates the total reduction in expected maternal deaths given (a) the fall in fertility and (b) the fall in the maternal mortality ratio.

A Data Appendix

The following table provides an exhaustive list of the variables used in the paper along with the original sources.

Variable (Source)	Description
Maternal Mortality, Cross Country (MMEIG – modelled estimates)	We used recently released estimates of the maternal mortality ratio (MMR) per 100,000 live births produced by the Maternal Mortality Estimation Inter-Agency Group (MMEIG) and published in the World Bank World Development Indicators (WDI, indicator SH.STA.MMRT). These data were made available for the first time in the year 2016 and before that there were no reliable annual cross-country data on MMR. These estimates were available for 183 countries annually for the period 1990–2015. Maternal mortality is identified using ICD-10 codes O00-O99 (Pregnancy, childbirth and puerperium); the official definition is "the number of women who die from pregnancy-related causes while pregnant or within 42 days of pregnancy termination per 100,000 live births." These are widely considered the best MMR measures to date, as they address known measurement difficulties in survey and vital statistics data on maternal mortality using Bayesian methods applied to multiple, complementary data sources including vital statistics, special inquiries, surveillance sites, population-based household surveys and census files (Alkema et al., 2016, 2017). The world distribution of average MMR for the period of 1990–2015 is in Figure B2.
Maternal Mortality, Indian states (SRS)	State-level estimates of maternal mortality in India are gleaned from the Office of the Registrar General & Census Commissioner's Sample Registration System (SRS) Bulletins (RGI, 2006). These data are available for the 15 large states – Andhra Pradesh, Assam, Bihar (including Jharkhand), Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh (including Chattisgarh), Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh (including Uttarakhand), and West Bengal – for the period of 1997–2003. These are complemented by an aggregate (state-level) estimate from 1986, reported in Ram et al. (2006) covering the same large states.
Ethnic Compostion (HIEF)	Ethnic composition is measured by Ethnic Fractionalization (EF Index), which is the probability that two individuals who are chosen at random from a country belong to two different ethnic groups. Time-varying data on EF come from Historical Index of Ethnic Fractionalization Dataset (HIEF) V 2.0 (Dražanová, 2020), downloaded from the Harvard Dataverse (https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/4JQRCL). The dataset is available for the years 1945–2013.
Political Gender Quota Data, Cross-Country (IDEA)	We collated measures for each country of whether the country has a legislated and binding reserved seat quota for women, its year of implementation, and the size of the quota measured as number of seats divided by all seats in the uni- or bi-cameral chamber. To create the database, we started with measures provided by Dahlerup (2005) and completed the most recent years from Global Database of Quotas for Women database which is a repository developed and maintained by the International Institute for Democracy and Electoral Assistance (IDEA), the Inter-Parliamentary Union, and Stockholm University.
Political Gender Quota Data, India (Iyer et al. (2012))	State-level data on the reservation of seats for women in local councils come from Iyer et al. (2012) who provide a time-varying state-level indicator for when women were given political representation. "[T]he indicator equals one in the years following the first local government election that implemented the "not less than one-third" reservation scheme for women representatives" (Iyer et al., 2012) .
Women in Parliament Data (WDI, MDG, (Paxton et al., 2008))	We used three distinct annual-level measures of women in parliament to construct a comprehensive panel of the percentage of women occupying seats in the national parliament. These were the WDI indicator SG.GEN.PARL.ZS ("Proportion of seats held by women in national parliaments (%)"), The UN Millennium Development Goals (MDG) Indicators ("Seats held by women in national parliament, percentage"), and the Inter university Consortium for Political and Social Research (ICPSR) dataset compiled by (Paxton et al., 2008) ("Women in Parliament, 1945–2003: Cross-National Dataset"). The first two of these datasets had partially-complete coverage for the years 1990, and then 1997–2015, while the latter had partially-complete yearly coverage for each year starting in 1945, and ending in 2003. In order to construct as comprehensive a series as possible, we began with the WDI data, and then imputed missing years where available from the MDG indicators, and Paxton et al. (2008) data. When a missing WDI year was available in both the MDG and the ICPSR dataset, we favored the MDG measure, which was estimated using the same sample and year. Figures B5b and B5a present the distribution of the proportion of women in parliament pre- and post-quota implementation in quota countries, as well as the full distribution of the proportion of women in parliament over the period under study.

(continued on next page)

Variable (Source)	Description
Health Expenditure (WHO)	Health expenditure at the country-year level was taken from the World Health Organization the National Health Accounts (NHA) data series. These provide a measure of total health expenditure as a percent of GDP, and are available for the years 1995–2013.
Development assistance for health (IHME)	Development assistance for health (DAH) data are based on the Institute for Health Metrics and Evaluation (IHME) Development Assistance for Health Database (1990–2017). These data are available at the source country × receiver country × year level. We compute the proportion Development Assistance for Health to Maternal Health as: $\frac{\text{Development Assistance for Health to Maternal Health - All Program Areas (constant 2017 US dollars)}}{\text{Development Assistance for Health disbursed from all channels (constant 2017 US dollars)}}$.
Women's Protests (Bell et al., 2019)	We compute the proportion of women's protests using country-level panel data on women's protests and total protests from Bell et al. (2019). (We are grateful to Sam Bell for sharing the data with us.)
Contraception Prevalence (UN – modelled estimates)	This variable measures the percentage of Women of reproductive age (15-49 years) who are currently using any modern method of contraception. The annual data are from the "ESTIMATES AND PROJECTIONS OF FAMILY PLANNING INDICATORS 2020" dataset generated by the UN Department of Economics and Social Affairs, Population Division. Downloaded from https://www.un.org/development/desa/pd/data/family-planning-indicators on 03/02/2021.
Adult Male & Female Mortality (World Bank)	Data on male/female mortality for adults are available in the World Bank Data Bank (indicators SP.DYN.AMRT.MA and SP.DYN.AMRT.FE), based on measures from the United Nations Population Division, World Population Prospect and University of California, Berkeley, and Max Planck Institute for Demographic Research. This is measured as mortality between the ages of 15–60, per 1,000 male adults, and captures the likelihood that a male/female of age 15 dies by the age of 60.
Tuberculosis Mortality (WHO)	This is measured as the number of deaths due to Tuberculosis among HIV negative people, and is measured per 100,000 population. The data are from the WHO and were downloaded from: http://apps.who.int/gho/data/view.main.57020ALL?lang=en, accessed on 17/03/2016. Further details on estimation are provided here: https://www.who.int/data/gho/indicator-metadata-registry/imr-details/1425
Women's Rights (CIRI)	Measures of women's political, economic, and social rights data are based on the Cingranelli et al. (2013) data set available from http://www.humanrightsdata.com/. We use the three following variables: - *Women's Political Rights*: takes into account women's rights to vote, to run for political office, to hold elected and appointed government positions, to join political parties, and to petition government officials. This variable takes discrete values between 0 and 3, with 3 representing high rights and 0 representing low rights. This variable is available for the period of 1981–2011 for approximately 139 (in 1990) to 195 (in 2011) countries. - *Women's Economic Rights*: takes into account women's rights to equal pay for equal work, free choice of profession or employment without the need to obtain a husband or male relative's consent, the right to gainful employment without the need to obtain a husband or male relative's consent, equality in hiring and promotion practices, job security (maternity leave, unemployment benefits, no arbitrary firing or layoffs, etc.), non-discrimination by employers, be free from sexual harassment in the workplace, to work at night, to work in occupations classified as dangerous, to work in the military and the police force. This variable is available for the period of 1981–2011 for approximately 139 (in 1990) to 195 (in 2011) countries. - *Women's Social Rights*: takes into account women's rights to equal inheritance; enter into marriage on a basis of equality with men; travel abroad; obtain a passport; confer citizenship to children or a husband; initiate a divorce; own, acquire, manage, and retain property brought into marriage; participate in social, cultural, and community activities; education; and freedoms to choose a residence/domicile, and from female genital mutilation of children and of adults without their consent, and from forced sterilization. This variable is available for the period of 1981–2007 for approximately 139 (in 1990) to 193 (in 2007) countries.
Women's Rights (VDEM)	Measures of women's rights and measures of relative social standing are based on data collected in the Variety of Democracy dataset Version 10 (Coppedge et al., 2020; Pemstein et al., 2020) – VDEM-10 – downloaded from https://www.v-dem.net/en/data/data/v-dem-dataset/ on the 27/10/2020. When generating ratios of women to male outcomes these are Winsorized at the 1st and 99th percentiles to avoid outliers in cases where the denominator is very small. We follow suggested practices in removing a small number of observations which are coded by 3 or fewer country experts (Coppedge et al., 2020) in "C" type variables from the VDEM data which are based on the opinions of country experts. We specifically use the following variables:

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Variable (Source)	Description
	- *Women's Civil Liberties Index ($v2x_gencl$ – modelled estimates)*: "The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators for freedom of domestic movement for women ($v2cldmovew$), freedom from forced labor for women ($v2clslavef$), property rights for women ($v2clprptyw$), and access to justice for women ($v2clacjstw$)" (Coppedge et al., 2020). - *Women's Political Participation Index ($v2x_genpp$)*: "The index is formed by taking the average of the indicators for lower chamber female legislators ($v2lgfemleg$, standardized) and power distributed by gender ($v2pepwrgen$)" (Coppedge et al., 2020). - *Exclusion by Gender Index ($v2xpe_exlgender$ – modelled estimates)*: "The index is formed by taking the point estimates from a Bayesian factor analysis model of the indicators power distributed by gender ($v2pepwgen$), equality in respect for civil liberties by gender ($v2clgencl$), access to public services by gender ($v2peapsgen$), access to state jobs by gender ($v2peasjgen$), and access to state business opportunities by gender ($v2peasbgen$)" (Coppedge et al., 2020). - *Relative Freedom of Movement for Women*: Ratio of $\frac{\text{freedom of domestic movement for women (v2cldmovew)}}{\text{freedom of domestic movement for women (v2cldmovem)}}$. The indicators specify "the extent to which all women / men are able to move freely, in daytime and nighttime, in public thoroughfares, across regions within a country, and to establish permanent residency where they wish" (Coppedge et al., 2020). - *Relative Access to Justice for Women*: Ratio of $\frac{\text{Access to justice for women (v2clacjstw)}}{\text{Access to justice for men (v2clacjstm)}}$. Access to justice "specifies the extent to which women/men can bring cases before the courts without risk to their personal safety, trials are fair, and women have effective ability to seek redress if public authorities violate their rights, including the rights to counsel, defense, and appeal" (Coppedge et al., 2020). - *Relative Freedom of Discussion for Women*: Ratio of $\frac{\text{Freedom of discussion for women (v2cldiscw)}}{\text{Freedom of discussion for men (C) (v2cldiscm)}}$. Freedom of discussion "specifies the extent to which [women/]men are able to engage in private discussions, particularly on political issues, in private homes and public spaces (restaurants, public transportation, sports events, work etc.) without fear of harassment by other members of the polity or the public authorities. We are interested in restrictions by the government and its agents but also cultural restrictions or customary laws that are enforced by other members of the polity, sometimes in informal ways" (Coppedge et al., 2020). - *Power distributed by gender ($v2pepwrgen$)*: Measures if political power distributed according to gender. Lower values indicate men have near-monopoly on political power, while higher values indicate more equality in power between women and men. - *Freedom from forced labor for women($v2clslavef$)*: measures whether adult women free from servitude and other kinds of forced labor. "Involuntary servitude occurs when an adult is unable to quit a job s/he desires to leave — not by reason of economic necessity but rather by reason of employer's coercion. This includes labor camps but not work or service which forms part of normal civic obligations such as conscription or employment in command economies" (Coppedge et al., 2020). - *Property rights for women ($v2clprptyw$)*: measures whether women enjoy the right to private property. "Private property includes the right to acquire, possess, inherit, and sell private property, including land. Limits on property rights may come from the state (which may legally limit rights or fail to enforce them); customary laws and practices; or religious or social norms. This question concerns the right to private property, not actual ownership of property." (Coppedge et al., 2020).
Women, Business and the Law Index (World Bank)	The WBL index is a recently released index covering 170 countries between 1970–2020, providing a measures of women's equality in development outcomes, labor force participation, vulnerable employment and political participation where scores are based on the average of each economy's scores for 8 distinct topics listed below. A higher score indicates more gender equal laws. Mobility – Incorporates answers to the following questions – Can a woman apply for a passport in the same way as a man? Can a woman travel outside the country in the same way as a man? Can a woman travel outside her home in the same way as a man? Can a woman choose where to live in the same way as a man? Workplace – Incorporates answers to the following questions – Can a woman get a job in the same way as a man? Does the law prohibit discrimination in employment based on gender? Is there legislation on sexual harassment in employment? Are there criminal penalties or civil remedies for sexual harassment in employment? Pay – Incorporates answers to the following questions – Does the law mandate equal remuneration for work of equal value? Can a woman work at night in the same way as a man? Can a woman work in a job deemed dangerous in the same way as a man? Can a woman work in an industrial job in the same way as a man?

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Variable (Source)	Description
	Marriage – Incorporates answers to the following questions – Is there no legal provision that requires a married woman to obey her husband? Can a woman be head of household in the same way as a man? Is there legislation specifically addressing domestic violence? Can a woman obtain a judgment of divorce in the same way as a man? Does a woman have the same rights to remarry as a man? Parenthood – Incorporates answers to the following questions – Is paid leave of at least 14 weeks available to mothers? Length of paid maternity leave? Does the government administer 100% of maternity leave benefits? Is there paid leave available to fathers? Length of paid paternity leave? Is there paid parental leave? Shared days? Days for the mother? Days for the father? Is dismissal of pregnant workers prohibited? Entrepreneurship – Incorporates answers to the following questions – Can a woman sign a contract in the same way as a man? Can a woman register a business in the same way as a man? Can a woman open a bank account in the same way as a man? Does the law prohibit discrimination in access to credit based on gender? Assets – Incorporates answers to the following questions – Do men and women have equal ownership rights to immovable property? Do sons and daughters have equal rights to inherit assets from their parents? Do male and female surviving spouses have equal rights to inherit assets? Does the law grant spouses equal administrative authority over assets during marriage? Does the law provide for the valuation of non-monetary contributions? Pension – Incorporates answers to the following questions – Is the age at which men and women can retire with full pension benefits the same? Is the age at which men and women can retire with partial pension benefits the same? Is the mandatory retirement age for men and women the same? Are periods of absence due to childcare accounted for in pension benefits?
Women's Rights (additional data)	We gleaned Women's rights data from several additional sources: - *Women Ministers*: Women Minister data is drawn from the Inter Parliamentary Union (IPU). These were compiled based on country year aggregates for 1994, 1998, 2000, 2005, 2008, 2010, 2012, 2014 and 2015. - *Female Labor Force Participation – modelled estimates*: This is modelled by the International Labour Organization (provided in the ILOSTAT database) as the percent of women aged 15 and above who are economically active. It is available from 1990 to 2015. - *Abortion (Save Mother's Life)*: Measures of abortion availability, and in which circumstances abortion is legal is drawn from the data of Elías et al. (2017). - *Abortion (Fetal Impairment)*: As above.
‡*Maternal Care Inputs* (World Bank)	Recent data from the World Bank Data Bank allow us to examine the state of maternal health care in a subset of countries and years. These data are constructed and released by the World Bank using comparable measures from each country: specifically data from UNICEF, the State of the World's Children, Child Info, and the Demographic and Health Surveys (DHS). As such, these measures are only available in years and countries for which surveys were conducted, resulting in fewer observations than the yearly measures of maternal mortality. In our analysis we use the full set of data released in the World Bank Data Bank. We use the following two policy relevant indicators: - *Antenatal Care*: The percent of pregnant women receiving prenatal care (indicator SH.STA.ANVC.ZS). - *Skilled Birth Attendance*: the percent of all births attended by skilled health staff (indicator SH.STA.BRTC.ZS).
Fertility (World Bank)	Total fertility rates are expressed as the number of children expected to be born per woman based on current fertility rates, and are available as World Bank indicator SP.DYN.TFRT.IN.
‡*Women's Schooling, Average 15–19* (Barro and Lee, 2013)	Women's schooling measures are taken from the Barro-Lee dataset (Barro and Lee, 2013) which gives average years of schooling for women aged 15–19 years. Barro-Lee is only available quin-quennially from 1950 to 2015. We use the sample from 1990–2015, and linearly interpolate by country between 5 year periods.
‡*Men's Schooling, Average 15–19* (Barro and Lee, 2013)	As above.
Teen Pregnancy (World Bank)	The adolescent fertility rate expressed as the number of births per 1,000 women aged 15–19 is provided by the World Bank, WDI database, indicator SP.ADO.TFRT.
GDP (World Bank)	The log of GDP per capita is PPP adjusted and measured in 2011 international dollars. This is taken from the World Bank WDI database, indicator NY.GDP.PCAP.PP.KD.
Infant Mortality Rates (DHS)	We use male and female infant mortality rates based on the DHS data. Infant mortality is defined as the death of a child before reaching the age one.

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Variable (Source)	Description
Quota Predictors (IPI, World Bank, Beck et al. (2001))	We examined quota predictors as laid out in Krook (2010): - *Peacekeepers*: the number of peacekeepers in a country from The International Peace Institute, IPI Peacekeeping Database. - *Net Overseas Development Assistance*: World Bank Indicator DT.ODA.ODAT.CD - *Political Competition*: a series of measures of political competition and landscape from (Beck et al., 2001)
Democracy (Boix et al., 2013)	Our dichotomous measure of democracy was gleaned from the Boix et al. (2013) database (updated in 2018). This database provides a binary index of democracy, measured annually, for all sovereign countries (222 distinct countries), between 1800 and 2015. They classify a country at a given time as a democracy if it meets two criteria: high political contestation (the decisions to govern the state are taken through voting procedures that are free and fair), and high participation (a minimal level of suffrage).
Population (UN)	We collect population covering the entire population, and just the population of women aged 15–64 years which are available by country and year over an extended period of time. These are drawn from the United Nations Population Division's World Population Prospects.
Maternal Mortality (DHS)	We construct country by year measures of maternal mortality based on microdata collected in the DHS. The DHS employs the sisterhood method, asking each woman to list all her sisters, whether they are surviving, and if not, the year of their death and whether this was related to maternal causes. The DHS maternal mortality module which employs this procedure is implemented in only a sub-sample of countries. We collect all DHS survey waves which have implemented the maternal mortality module, and use these to construct retrospective panels of all sisters listed by women, converted into pseudo-panels such that each sister has an observation for each year in which she is aged between 15–49 and is surviving. For each sister×year observation we infer whether she dies for reasons related to childbirth based on the sisterhood surveys. Based on this pseudo-panel, we calculate a country by year observation for rates of maternal mortality.
Fertility, birth spacing and birth composition (DHS)	Country by year measures of age-specific fertility rates, total fertility, birth spacing and characteristics of mothers giving birth are calculated from DHS microdata based on retrospective fertility panels. Each surveyed woman is asked to report her full fertility history including months and years of all births. From these fertility histories we generate a pseudo-panel covering all women with a single observation for each of their ages between 15–49 (or up to their age at the time of the survey). In each year, we infer whether the woman gave birth, and if so, the birth spacing between that and the following birth, as well as the child's sex. Based on these pseudo-panels we aggregate data to country×year cells calculating fertility rates in each quinquennial age group (15–19, 20–24, …, 40–44), as well as the average birth spacing for all births, the sex ratio of births, and the mean education and literacy status of mothers giving birth.
Infant Mortality by sex (DHS)	We calculate (total) infant mortality as well as infant mortality by sex from DHS microdata. To do so, we generate a panel of all children born reported by mothers in the DHS, their year of birth, their gender, and their survival status. If they are recorded as not surviving, we record their age at death. From these micro-level observations, we calculate the infant mortality rate as the total number of infant deaths in the country and year cell, divided by the total number of births. A similar calculation is conducted for male and female infant mortality rates (with the denominator of male and female births respectively).

Notes. ‡ For indicated time-varying variables, missing values are linearly interpolated. Where relevant, tests using original (non-interpolated) values are provided as part of the online appendix.

B Matched Controls using a Pooled Synthetic Control Procedure

In the main event study specification identification is drawn by comparing changes in countries which adopt quotas to all other countries which did not adopt quotas. Thus, 'control' units consist of all non-quota countries, with prevailing differences (in the pre-reform period) captured by country fixed effects. An alternative model consists of explicitly matching each treated country with a single aggregate or synthetic matched control country, and observing how outcomes evolve in the treated and synthetic control, inferring treatment effects based on differences in each case.

We conduct such a procedure, generating a synthetic control for each quota country. We then generate a full dynamic set of treatment effects by pooling lags across each post-quota period as laid out below. Consider country c which adopted quotas in year t. For this country, the pool of countries which can potentially generate a synthetic control consists of all 156 countries which never adopted a reserved seat quota. For country c generate the synthetic control following Abadie et al. (2010) by finding the vector of weights $\mathbf{W}^*$ which minimize: $||\mathbf{X_1} - \mathbf{W}\mathbf{X_0}||$ where $\mathbf{X_1}$ and $\mathbf{X_0}$ consist of a matrix of (identically defined) matching variables between the quota country and the pool of non-quota countries. In this particular implementation, the matching variables consist of rates of the outcome of interest (women in parliament or maternal mortality) in each of the pre-quota periods $t-10, t-9, \ldots, t-3$, as well as binary indicators for the country's sub-region based on UN sub-region classifications. Note that there are three particular features of this method that should be highlighted. The first is that countries will be explicitly matched based on pre-treatment outcomes such that pre-trends in country c and its synthetic control should be equal in levels (this is a test of the quality of the synthetic control). Second is that periods $t-2$ and $t-1$ are not mechanically matched in the synthetic control procedure, and thus can act as placebo periods such that impacts should not be observed prior to the reform's passage. And finally, note that the inclusion of sub-region binary indicators is a device which favors choosing matched units from within the same geographic areas (and potentially exposed to similar shocks), but that units from outside of these areas can be included if the difference in binary variables owing to sub-region variations is offset by the weighted quadratic difference in other matching variables.[53]

We conduct this procedure for each quota country which is amenable to generation of a synthetic control in this way. Note that of the 22 quota countries, only 15 can be adequately matched in synthetic control methods. Uganda adopts quotas prior to 1990 and so has no pre-adoption periods to match on. South Sudan is a new country, and so has insufficient periods to match on. Afghanistan, Burundi, Iraq, Djibouti and Saudi Arabia each have multiple missing measures for MMR in the years prior to quota adoption and as such have missing entries in the $\mathbf{X_1}$ matrix. Once each country has its own synthetic control generated, we estimate full dynamic treatment effects by averaging the difference between each post-treatment period and the synthetic control over all treatment-synthetic control pairs. Thus, the estimated treatment effect on the first lag is the mean of the difference between each country and its synthetic control in the first post-quota lag, with similar procedures conducted for each lead and lag term.

Finally, to conduct inference in this setting we implement a permutation method, which consists of randomly permuting the actual distribution of quota years across alternative countries. Thus, each permutation maintains the precise structure of the data, simply permuting treatment units. We conduct 500 permutations, and generate 95% confidence intervals for *each* lag and lead as the end points of percentile 2.5 and 97.5 of each permuted treatment effect.

[53] In other words, countries from outside of the sub-region can be included in the synthetic control if they are considerably better matches than countries within the same sub-region and can pay the penalty based on different sub-region indicators in the matching process.

C Description of Resampling Procedure for MMR Uncertainty

Publicly available MMR data published by the MMEIG consist of a point estimate and the upper and lower points of the 80% uncertainty interval. In describing the modeling procedure, the authors note "We computed 80% uncertainty intervals (UIs) for the MMR and all related outcomes using the 10th and 90th percentiles of the posterior distributions. …We report 80% UIs rather than 95% UIs because of the substantial uncertainty inherent in maternal mortality outcomes: intervals based on higher uncertainty levels quickly lose their ability to present meaningful summaries of a range of likely outcomes." (Alkema et al., 2016, p. 1250). In order to estimate standard errors and p-values based on these data, we undertake the following procedure:

Resample Algorithm

1. Take a clustered bootstrap resample from the original data $b = 1, \ldots, B$, with $B = 50$
2. Generate a random vector of size N (where N is the sample in the regression) where each element is either a) a draw of a normal variable where 80% of the probability mass falls between -1 and 1 (a draw from $\mathcal{N}(0, 0.7803)$), or b) a draw from a triangular distribution in the interval [-1,1]. Below this is ε, and in each case, these integrate to 1.
3. Generate a resampled value of maternal mortality as: $MMR_t^{b*} = MMR_{ct} + \varepsilon \frac{MMR_{ct}^{UB} - MMR_{ct}^{LB}}{2}$, where MMR_{ct}^{LB} is the lower bound estimate and MMR_{ct}^{UB} is the upper bound estimate; ie take the original measure, and draw a value from the uncertainty interval centred around this measure.
4. Estimate the original regression using the resampled data, with the re-resampled MMR measure. This results in an estimate of interest $\widehat{\beta}^{b*}$
5. if $b < 50$ return to step 1. Else go to step 6
6. Calculate the standard error of $\widehat{\beta}$ as the standard deviation of $\{\widehat{\beta}^{1*}, \widehat{\beta}^{2*}, \ldots, \widehat{\beta}^{50*}\}$. This replaces the original naive standard error, and similarly a p-value can be calculated associated with the null hypothesis of a null impact, analogous to the p-value calculated based on a standard regression coefficient.

This procedure is only necessary when estimating impacts of quotas on maternal mortality, and not for women in parliament as we are only adjusting for uncertainty in the dependent variable in cases where maternal mortality is used. Note that in the above we are re-sampling maternal mortality to provide full coverage of the 80% uncertainty interval, or indeed, to provide greater than full coverage in the case of the normal draw, for each country year pair. In each case, the normal or triangular distribution places more weight on the likelihood of observing a value of maternal mortality close to the stated estimate, and less weight on the likelihood of observing a value in the tails of the distribution.

The above resampling procedure assumes that uncertainty in maternal mortality is independent between countries and years. It may also be the case that uncertainty is correlated across years within a country. When undertaking inference robust to uncertainty we thus present p-values associated with a range of cases as presented in Table A7. These are:

1. Bootstrap: The bootstrap analogue of the original p-value (ie no uncertainty in MMR)
2. Triangular Correction: Resamples from the MMR uncertainty range from the WHO data (80% coverage) with a triangular distribution whose minimum and maximum are at the end points of the uncertainty range, and whose center is at the estimate

3. Triangular Correction by Country: Resamples as above, however now instead of taking uncertainty draws by country and year, takes uncertainty draws only at the level of the country. This implies that uncertainty with regards to MMR is perfectly correlated within a country over time. It is the limit case of assuming correlation within a country in uncertainty in MMR measurement.

4. Normal Correction: Resamples from the MMR uncertainty range assuming a normal distribution, where draws are taken so that the $10^{th}/90^{th}$ quintile of the normal are at the upper and lower end points of the uncertainty range presented in the WHO data in each case. This allows for us to sample outside the 80% confidence bounds presented in the original data, and will be the most demanding of all corrections.

5. Normal Correction by Country: Resamples as above, however now instead of taking uncertainty draws by country and year, takes uncertainty draws only at the level of the country.

In results documented in Table A7 we first provide p-values associated with a standard clustered bootstrap prior to taking into account uncertainty in MMR measurements. Next we provide two sets of bootstrapped p-values computed assuming either a triangular distribution or a normal distribution for MMR uncertainty intervals. While the end points of the triangular distribution are at the ends of the uncertainty interval, the normal distribution provides coverage outside of the 80% UI. In each of the two types of distributions we allow for the possibility of either assuming full correlation in uncertainty by country or not. The corrections by country assume full correlation in uncertainty within a country over time. Where not by country, the estimator assumes no correlation within a country over time. The triangular corrections re-sample from MMR so that coverage respects the full 80% uncertainty interval suggested by the MMEIG. The normal corrections re-sample so that 80% of re-samples fall within the 80% uncertainty interval reported by the MMEIG. Both of these inference procedures are implemented assuming no correlation by country, and then assuming full correlation in uncertainty by country.