Supplementary Materials for
Ministries matter: Technocrats and regime loyalty under autocracy

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Contents

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A1 Context: Ministry Affiliations during the 2011-2016 Term

In Table A1, I report the partisan affiliations (or lack thereof) for members of the two cabinets that existed during the 2011-2016 parliamentary term. The first cabinet was formed following the November parliamentary elections and took office as of the beginning of the parliamentary term in January 2012. Following the withdrawal of the Istiqlal party from the governing coalition in mid-2013, a new coalition formed with the National Rally of Independents replacing Istiqlal. The original cabinet was dissolved, and the new cabinet took office on October 10, 2013. In the 2013 cabinet, the total number of Delegate-Ministries was increased, so some offices did not exist during the lifetime of the 2011 cabinet.

Nearly all regime appointees historically and during the 2011 term meet technocrat criteria (McDonnell and Valbruzzi, 2014) and are labeled as technocrats in the table. For example, Rachid Belmokhtar, the Minister of National Education from October 10, 2013 through the remainder of the 2011 term, is a trained engineer and former university president and has never held a public party membership. He was appointed to the same post on one prior occasion from 1995-1998. Other technocrat ministers during this term include career civil servants, engineers, and historians, generally with post-graduate degrees and industry experience. There were, however, two exceptions – regime appointees that had prior partisan affiliations but which were not active during their ministerial appointment. These individuals are designated as 'non-partisan,' as they have a partisan history excluding them from the technocrat category (but are not part of the partisan governing coalition). For interpretive clarity, I exclude these ministers from the main analysis, though results are consistent when they are included.

Ministry	Affiliation 2011-2013	Affiliation 2013-2016
Agriculture	Non-partisan[a]	Non-partisan
Communication	Party of Justice and Development (PJD)[b]	PJD
Culture	Party of Progress and Socialism (PPS)[c]	PPS
Economy and Finance	Istiqlal (PI)[d]	National Rally of Independents (RNI)[e]
Economy (delegate-ministry)	PJD	PJD
Employment	PPS	PPS
Energy	PI	PJD
Energy: Environment (delegate-ministry)	—	MP
Energy: Water (delegate-ministry)	—	PPS
Foreign Affairs	PJD	RNI
General Secretary	Technocrat	Technocrat
Health	PPS	PPS
Higher Education	PJD	PJD
Housing and Urbanism	PPS	PPS
Industry	PJD	RNI
Interior	Popular Movement (MP)[f]	Technocrat
Interior (delegate-ministry)	Technocrat	Technocrat
Islamic Affairs	Technocrat	Technocrat
Justice	PJD	PJD
Moroccans Abroad	PI	RNI
National Education	PI	Technocrat
National Education (delegate-ministry)	—	MP
Parliamentary Relations	PJD	PJD
Prime Minister	PJD	PJD
Prime Minister: Civil Service (delegate-ministry)	MP	MP
Prime Minister: Defense (delegate-ministry)	Technocrat	Technocrat
Prime Minister: Public Affairs (delegate-ministry)	PJD	Non-partisan[g]
Tourism	MP	MP
Traditional Craft	PI	RNI
Transportation	PJD	PJD
Women and the Family	PJD	PJD
Youth and Sports	MP	MP

[a]Led throughout the 2011 term by Aziz Akhannouch, a businessman and former member of RNI, a royalist party. He left the party to take this appointment and rejoined it in October 2016, after the end of the term.

[b]Islamist-oriented opposition party; won a plurality of votes in the 2011 and 2016 legislative elections.

[c]Leftist opposition party founded in 1974.

[d]Historical opposition party that today has a center-right ideology.

[e]Royalist party formed in 1978 by a coalition of palace-friendly individual politicians.

[f]Royalist party founded in 1958 with a rural, Amazigh (Berber) orientation.

[g]Led after 2013 by Mohamed Louafa, a former member of the Istiqlal party and previously Minister of National Education who resigned from Istiqlal rather than leave the government in 2013.

Table A1: Partisan affiliations of cabinet ministers during the 2011-2016 term.

A2 Data: Summary Statistics

This section presents summary statistics from the full dataset as well as for the subset used in the difference-in-differences specifications in Table 2. I also describe control variables used in the specifications reported. Statistics are shown in Table A2. Of the 27,196 queries submitted, exactly one was missing a ministry designation and eight were missing information on the MPs that submitted them. I exclude the former from all analyses and the latter from analyses including MP characteristics. Additionally, 68 queries (0.3%) had a reply date that was entered incorrectly such that it preceded the date of submission; I drop these from analyses using time to response outcomes.

The DiD subset drops queries submitted to ministries that were held by technocrats throughout the entirety of the 2011-2016 term (i.e. were treated in both the first and second periods – see Table A1). This subset generates a comparison in response rates between ministries that switched from partisan to technocrat and those that remained partisan in both periods. A query submitted to the General Secretary would be excluded, because that ministry was held by a technocrat in both cabinets formed. A query submitted to the Ministry of Communication would be included, as it was held by the PJD during both cabinet terms.

Control Variables

In specifications with controls (Tables 1, 2, and A7), I include measures for question timing, content, and characteristics of the submitting MPs. Responsiveness declined over the course of the term, so timing includes *Year*, the year of submission, as well as *Late*: whether the query was submitted within 144 days of the cabinet cutoff date (the median response time among queries that were answered).

Ministry attributes address the strategic importance of a particular bureaucratic profile as well as the size of the profile (defined as receiving a larger-than-median number of queries). *Ministry of sovereignty* (Sater, 2003) includes the ministries of the interior, foreign affairs, justice, and Islamic affairs. *Large ministry* includes craft, economy, employment, energy, health, housing, industry, interior, islamic affairs, justice, national education, prime minister, transportation, women and family, and youth and sports.

I expect that some of the complexity and costs associated with answering a query can be captured by examining its subject and the degree to which it address individual, local, or broader issues. I therefore create variables describing the content of a given query. *Georef-*

erence identifies whether a query references any geographic division in Morocco, including municipalities, provinces, prefectures, and regions. *Casework* identifies whether a query addresses an issue on behalf of an individual constituent.[1] I also control for the number of words in the query. *Critical* identifies queries that use critical or confrontational language (referring to a problem, issue, violation, or grievance) or address a sensitive issue (including protest, corruption, crime or illegal activity, and human rights).

Ministry responsiveness may also vary based on the characteristics of the individual(s) that submitted a given query. I therefore code a range of attributes about the asker(s) of each query. Senior party members are likely to have more connections and hold more influence within government ministries; *Leader* indicates whether a query was signed by a committee chair or vice chair (positions reserved for party leaders and senior members). I also code *National list*, which identifies whether the submitting deputies were elected via the national list, a set of seats reserved for female and youth candidates that lack direct geographic constituencies.[2]

Finally, I code *Aligned*, a measure of whether the submitting deputy and minister shared a partisan affiliation. This is employed in a robustness check (Section A8) to validate that the negative effect of *Technocrat* is not driven by co-partisan bias.

Variable	Min	Max	Full Dataset (n = 27188)		DiD Subset (n = 24618)	
			Mean	SD	Mean	SD
Received Response	0	1	0.624	0.484	0.622	0.485
Technocrat	0	1	0.218	0.413	0.207	0.405
Year	2012	2016	2013.994	1.097	2013.991	1.097
Late	0	1	0.111	0.314	0.112	0.315
2012 Cabinet	0	1	0.224	0.417	0.225	0.418
Ministry of Sovereignty	0	1	0.214	0.410	0.206	0.405
Large ministry	0	1	0.900	0.300	0.905	0.293
Georeference	0	1	0.765	0.424	0.764	0.425
Casework	0	1	0.033	0.179	0.035	0.183
Critical	0	1	0.044	0.205	0.047	0.211
Asker: Aligned	0	1	0.133	0.339	0.147	0.354
Asker: Leader	0	1	0.194	0.395	0.195	0.396
Asker: National List	0	1	0.124	0.329	0.124	0.330

Table A2: Summary statistics. Table shows summary statistics for the full dataset as well as the subset used for DiD analysis.

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[1]Casework-focused queries are coded based on individual references. For example: "Request to recover the taxi license in Tangier for Ms. X in Rabat."

[2]In addition to lacking a direct electoral constituency, national list deputies are typically less experienced politicians serving their first term in parliament.

Exact Matching: Summary Statistics

Table A3 reports summary statistics for the treatment group as well as the weighted control group from the matched dataset used for the analysis in Table 1. Exact matching preserves all treated observations with analogues in control and vice versa. Note that under exact matching, the treatment and weighted control groups are perfectly balanced on matching covariates, hence the lack of differentiation between the two categories. The only variable without balance is the post-treatment outcome (Received Response), with a difference corresponding to that reported in Table 1.

	Means Treated (n = 5542)	Weighted Means Control (n = 13835)	Diff. in Means
Received Response	0.469	0.787	-0.318
Year: 2012	0.02	0.02	-0.00
Year: 2013	0.10	0.10	-0.00
Year: 2014	0.54	0.54	-0.00
Year: 2015	0.24	0.24	-0.00
Year: 2016	0.10	0.10	-0.00
Late	0.06	0.06	-0.00
2012 Cabinet	0.04	0.04	-0.00
Ministry of Sovereignty	0.57	0.57	-0.00
Large ministry	0.98	0.98	-0.00
Georeference	0.80	0.80	0.00
Casework	0.04	0.04	-0.00
Critical	0.03	0.03	-0.00
Asker: leader	0.19	0.19	-0.00
Asker: national list	0.11	0.11	-0.00
Party: Other	0.01	0.01	-0.00
Party: MP	0.02	0.02	-0.00
Party: PAM	0.01	0.01	-0.00
Party: PI	0.04	0.04	-0.00
Party: PJD	0.44	0.44	-0.00
Party: PPS	0.00	0.00	-0.00
Party: RNI	0.00	0.00	-0.00
Party: UC	0.00	0.00	-0.00
Party: USFP	0.47	0.47	-0.00

Table A3: Exact matching - summary statistics. Table shows summary statistics for treated observations as well as the weighted control group for the analysis in Table 1.

A3 Approach: Difference-in-Differences Identifying Assumptions

In this section, I present evidence in support of the parallel trends assumption (Abadie, 2005) underlying the DiD approach. I conduct this analysis on the DiD subset used in the main text, which I refer to here as Sample A, as well as on a further restricted subset analyzed as a robustness check, which I refer to as Sample B (see Appendix A6 for discussion of how this was constructed).

I test for parallel trends by plotting monthly averages in response rates among treated and untreated queries leading up to the cabinet reshuffle and find substantial similarity across categories. Figure A1 plots average response rates, grouped by the month in which a query was submitted and by whether or not it was submitted to a treated ministry for each of the two samples. I include averages for both the primary response rate used in analyses ('response by cabinet enddate') as well as a measure of whether a response was recorded at any point.[3] Trendlines are included for the period before and after the cabinet reshuffle.

The plots suggest that treated and untreated queries experienced highly similar response rates in the months leading up to the change in cabinet membership: trendlines are largely overlapping and follow similar trajectories, especially for the response by cabinet enddate outcome.[4] This supports the assumption of parallel trends leading up to the treatment. Following the cabinet change (i.e. administration of treatment for queries assigned to the treated ministries), the outcomes diverge substantially, consistent with the τ estimated in the main text (Table 2).

As a secondary check, I examine trends in query submission before and after the cabinet reshuffle in order to assess whether the data generating process differed following treatment. This addresses the concern that deputies might behave differently when a ministry is led by a technocrat figurehead. Figure A2 plots the proportion of queries submitted to treated ministries in a given month for Samples A and B, both before and after the assignment of technocrat ministers to treated ministries. The data suggest that submission rates to treated and untreated ministries did not systematically change before and after treatment:

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[3]For queries submitted after October 10, 2013 - the date of the cabinet reshuffle - these outcomes are identical.

[4]Note that the decline in responsiveness for queries submitted near the end of a cabinet period (whether mid- or end of term) is likely due to the reduced time the ministry has to address a query. As noted, the median response time was 144 days – hence a query submitted fewer than six months before cabinet dissolution was correspondingly less likely to be answered. It is for this reason that I am careful to include time controls throughout the analyses.

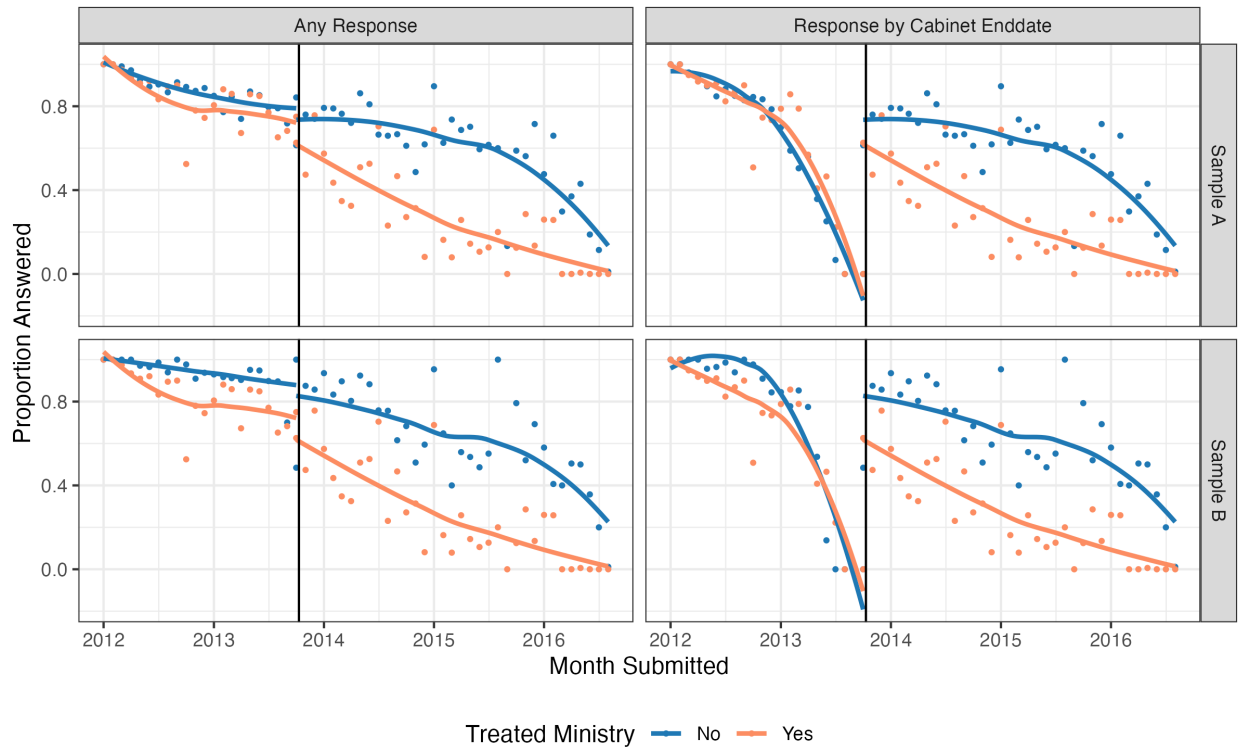Figure A1: Technocrat DiD – Parallel Trends. Figure shows response rates for queries submitted within a given month to treated and untreated ministries, before and after the cabinet reshuffle of 2013, indicated by points as well as a loess trendline. Vertical line indicates the date on which the new cabinet took office (when treatment occurred). Top and bottom panels depict trend data for Samples A and B, respectively.
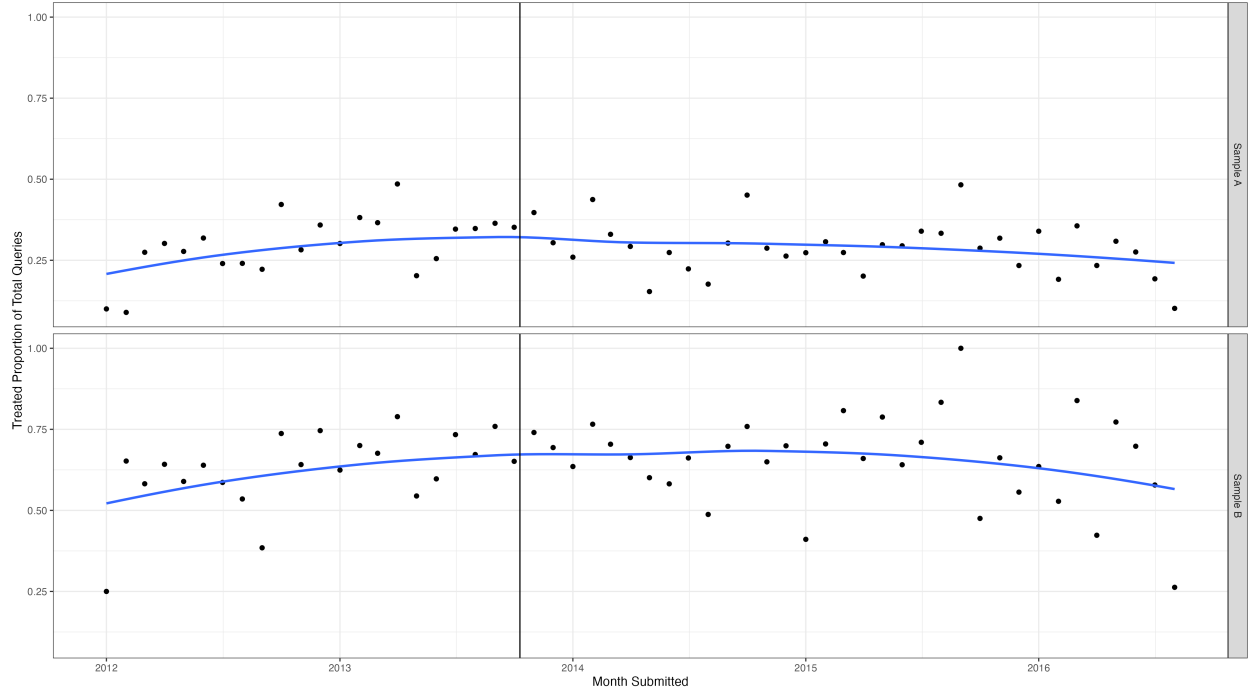
Figure A2: Technocrat DiD – Query Submission by Treatment Status. Figure shows the proportion of queries submitted to treated ministries, grouped by month, for Samples A (top panel) and B (bottom panel). Vertical line indicates the date on which the new cabinet took office (when treatment occurred).

the trendline is essentially flat throughout the parliamentary term, and there is no evidence that the switch to technocrat ministers produced a short or long-term change in the relative rate of query submissions. This indicates that submission rates to the treated ministries relative to untreated ministries were fairly constant across time.

Finally, I examine the content and structure of queries before and after the cabinet change to assess whether there was a shift in the *type* of queries posed to the new technocrat ministers. Figure A3 shows trends in query content and structure by treatment category over time. In particular, I consider the proportion of queries that explicitly address casework, regional issues, municipal (local) issues, and critical or sensitive topics. The patterns over time do not suggest a substantial shift in the type of queries submitted to treated ministries once technocrats took charge; in general, the trendlines between treated and untreated ministries are comparable over time. For example, treated ministries on average fielded more queries concerning municipal issues, but this remained consistent both before and after the cabinet reshuffle. Likewise, the proportion of critical queries submitted to treated versus untreated queries remained similar across cabinet periods. Overall, the patterns in query

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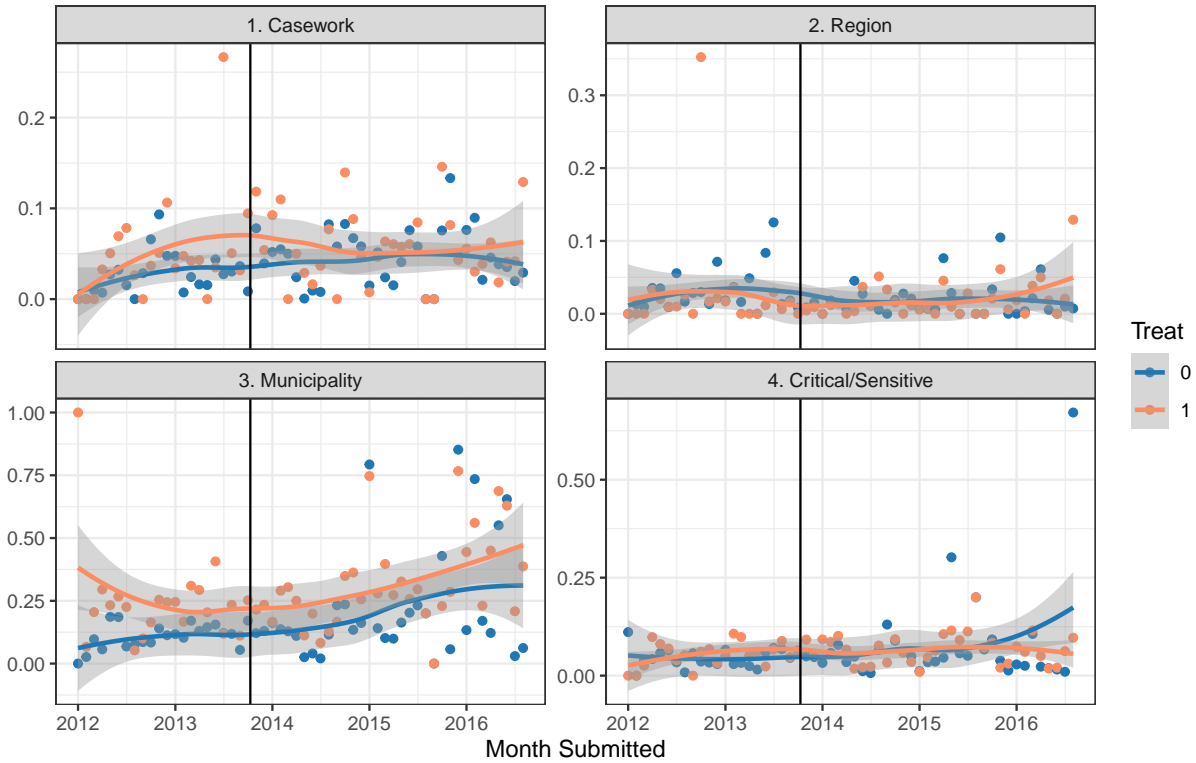
Figure A3: Technocrat DiD – Query Content by Treatment Status. Figure shows patterns in query submission for treated and untreated ministries, grouped by month. Panels 1-4 plot the proportion of queries with the indicated content. Loess lines depict trends by treatment category. Vertical line indicates the date on which the new cabinet took office (when treatment occurred).

submission (Figure A2) and content (Figure A3) do not provide evidence that the data generating process was altered as a result of treatment.

A4   Analysis: Full Regression Output

In Tables 1 and 2 in the main text, I report abbreviated regression results to conserve space. In Tables A4 and A5, I report the full regression output from the specifications described, including coefficients on controls.

Of interest is the fact that, in the DiD specification, the two treated ministers had similar response rates to untreated ministers preceding the cabinet reshuffle (the coefficient on *Treat* is -0.021). It is only after the appointment of technocrats to these ministries that response rates between treated and untreated diverged sharply.

	Dependent variable:					
	Received Response			Time to Response (Hazard)		
	(1)	(2)	(3)	(4)	(5)	(6)
Technocrat Minister	−0.318*	−0.318**	−0.326***	−0.986*	−1.039**	−1.293***
	(0.139)	(0.122)	(0.064)	(0.413)	(0.395)	(0.374)
Late in term		−0.277***	−0.270***		0.582	0.697
		(0.035)	(0.038)		(0.448)	(0.427)
2012 cabinet		−0.225	−0.213*		0.571	0.647
		(0.118)	(0.107)		(0.344)	(0.360)
Ministry of sovereignty		−0.006			0.023	
		(0.078)			(0.203)	
Large ministry		0.102			0.222	
		(0.110)			(0.301)	
Georeference		0.047*	0.043*		0.121*	0.126*
		(0.020)	(0.019)		(0.053)	(0.055)
Casework		0.055	0.074		0.328	0.471**
		(0.044)	(0.043)		(0.184)	(0.153)
Critical		−0.069***	−0.057***		−0.247***	−0.228***
		(0.011)	(0.013)		(0.043)	(0.058)
Asker - leader		−0.002	0.006		−0.124	−0.066
		(0.040)	(0.039)		(0.127)	(0.117)
Asker - national list		−0.083***	−0.079***		−0.202***	−0.212***
		(0.011)	(0.011)		(0.038)	(0.041)
Constant	0.787***	0.946***	0.846***			
	(0.030)	(0.194)	(0.172)			
IPW:	✓	✓	✓	✓	✓	✓
Year FE:		✓	✓		✓	✓
Party FE:		✓	✓		✓	✓
Ministry FE:			✓			✓
Model:	OLS	OLS	OLS	Cox PH	Cox PH	Cox PH
Observations	19,377	19,377	19,377	19,332	19,332	19,332
R^2	0.098	0.195	0.297	0.116	0.186	0.305

Note: * p<0.05; ** p<0.01; *** p<0.001

Table A4: Responsiveness – Matched Data, Full Results. Table presents results from OLS estimation of whether a query received a response (models 1-3) and Cox proportional hazards model of time-to-response (models 4-6) on technocrat treatment, with and without controls and ministry fixed effects. Models are estimated on datasets constructed using exact matching with inverse probability weights. Robust standard errors are clustered at the ministry-cabinet level.

	Dependent variable:			
	Received Response		Time to Response (Hazard)	
	(1)	(2)	(3)	(4)
Treat	−0.021	0.084	0.135	0.722
	(0.096)	(0.091)	(0.379)	(0.440)
Post	0.091*	−0.113**	−0.595***	−0.808***
	(0.046)	(0.043)	(0.096)	(0.115)
Late in term		−0.544***		−0.382
		(0.045)		(0.285)
Ministry of sovereignty		−0.190		−0.772
		(0.101)		(0.413)
Large ministry		0.130		0.290
		(0.084)		(0.302)
Georeference		0.059**		0.177**
		(0.020)		(0.065)
Casework		0.007		0.080
		(0.044)		(0.199)
Critical/sensitive		−0.025		0.049
		(0.020)		(0.056)
Asker - leader		0.010		−0.142
		(0.039)		(0.132)
Asker - national list		−0.042**		−0.055
		(0.014)		(0.049)
Treat x Post	−0.260***	−0.270***	−1.115***	−1.374***
	(0.076)	(0.041)	(0.113)	(0.249)
Constant	0.611***	0.667***		
	(0.030)	(0.070)		
Party FE:		✓		✓
Model:	OLS	OLS	Cox PH	Cox PH
Observations	24,618	24,618	24,618	24,618
R^2	0.051	0.251	0.136	0.191

Note: * p<0.05; ** p<0.01; *** p<0.001

Table A5: DiD specification, Full Results. Estimated treatment effects from DiD estimation, with and without controls. Models 1-3 represent OLS estimation using a binary indicator for response received; models 4-6 estimate a Cox proportional hazards model with a time-to-response outcome. Robust standard errors are clustered at the ministry level.

A5 Robustness: Matching Approach

In this section, I conduct a set of robustness checks aimed at exploring the consistency of the estimated *Technocrat* effect under different matching approaches.

Table A6 reports output from three robustness checks in which I vary the matching approach or the algorithm used in exact matching.

First, in models 1 and 2, I use nearest neighbor (propensity score) matching without replacement to match treated observations to individual control observations using the same set of covariates as in the exact matching analysis in the main text. Propensity score matching uses covariates to predict treatment assignment, and then pairs treatment and control observations based on having similar probabilities of assignment to treatment. Under this approach, the entire group of treated observations is preserved; the estimand should therefore be interpreted as the ATT. I estimate the ATT with and without covariate adjustment. The results are substantively in alignment with the results from exact matching: the *Technocrat* coefficient is negative and statistically significant in both models, though the magnitude is somewhat attenuated in the model with controls.

Next, in models 3 and 4, I use exact matching to group treated and control observations into blocks based on identical covariates. I use the same covariates as in the main text, with one exception: here I adopt a different measure of ministries' strategic importance to the regime (aka "ministries of sovereignty"). Rather than relying on scholarly conventional wisdom about the importance of a ministry, I look at the regime's track record in seeking to control it. I code ministries as important if the minister in charge was non-partisan in at least one cabinet within the last five terms, dating back to 1998. Under this coding, important ministries include the traditional ministries of sovereignty as well as the ministries of health, national education, culture, and the defense delegate-ministry. Including this measure in the exact matching algorithm reduces the total number of ministries represented in the matched sample (because ministries the regime did not prioritize, such as Youth and Sports, have no analogue in the treated category), but it offers a more empirically-driven interpretation of strategic importance of a profile. I estimate effects with stratification weights. The *Technocrat* coefficient estimated using this approach remains negative and significant and is even larger in magnitude (-43 percentage points) than the estimate in Table 1.

Finally, while exact matching is rigorous in achieving complete balance on matching covariates, it has the disadvantage of dropping observations without analogues in the alternative treatment group. In this case, because matching covariates are binary and because the overall dataset is very large, the matching algorithm used in the main text preserves a

	Dependent variable:					
	Received Response					
	(1)	(2)	(3)	(4)	(5)	(6)
Technocrat Minister	−0.318*	−0.177*	−0.432**	−0.432***	−0.310*	−0.310*
	(0.143)	(0.077)	(0.143)	(0.115)	(0.138)	(0.122)
Matching:	Nearest	Nearest	Exact Alt 1	Exact Alt 1	Exact Alt 2	Exact Alt 2
IPW:			✓	✓	✓	✓
Controls:		✓		✓		✓
Model:	OLS	OLS	OLS	OLS	OLS	OLS
Observations	11,858	11,858	10,186	10,186	21,207	21,207

Note: * p<0.05; ** p<0.01; *** p<0.001

Table A6: Matching Robustness. Estimated *Technocrat* effects using three different matching approaches: nearest neighbor matching (models 1 and 2), exact matching with an alternative metric of ministry strategic importance (models 3 and 4), and exact matching with a less restrictive covariate list (models 5 and 6). All models are estimated with and without controls. Robust standard errors are clustered at the ministry-cabinet level.

large percentage of the total dataset. Yet we may wonder if the dropped observations impact the resulting estimates. To address this, I conduct exact matching with a less restrictive list of covariates, dropping year and party FEs from the algorithm. This preserves nearly the entire treatment group (99% of observations) and a large majority (80%) of control. I then re-estimate effects using this larger dataset (models 5 and 6); coefficients are nearly unchanged in size and significance from those reported in the main text.

A6   Robustness: Difference-in-Differences Sample

I discuss the difference-in-differences approach in Section 2.2, including the sample restrictions I impose to reduce potential confounding. In this section, I address a possible exclusion restriction violation associated with the fact the the treated category (ministries that went from partisan to technocrat control in 2013) experienced a change in leadership in addition to the change in minister type.

To do this, I create a further restricted sample (referred to as Sample B in Figures A1 and A2) that includes only queries submitted to ministries that changed hands in the 2013 reshuffle. This excludes ministries that remained under the control of the same party throughout the 2011 term. This subset also excludes ministry posts that were created in the 2013 reshuffle, as they have no prior point of comparison.[5]

Results from estimating the difference-in-differences equation on this sample are shown in Table A7, with models 1 and 2 representing OLS estimation on whether or not a query received a response, and models 3 and 4 showing Cox proportional hazards estimation on time-to-response. Control variables are identical to those used in the main text. The estimates on *Treat x Post* bear out the results in the main text (Table 2): coefficients are similar in size and significance, with queries submitted to treated ministries around 19-25 percentage points less likely to receive a response. Likewise, the coefficients from the Cox models are negative and significant, again implying a slower response rate for ministries that became technocrat.

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[5]The newly created ministry posts were all delegate ministries (subsidiary posts to the primary minister in a given area), and included: two delegates to the Ministry of Energy, Mining, Water, and the Environment; one delegate to the Ministry of Equipment, Transport, and Logistics; one delegate to the Ministry of National Education and Vocational Training; and one delegate to the Ministry of Industry, Trade, Investment and Digital Economy. See Appendix Table A1.

	Dependent variable:			
	Received Response		Time to Response (Hazard)	
	(1)	(2)	(3)	(4)
Treat x Post	−0.242***	−0.250***	−1.070***	−1.619***
	(0.071)	(0.029)	(0.093)	(0.333)
Controls:		✓		✓
Model:	OLS	OLS	Cox PH	Cox PH
Observations	11,135	11,135	11,135	11,135

Table A7: Difference in differences specification – technocrat ministries, restricted sample. Table presents estimated treatment effects from estimation of the DiD equation, with and without ministry fixed effects and additional controls. Models 1-2 represent OLS estimation using a binary indicator for response received; models 3-4 estimate a Cox proportional hazards model with a time-to-response outcome. Standard errors are clustered at the ministry level.

A7 Robustness: Observational Analysis

In the main text, I analyze the effect of technocrat ministers on query response rates using DiD and exact matching techniques to address concerns about confounding. While the two approaches adopted are intended to enhance inference, it is also of interest to examine whether the "technocrat effect" holds across the full, unweighted dataset. Table A8 reports estimates from OLS and Cox proportional hazards model of the binary and TTR outcomes on the *Technocrat* treatment variable using the full dataset. As with the matched analysis, models are reported with and without controls and ministry fixed effects, and standard errors are clustered at the ministry-cabinet levels to reflect the level at which treatment is administered.

The results are similar to those from the matching and DiD approaches and offer additional support for the conclusion that technocrat ministers were less likely, and slower, to answer MP queries. Queries submitted to technocrat ministries were an estimated 15-30 percentage points less likely to receive a response – a substantial penalty. The coefficient on *Technocrat minister* is negative and significant in all specifications with controls.

| | Dependent variable: | | | | | |
| | Received Response | | | Time to Response (Hazard) | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Technocrat Minister	−0.211	−0.147*	−0.294***	−0.885*	−0.558**	−1.563***
	(0.141)	(0.073)	(0.037)	(0.390)	(0.211)	(0.204)
Late in term		−0.376***	−0.365***		−0.479	−0.471
		(0.052)	(0.053)		(0.250)	(0.259)
Ministry of sovereignty		−0.154*			−0.442	
		(0.073)			(0.243)	(0.000)
Large ministry		0.092	0.011		0.214	−0.330*
		(0.071)	(0.042)		(0.240)	(0.157)
2012 cabinet		−0.171**	−0.222**		0.596**	0.443*
		(0.066)	(0.068)		(0.205)	(0.183)
Georeference		0.059***	0.063***		0.178***	0.197***
		(0.016)	(0.013)		(0.053)	(0.046)
Casework		0.005	0.009		0.058	0.083
		(0.038)	(0.037)		(0.158)	(0.159)
Critical		−0.027	0.001		0.003	0.095
		(0.024)	(0.023)		(0.071)	(0.064)
Asker - leader		−0.013	−0.009		−0.092	−0.041
		(0.033)	(0.030)		(0.102)	(0.086)
Asker - national list		−0.051***	−0.045***		−0.084	−0.052
		(0.015)	(0.013)		(0.046)	(0.041)
Constant	0.670***	1.024***	1.023***			
	(0.035)	(0.100)	(0.104)			
Year FE:		✓	✓		✓	✓
Party FE:		✓	✓		✓	✓
Ministry FE:			✓			✓
Model:	OLS	OLS	OLS	Cox PH	Cox PH	Cox PH
Observations	27,188	27,188	27,188	27,120	27,120	27,120
R^2	0.032	0.237	0.328	0.075	0.160	0.295

Note: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table A8: Observational Analysis, Full Results. Estimated treatment effects from multivariate regression of outcome variables on Technocrat treatment using the full, unweighted dataset. Models 1-3 represent OLS estimation using a binary indicator for response received, with and without controls and ministry FEs; models 4-6 estimate a Cox proportional hazards model with a time-to-response outcome. Robust standard errors are clustered at the ministry-cabinet level.

A8   Robustness: Alignment

Given that the 2011-2016 Moroccan cabinet included ministers with and without a partisan affiliation, it is the case that some queries raised by MPs are submitted to co-partisan ministers (those with whom they share a party affiliation).[6] The analysis in the main text demonstrates that technocrat ministers are less responsive than partisan ministers to legislative queries. A key concern is that if partisan ministers display co-partisan bias in responsiveness (i.e. respond to queries submitted by deputies from the same party at a greater rate or more quickly), it may be that the negative "technocrat effect" estimated is actually the result of a positive "co-partisan effect." In this section, I seek to confirm that the negative technocrat effect is robust to adjustment for a possible co-partisan response bias.

I adopt two approaches to assess the potential impact of co-partisan alignment on the higher response rate among partisan ministers. First, I use exact matching on the *Technocrat* indicator, this time including *Co-partisan* alignment as a matching covariate; note that this thereby excludes co-partisan queries from the dataset (since technocrat ministers do not, by definition, have co-partisan affiliates in the legislature). Next, I replicate the observational analysis from section A7, this time including co-partisan alignment as a control covariate.

I first present the results from the analysis using exact matching. I match queries based on covariates, this time adding *Co-partisan* alignment as a matching predictor.[7] The comparison is thus between queries submitted to technocrat ministers (treated observations) and queries submitted to non-co-partisan partisan ministers (control observations). The matched dataset preserves 5578 treated observations (94%) but reduces the number of matched control observations to 12559 (64%) of the full sample.[8]

In Table A9, I replicate the analysis from Table 1 in the main text using this alternative matched dataset. Results are consistent in sign and significance with those from the main text: the coefficient on *Technocrat minister* is negative in all specifications. Co-partisanship does not appear to be driving the key findings.

Next, turning to observational analysis, I replicate the analysis in Table A8, this time including *Co-Partisan* as a control variable (Table A10). Again, the results are unchanged

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[6]Notably, only 18% of queries submitted to partisan ministers came from co-partisans in the legislature, so the majority of queries submitted to partisan ministers come from other party affiliates.

[7]I use all matching predictors from the analysis in the main text with the exception of party FEs, as this excludes a larger percentage of the treated observations (though the coefficient of interest remains negative and significant regardless).

[8]This is largely mechanical: the 3612 queries submitted to co-partisan ministers have no analogue with technocrat ministers when this is included as a treatment predictor.

	Dependent variable:					
	Received Response			Time to Response (Hazard)		
	(1)	(2)	(3)	(4)	(5)	(6)
Technocrat Minister	−0.286*	−0.286**	−0.211***	−0.935*	−0.947**	−1.013***
	(0.135)	(0.101)	(0.030)	(0.382)	(0.328)	(0.298)
IPW:	✓	✓	✓	✓	✓	✓
Controls:		✓	✓		✓	✓
Ministry FE:			✓			✓
Model:	OLS	OLS	OLS	Cox PH	Cox PH	Cox PH
Observations	18,137	18,137	18,137	18,093	18,093	18,093

Note: * $p<0.05$; ** $p<0.01$; *** $p<0.001$

Table A9: Responsiveness – Matched Data, no Co-Partisan Queries. Table presents results from OLS estimation of whether a query received a response (models 1-3) and Cox proportional hazards model of time-to-response (models 4-6) on technocrat treatment, with and without controls and ministry fixed effects. Dataset constructed using exact matching, including co-partisan alignment in the matching covariates. Models are estimated using stratification weights. Robust standard errors are clustered at the ministry-cabinet level.

from those in the preceding analysis, and technocrat ministers are still associated with a substantively large reduction in responsiveness. Interestingly, there does not appear to be a positive co-partisan bias among partisan ministers: the estimated coefficient on *Co-Partisan* is negative in all specifications, though it is attenuated in models with additional controls.

The results here imply that the negative technocrat effect estimated in the main text is not the by-product of a positive co-partisan effect. It persists even when co-partisan queries are excluded from analysis or adjusted for in estimation.

	Dependent variable:					
	Received Response			Time to Response (Hazard)		
	(1)	(2)	(3)	(4)	(5)	(6)
Technocrat Minister	−0.236+	−0.155*	−0.291***	−0.939*	−0.589**	−1.551***
	(0.142)	(0.072)	(0.038)	(0.393)	(0.213)	(0.205)
Co-Partisan Query	−0.150**	−0.051	−0.059+	−0.330*	−0.306+	−0.281*
	(0.049)	(0.056)	(0.036)	(0.156)	(0.175)	(0.124)
Controls:		✓	✓		✓	✓
Ministry FE:			✓			✓
Model:	OLS	OLS	OLS	Cox PH	Cox PH	Cox PH
Observations	27,188	27,188	27,188	27,120	27,120	27,120
R^2	0.043	0.238	0.329	0.082	0.164	0.297

Note: + p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Table A10: Observational Analysis, Technocrat and Co-Partisan Queries. Estimated treatment effects from multivariate regression of outcome variables on Technocrat treatment and Co-Partisan alignment using the full, unweighted dataset. Models 1-3 represent OLS estimation using a binary indicator for response received, with and without controls and ministry FEs; models 4-6 estimate a Cox proportional hazards model with a time-to-response outcome. Robust standard errors are clustered at the ministry-cabinet level.

Supporting Information: References

Abadie, Alberto. 2005. "Semiparametric Difference-in-differences Estimators." *The Review of Economic Studies* 72(1):1–19.

McDonnell, Duncan and Marco Valbruzzi. 2014. "Defining and Classifying Technocrat-led and Technocratic Governments." *European Journal of Political Research* 53(4):654–671.

Sater, James N. 2003. "Morocco after the Parliamentary Elections of 2002." *Mediterranean Politics* 8(1):135–142.