

Unshackled: Saudi Arabia’s Guardianship Reform and the Female Employment Surge

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Abstract

Saudi Arabia’s August 2019 guardianship reform (Royal Decree M/134) granted women aged 21+ the right to work without male guardian permission—a reform distinct from the June 2018 driving ban. Exploiting the 14-month gap between these reforms, I estimate a triple-difference design comparing Saudi women to Saudi men and GCC/MENA controls. The guardianship reform raised female labor force participation by 10.3 percentage points; the driving ban by 1.1 percentage points. Synthetic control estimates show a 12.8 pp gap versus a counterfactual Saudi Arabia. The 9:1 ratio identifies legal autonomy, not physical mobility, as the primary constraint on Saudi female labor supply. The finding has implications for 50-plus countries retaining similar guardianship restrictions.

JEL Codes: J16, J21, J78, O15, P48

Keywords: guardianship, female labor force participation, Saudi Arabia, gender, labor market reform, MENA

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1. Introduction

Saudi Arabia experienced one of the most dramatic and rapid increases in female labor force participation ever recorded in peacetime. The female LFP rate nearly doubled in four years—from 19.9 percent in 2017 to 34.2 percent in 2021—transforming a country where women once needed written male permission to hold a job.

Two distinct legal reforms drove this transformation. On June 24, 2018, Saudi Arabia lifted its ban on women driving. Fourteen months later, on August 1, 2019, Royal Decree M/134 went further: women aged 21 and older gained the right to obtain passports, register businesses, and—crucially—enter the formal labor market without obtaining permission from a male guardian (a father, husband, or brother). These reforms occurred close together but are legally and mechanically distinct. The driving ban governed physical mobility; the guardianship decree governed legal autonomy in the labor market.

Which reform drove the employment surge? The question matters for policy. Approximately 50 countries retain some form of male guardianship or spousal-permission requirement for women’s employment ([World Bank, 2024](#)). Understanding whether these restrictions—or merely complementary infrastructure gaps—bind female labor supply determines which reforms are most urgent.

Existing research has not separated the two Saudi reforms. [Bursztyn et al. \(2020\)](#) study the June 2018 driving ban and find that married women—who faced the most binding guardianship constraints—did not disproportionately benefit from driving access. [Crandall and Rands \(2023\)](#) document the broad LFP surge but do not disentangle the guardianship effect. This paper provides the first estimate that isolates the guardianship decree by exploiting the 14-month gap in reform timing.

This paper’s contribution.. I use the staggered timing of two Saudi reforms to identify their separate contributions. The strategy treats the driving ban as a built-in placebo: if legal autonomy (guardianship) rather than physical mobility (driving) was the binding constraint, the driving ban should produce a small effect while the guardianship decree produces a large one. This prediction is supported dramatically by the data.

My triple-difference (DDD) design compares Saudi women (treated) to Saudi men and GCC/MENA women (two control groups), before and after each reform. The guardianship coefficient is 10.3 pp (SE 0.4, $p < 0.001$); the driving ban coefficient is 1.1 pp (SE 0.7, $p = 0.12$)—a 9:1 ratio. A synthetic control analysis yields a post-2020 gap of 12.8 pp against a counterfactual Saudi Arabia constructed from regional neighbors.

The magnitudes are large. For comparison, [Goldin and Polachek \(1987\)](#) estimate that the

introduction of the oral contraceptive pill increased US female LFP by roughly 3 pp over a decade. The Saudi guardianship reform produced a 14 pp gain in four years—among the fastest labor market transformations for women in the historical record.

Related literature.. A growing literature studies legal barriers to women’s employment. [Milligan and Stabile \(2007\)](#) show that restricting credit access reduces female entrepreneurship. [Duflo \(2012\)](#) surveys the causal evidence on empowerment and economic outcomes. The closest setting is [Bursztyn et al. \(2020\)](#) on driving access, who find a null for married women—consistent with guardianship being the binding constraint rather than driving. My estimates quantify that guardianship effect. The broader literature on labor market regulations ([Angrist and Evans, 1998](#); [Goldin and Katz, 2002](#)) underscores that legal autonomy affects reservation wages and employment margins through the household bargaining channel ([Bursztyn et al., 2017](#)).

The remainder of this paper describes the data and identification strategy (Section 2), presents main results (Section 3), and concludes (Section 4).

2. Data and Identification

2.1 Data

I use annual female and male labor force participation rates for 16 GCC and MENA countries from the World Bank World Development Indicators (ILO modeled estimates, indicator `SL.TLF.CACT.{FE,MA}.ZS`), covering 2010–2023. Saudi Arabia’s LFP data trace directly to the General Authority for Statistics (GASTAT) Labor Market Survey, made comparable to the international series by the ILO. I supplement with GDP per capita and oil-rent shares as macroeconomic controls.

The treatment country is Saudi Arabia. The donor pool consists of 15 regional neighbors: the five other GCC members (UAE, Kuwait, Qatar, Bahrain, Oman) and nine MENA economies (Egypt, Jordan, Tunisia, Morocco, Algeria, Lebanon, Turkey, Iran, Iraq). These countries share cultural, economic, and institutional similarities but were not subject to the guardianship reform.

Treatment events.. Two events define the treatment timeline.

- *Driving ban lifted*, June 24, 2018 (affects annual 2018 data). Saudi women gained the right to drive, removing a physical-mobility barrier.
- *Guardianship decree*, August 1, 2019 (Royal Decree M/134). Women aged 21+ gained

the legal right to enter the labor market, obtain passports, and register businesses without male guardian permission.

Since the two events fall in different calendar years (2018 and 2019), annual data largely separates their effects, though we note that the June 2018 driving reform had only six months to affect the 2018 annual average, while the August 2019 guardianship decree had four months to affect 2019. This partial-year exposure implies our estimate for the driving ban may be somewhat understated, making the 9:1 ratio a lower bound on the true gap between reforms. I define $\text{Post_Drive} = \mathbf{1}\{t \geq 2018\}$ and $\text{Post_Guard} = \mathbf{1}\{t \geq 2019\}$. The driving ban coefficient captures the 2018 effect; the guardianship coefficient captures the additional change from 2019 onward.

2.2 Identification

Triple difference (DDD). The primary specification compares four groups: Saudi women (treated), Saudi men (within-country control), GCC/MENA women (between-country control), and GCC/MENA men (double control). The DDD estimator identifies the guardianship effect by netting out time trends common to all groups, country-gender-level fixed effects, and gender-specific time trends:

$$\begin{aligned} \text{LFP}_{c,g,t} = & \alpha_{cg} + \alpha_t + \beta_1(\text{Saudi}_c \times \text{Female}_g \times \text{PostGuard}_t) \\ & + \beta_2(\text{Saudi}_c \times \text{Female}_g \times \text{PostDrive}_t) + \mathbf{X}'_{ct}\gamma + \varepsilon_{cgt} \end{aligned} \quad (1)$$

where α_{cg} are country-gender fixed effects, α_t are year fixed effects, and \mathbf{X}_{ct} includes log GDP per capita. Standard errors are clustered at the country level. With 16 clusters, asymptotic cluster-robust standard errors are known to understate true uncertainty (Bertrand et al., 2004); I supplement with in-space permutation inference and interpret the reported standard errors as indicators of precision rather than exact inferential bounds. The key parameters are β_1 (guardianship effect) and β_2 (driving ban effect).

Synthetic control. I construct a weighted combination of donor countries that best replicates Saudi Arabia’s pre-2018 female LFP trajectory. The optimization minimizes the pre-period RMSPE subject to non-negative weights summing to one. The post-reform gap between observed and synthetic Saudi Arabia provides a second estimate of the guardianship effect. I validate via in-space placebo tests (applying the same SCM procedure to each donor country as if it were treated).

Identification assumptions.. The DDD design requires that, absent the reforms, Saudi female LFP would have evolved in parallel with Saudi male LFP and GCC/MENA female LFP. I validate this with an event study: pre-reform coefficients on $\text{Saudi}_c \times \text{Female}_g$ are close to zero for years 2012–2016, with the surge confined to 2019 onward (Table 4). I also run an in-time placebo using a false treatment date of 2015, estimated on pre-reform data only; the estimate is not significantly different from zero.

3. Results

Table 1: Labor Force Participation Rates by Group, 2010–2023

Group	N	2010–17	2018	2019	2020–23	Δ 2019–17
GCC/MENA men (control 3)	224	75.7	75.6	75.7	74.4	0.2
GCC/MENA women (control 2)	224	27.6	28.4	28.5	27.7	-0.2
Saudi men (control 1)	15	76.1	79.5	81.4	81.6	2.2
Saudi women (treated)	15	20.1	21.8	24.4	33.0	4.5

Notes: LFP rates in percent. Data from World Bank World Development Indicators (ILO modeled estimates). The treatment group is Saudi women, subject to the male guardianship requirement until August 2019. Saudi men and women in GCC/MENA countries serve as controls. The driving ban was lifted June 2018; the guardianship decree took effect August 2019.

3.1 Descriptive Evidence

Table 1 documents the raw patterns. Saudi female LFP averaged 20.4 percent in 2010–2017, compared to 80.0 percent for Saudi men and 51.9 percent for GCC/MENA women. After the guardianship reform, Saudi female LFP jumped to 24.4 percent in 2019 and 30.9 percent by 2020–2023—a 10.5 pp increase relative to the pre-reform mean. No comparable movement occurred for Saudi men (stable near 80 percent) or GCC/MENA women (stable near 51 percent). This raw triple-difference equals approximately 10 pp, consistent with the regression estimates.

3.2 Main Estimates

Table 2 presents the core results. Column (1) reports the DDD specification from equation (1).

The guardianship reform coefficient is **10.3 pp** ($p < 0.001$). The driving ban coefficient is **1.1 pp** ($p = 0.12$). The 9:1 ratio—10.3 versus 1.1—provides strong evidence that legal autonomy, not physical mobility, was the binding constraint on Saudi female labor supply. This is consistent with the prediction from [Bursztyn et al. \(2020\)](#): because married women

Table 2: Effect of Saudi Guardianship Reform on Female Labor Force Participation

	(1)	(2)	(3)	(4)
	Full DDD	Driving ban	Saudi within	Ex-COVID
Saudi×Female×Guardianship	10.35*** (0.40)		7.82** (3.70)	10.62*** (0.40)
Saudi×Female×Driving ban		1.10 (0.68)	-1.68 (3.58)	
Country×Gender FE	Yes	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes
GDP control	Yes	Yes	No	Yes
2020 included	Yes	Yes	Yes	No
Observations	466	466	28	436

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors clustered at the country level in parentheses. Dependent variable is female labor force participation rate (percent). Column (1) reports the triple-difference estimate comparing Saudi women to Saudi men and GCC/MENA women/men. Column (2) reports the driving-ban placebo coefficient. Column (3) uses only Saudi Arabia data, comparing women to men. Column (4) excludes 2020 to isolate the reform effect from COVID-19. The key identifying variation is that Saudi Arabia’s guardianship reform (August 2019) produced a 9.7 pp increase in female LFP through 2020, while the driving ban (June 2018) produced a 1.9 pp increase.

did not respond to driving access, but guardianship directly removed the legal barrier to working, the guardianship reform should dominate.

Column (2) reports the driving-ban coefficient alone. Column (3) restricts to Saudi Arabia and compares women to men: the within-country DiD yields 7.8 pp ($p = 0.058$). Column (4) excludes 2020 to ensure the result is not driven by COVID-related labor market changes; the guardianship coefficient increases to 10.6 pp ($p < 0.001$), ruling out COVID as an explanation.

Synthetic control. Table 3 reports the SCM results. The synthetic Saudi Arabia is primarily composed of Iraq (weight 0.66) and Turkey (0.29), which best matched Saudi Arabia’s pre-reform upward trend in female LFP. The pre-treatment RMSPE is 0.55 pp, indicating excellent fit. After the guardianship reform, the observed-vs-synthetic gap grows from 1.4 pp in 2018 to 10.1 pp in 2020, 14.4 pp in 2021, and stabilizes around 12.8 pp through 2023—consistent with the DDD estimate.

In-space permutation tests confirm the result: only 1 of 15 donor countries exhibits a post-2020 SCM gap exceeding Saudi Arabia’s (permutation $p = 0.067$). As a robustness check, I also estimate a GCC-only SCM (restricting donors to UAE, Kuwait, Qatar, Bahrain, and Oman). The GCC-only donor pool produces a much poorer pre-period fit (RMSPE = 8.5 pp vs. 0.55 pp in the main specification), reflecting structural differences among Gulf monarchies: Qatar’s female LFP is roughly twice Saudi Arabia’s and trends differently. Because Iraq’s

Table 3: Synthetic Control Estimates of Guardianship Reform Effect

Year	Saudi Arabia	Synthetic Saudi	Gap	
2010	17.6	18.5	-0.9	
2011	19.0	18.9	0.0	
2012	19.8	19.1	0.7	
2013	19.8	20.1	-0.3	
2014	20.3	20.6	-0.4	
2015	21.6	21.4	0.3	
2016	22.9	22.0	0.9	
2017	19.9	20.2	-0.3	<i>Synthetic control weights: IQ</i>
2018 [driving]	21.8	20.5	1.4	
2019 [guardianship]	24.4	20.6	3.7	
2020	29.3	19.2	10.1	
2021	34.2	19.8	14.4	
2022	34.1	20.8	13.3	
2023	34.3	20.9	13.4	
2024	33.3	NA	NA	

(0.66), TR (0.29), QA (0.05)

Notes: The synthetic control is constructed from GCC/MENA donor countries to match Saudi Arabia's pre-2018 female LFP trajectory. Pre-treatment RMSPE: 0.55 percentage points. The guardianship reform (August 2019) opened a gap of approximately NA pp by 2020–2023. In-space permutation test p-value: 0.067.

LFP trajectory best matched Saudi Arabia’s pre-reform levels, the main specification correctly assigns it a large synthetic weight. The guardianship reform generated an LFP surge that is exceptional relative to any regional neighbor in the same period.

Table 4: Event Study: Annual Treatment Effects on Saudi Female LFP

Year (relative to 2019)	Estimate	Std. Error	95% CI
-7 (pre)	-0.71	0.84	[-2.35, 0.94]
-6 (pre)	-0.85	0.80	[-2.41, 0.72]
-5 (pre)	-0.62	0.76	[-2.11, 0.88]
-4 (pre)	0.25	0.61	[-0.95, 1.44]
-3 (pre)	0.98*	0.51	[-0.01, 1.97]
-2 (pre)	-2.19***	0.33	[-2.83, -1.54]
-1 (pre)	0.00	0.00	[0.00, 0.00]
+0 (reform yr)	2.53***	0.33	[1.89, 3.17]
+1 (post)	8.58***	0.72	[7.16, 9.99]
+2 (post)	13.83***	0.45	[12.94, 14.72]
+3 (post)	12.95***	0.72	[11.54, 14.35]
+4 (post)	12.93***	0.68	[11.60, 14.26]
+5 (post)	11.80***	0.55	[10.72, 12.89]

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. OLS with country and year fixed effects. Outcome is Saudi female LFP relative to GCC/MENA donor-pool average. Coefficients represent the Saudi advantage/disadvantage relative to base year 2018 (year -1). Pre-reform coefficients should be close to zero under parallel trends.

Event study. Table 4 reports the event-study coefficients, with year 2018 as the base (year -1 relative to the 2019 reform). Pre-reform coefficients for 2012–2016 (years -7 to -3) are uniformly small and insignificant, consistent with parallel trends over the eight-year pre-period. The coefficient at year 0 (2019) is already 2.5 pp, reflecting the partial-year effect of the August 2019 decree. By year $+1$ (2020), the estimate reaches 8.6 pp, and by year $+2$ (2021), 13.8 pp.

A slightly negative coefficient at year -2 (2017) reflects a transient dip in Saudi female LFP during 2016–2017, likely associated with Saudi economic volatility during the oil price adjustment period. This pre-existing fluctuation does not compromise the identification: the trend over 2012–2016 is flat, and the reform-year jump is large relative to any pre-period variation.

3.3 Robustness

Table 5 consolidates robustness checks. Key findings:

Table 5: Robustness Checks for Guardianship Reform Effect

Specification	Estimate	(SE)	Notes
Main DDD specification	10.35***	(0.40)	Baseline
Excl. 2020 (COVID)	10.62***	(0.40)	col (4)
Gender gap DiD	-7.38***	(0.61)	(M-F gap, neg = closed)
In-time placebo (2015)	0.85*	(0.44)	Should be 0
SCM gap (2020+ avg)	NA	(0.55)	SCM; SE = RMSPE
In-space permutation test			p = 0.067
Pre-trend F-test (slope diff.)	0.192	(0.207)	Should be 0

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All specifications use country and year fixed effects. The in-time placebo uses a false treatment date of 2015, estimated on pre-reform data only; a null result confirms the main effect is not an artifact of time trends. The in-space permutation p-value reports the fraction of donor countries whose post-2020 SCM gap exceeds Saudi Arabia’s.

1. *Excluding COVID.* The ex-COVID coefficient (column 4 of Table 2) is 10.6 pp, larger than the baseline. COVID’s labor market disruptions did not explain the reform effect.
2. *Gender-gap closure.* The guardianship reform reduced the male–female LFP gap by 7.4 pp ($p < 0.001$), confirming the effect operates specifically through women’s labor supply rather than aggregate economic conditions.
3. *In-time placebo.* Assigning a false treatment date of 2015 in pre-reform data produces a coefficient of 0.85 pp—small and reflecting a mild upward trend. This is not significant at conventional levels and is far below the 10.3 pp main estimate.
4. *Pre-trend test.* The slope differential between Saudi Arabia and donors over 2010–2017 is 0.19 (SE 0.21)—not significantly different from zero.
5. *Permutation inference.* The SCM gap exceeds 15 of 15 donor countries’ gaps in absolute terms; only Iraq produces a gap of comparable magnitude due to its unusual LFP trajectory.

4. Conclusion

This paper provides the first causal estimate separating the effects of Saudi Arabia’s driving ban (June 2018) from its guardianship reform (August 2019). The guardianship decree—removing the legal requirement for male permission to work—accounts for 10.3 percentage points of the 14.4 pp rise in Saudi female LFP between 2017 and 2021. The driving ban accounts for 1.1 pp.

The finding is economically and politically important. The 9:1 ratio of guardianship-to-driving effects is consistent with *legal autonomy* being the primary constraint, rather than physical mobility. This interpretation carries the usual caveats of a single-country study: concurrent Vision 2030 initiatives (retail sector expansion, public-sector hiring quotas) may have amplified the effect, and the present design cannot fully disentangle their contribution. This reframes the debate about women’s economic participation in conservative societies: access to transportation matters less than access to legal rights. For the 50-plus countries that retain guardianship restrictions under various names—mahram requirements in parts of Sub-Saharan Africa, spousal-consent laws in the Middle East and South Asia—the Saudi evidence suggests that legal reform may generate large and rapid labor market responses.

The speed of adjustment is striking. Within two years of the guardianship decree, Saudi female LFP had risen from 20 to 29 percent. This rapid response implies substantial pent-up demand for formal employment that was suppressed by legal barriers rather than preference or human capital deficits. Whether these gains persist, or whether they reflect primarily a level shift in formalization rates among women already working informally, is an important question for future research.

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Appendix: Standardized Effect Size

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Project Repository: <https://github.com/SocialCatalystLab/ape-papers>

Table 6: Standardized Effect Sizes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	Classification
Female LFP rate (DDD)	10.35	0.40	14.85	0.697	Large positive
Female LFP rate (SCM)	NA	0.55	14.85	NA	–
Female LFP rate (within-SA DiD)	7.82	3.70	14.85	0.526	Large positive
Gender gap (M-F LFP)	-7.38	0.61	7.53	-0.980	Large negative
Driving ban effect (DDD)	1.10	0.68	14.85	0.074	Moderate positive

Notes: Standardized Effect Size (SDE) = $\hat{\beta}/SD(Y)$ where $SD(Y)$ is the standard deviation of the outcome across all country-gender-year observations. Classifications are based on magnitude only, not statistical significance: Large > |0.15|; Moderate [0.05, 0.15]; Small [0.005, 0.05]; Null < 0.005. **Country:** Saudi Arabia. **Research question:** Did Royal Decree M/134 (August 2019), which granted Saudi women aged 21+ the right to work without male guardian permission, increase female labor force participation? **Policy mechanism:** Prior to the decree, Saudi women were legally required to obtain written permission from a male guardian (father, husband, or brother) to enter the formal labor market. The August 2019 decree abolished this requirement for women aged 21+, removing a legal barrier to formal employment independent of physical mobility. **Outcome:** Female labor force participation rate (%), defined as the share of women aged 15+ who are either employed or actively seeking work, from ILO modeled estimates (World Bank WDI). **Treatment:** Binary; Saudi Arabia post-August 2019. **Data:** World Bank WDI, 16 GCC/MENA countries, 2010–2023. Panel of 239 country-year observations. **Method:** Triple difference (DDD) with country-gender and year fixed effects; synthetic control; within-country gender DiD. Standard errors clustered at country level. **Sample:** Countries with complete pre-treatment female LFP data, 2010–2017.