Politics of Trade Protection in an Autocracy: Evidence from an EU Tariff Liberalization in Morocco*

Online Appendix

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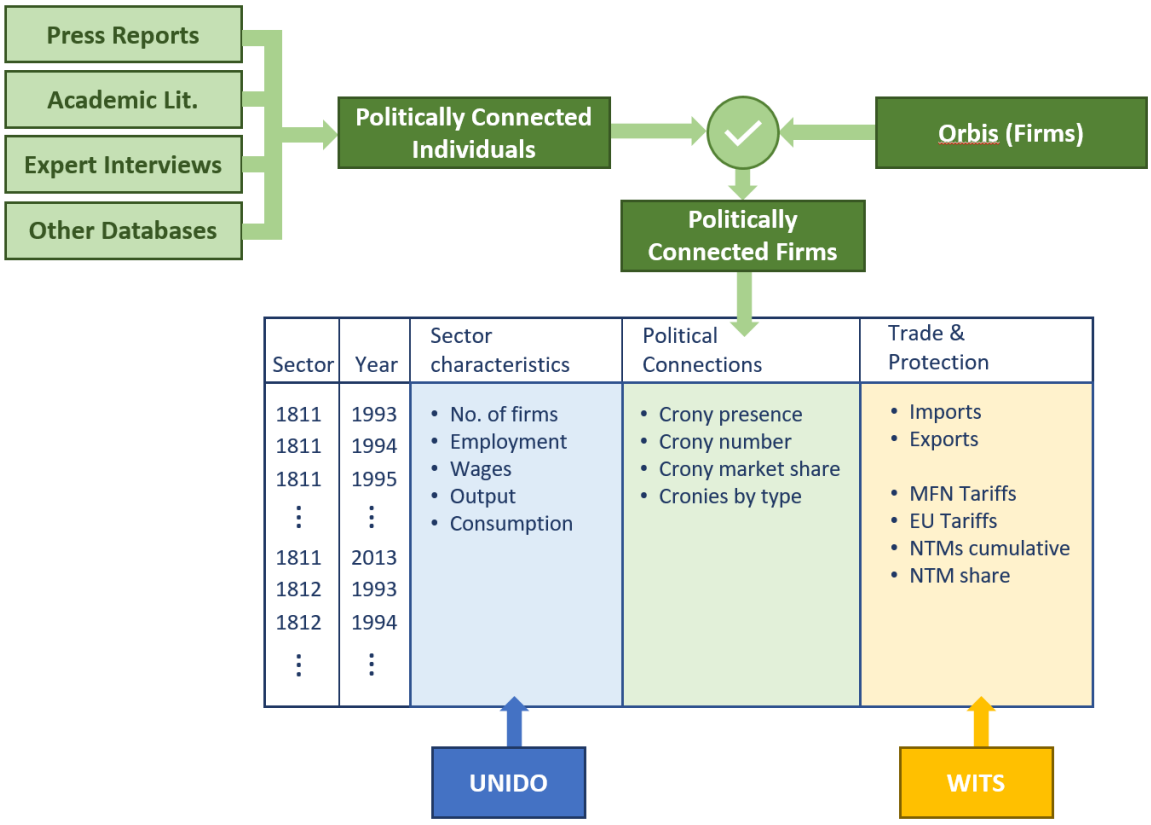
FIGURE A1: Schematic representation of key data inputs and processing



The empirical analysis in this paper rests on three data inputs: information on the political connections of firms, annual data on tariffs and non-tariff measures, and data on important industrial characteristics that may drive trade protection. Data from all sources were aggregated into a single panel dataset at the ISIC-4 sector-year level. This schematic visually describes the data collection and aggregating process.

FIGURE A2: Changing sectoral presence of crony firms

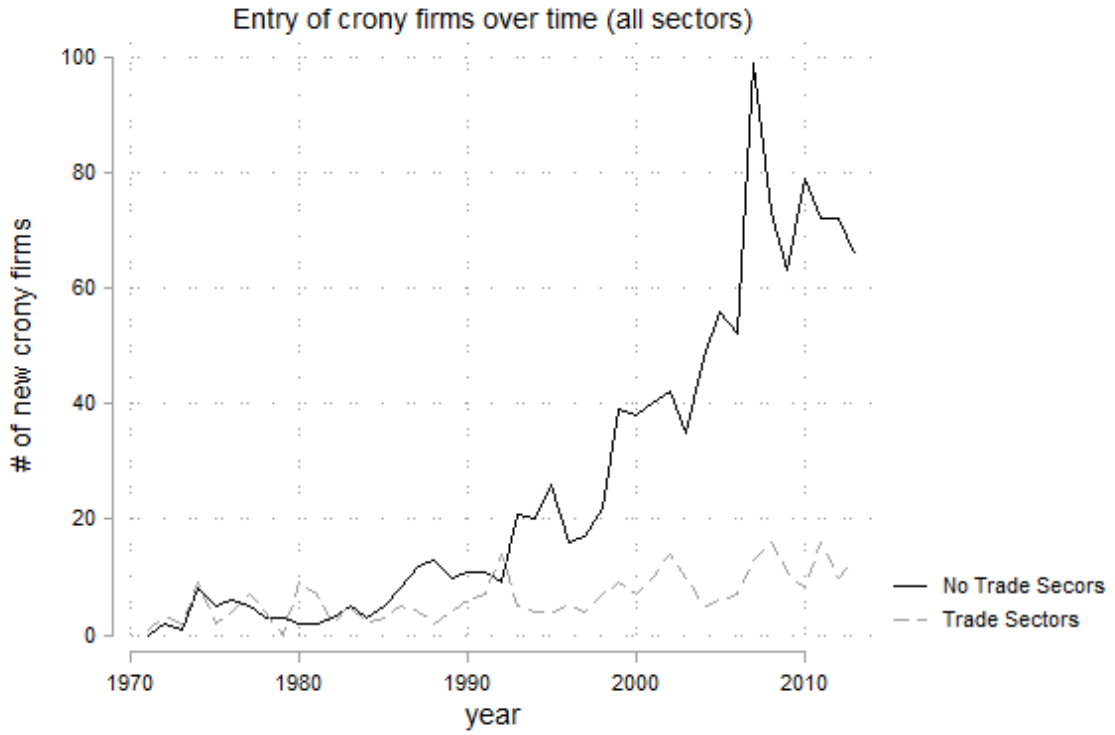


Figure A2 visually depicts the evolution of crony presence in traded versus non-traded sectors. The vertical axis represents the number of new crony firms entering traded and non-traded sectors each year. Sectors were classified as traded if there were non-zero exports or imports recorded, and as non-traded otherwise. The figure shows a growing presence of cronies over time in non-traded sectors of the Moroccan economy. Separately, our database suggests that, within the non-traded sectors, cronies significantly increased their presence in real estate and finance. During the period 1993-2013, the number of crony firms operating in the real estate sector grew from around 60 to 450; the corresponding number for finance-related firms increased from 40 to 110 during the aforementioned period. The majority of firms operating in these sectors were royally-owned firms. Although our empirical analysis focuses on the manufacturing sector, the trends highlighted by the above statistics and Figure A2 provide an important backdrop to interpreting the results in section 4.3 of the paper.

FIGURE A3: Distribution of Technical Barriers to Trade (TBTs) by Sub-Type

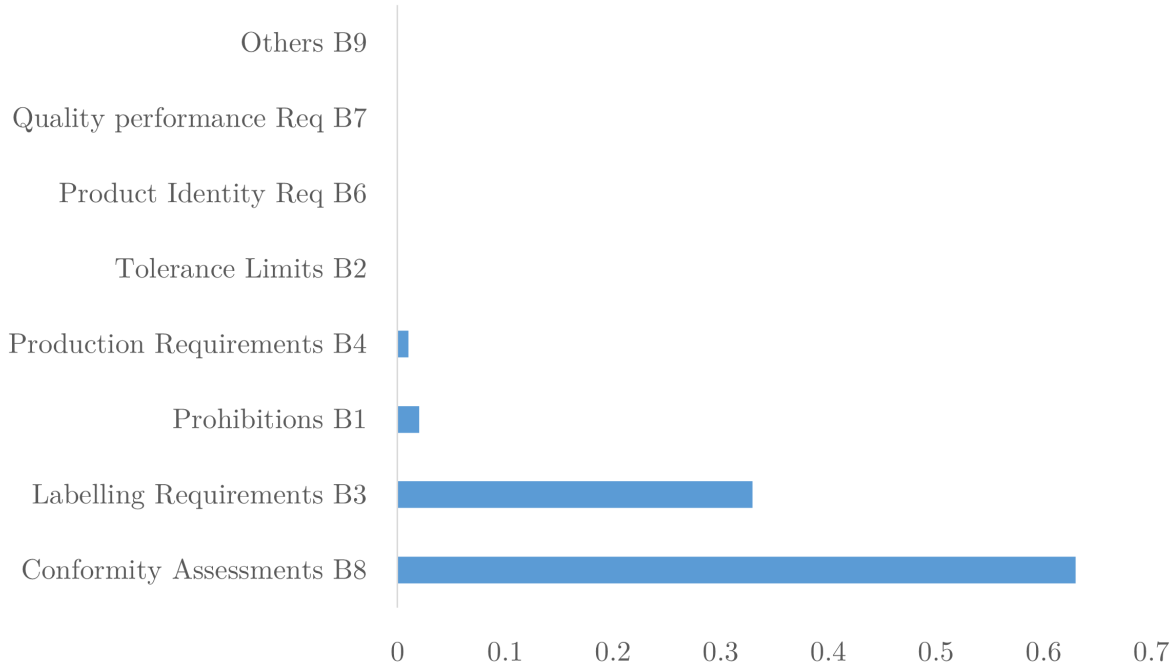
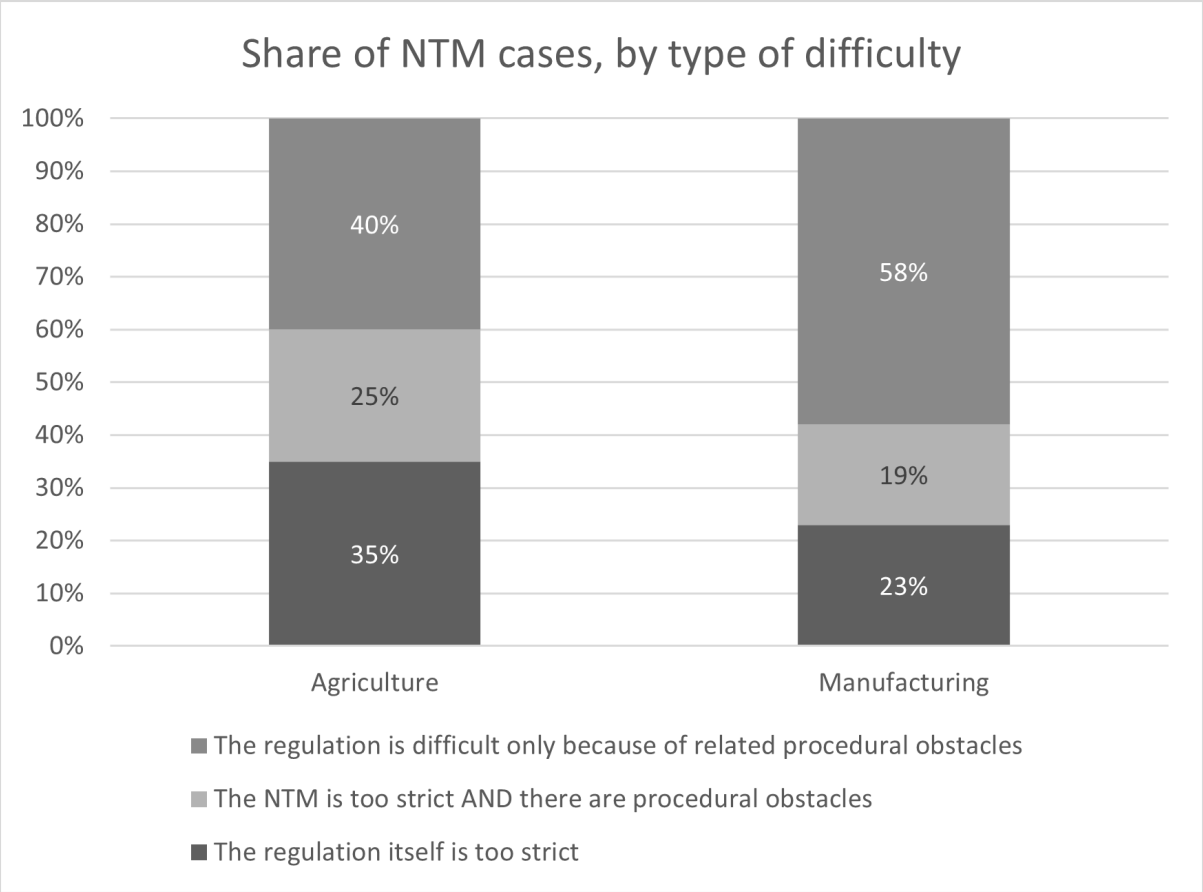


Figure A3 provides a breakdown of technical barriers to trade (TBT) according to various sub-types. The numbers are expressed as the sub-type's share of total TBTs. As the figure shows, there is an overwhelming reliance on conformity assessments and labelling requirements, which together comprise 96% of total TBTs. These are more amenable to political manipulation, since they depend on administrative oversight and require inspections from government officials.

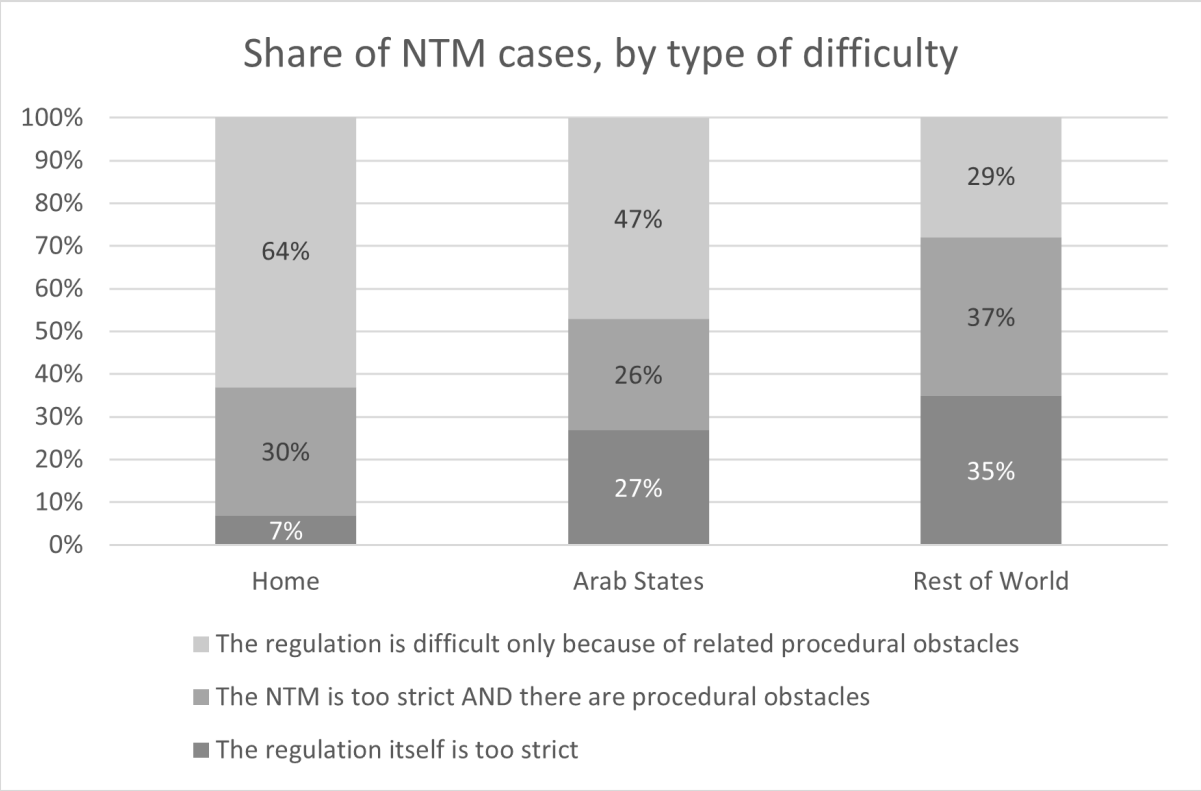
FIGURE A4: Evidence on Regulatory Discretion in the Application of NTMs



Source: International Trade Center (2015b); Adapted from Mohammed Saeed

The majority of NTMs are burdensome because of procedural obstacles rather than the regulatory content or strictness of the regulation. In a global study, the ITC found that, across all sampled countries, 58% of cases of burdensome NTMs on manufacturing products, the NTM was only reported as burdensome because of procedural obstacles. For an additional 19% procedural obstacles were part of the problem (Figure A4).

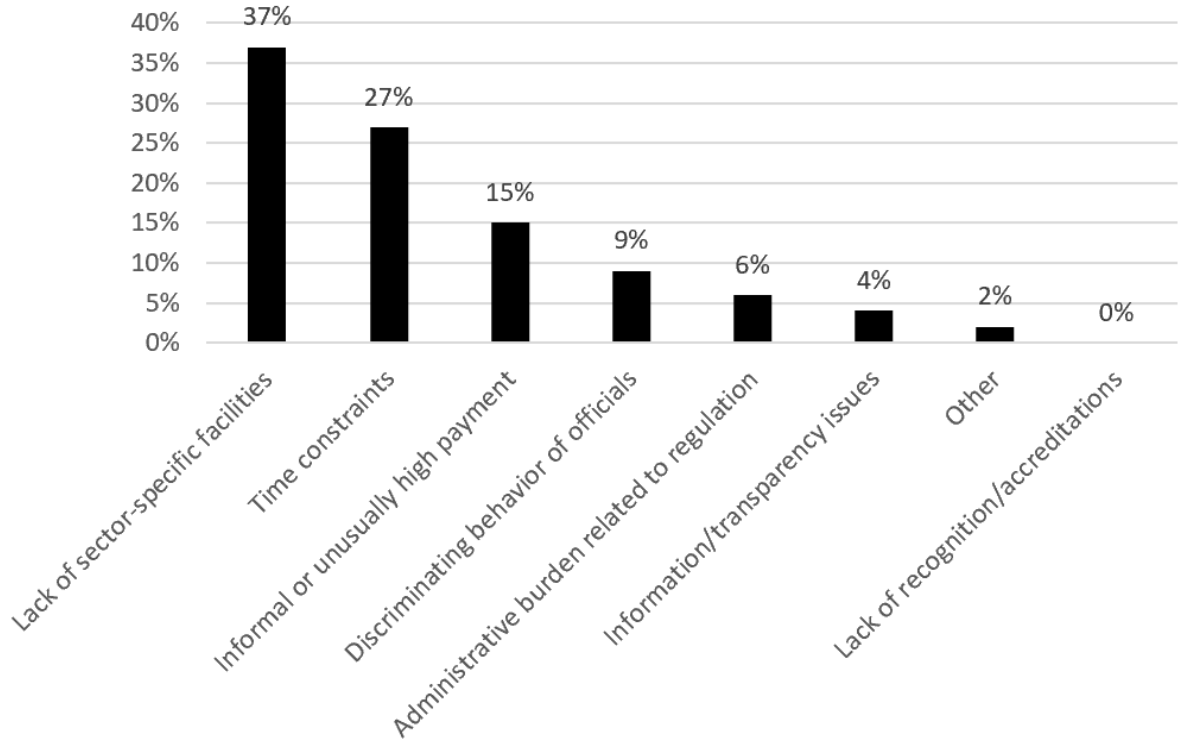
FIGURE A5: Why exporters in Arab states find NTMs a burden



Source: International Trade Center (2015a)

A survey of exporting firms in Morocco, Tunisia, Egypt and Palestine finds that this is particularly the case in the Middle East. 64% of NTMs imposed by the home country and 47% of NTMs imposed by Arab destination countries are only considered burdensome because of procedural obstacles, compared to 29% for the rest of the world (Figure A5).

FIGURE A6: Frequency of procedural obstacles related to NTMs in Morocco



Note: Based on 335 reported PO cases in the manufacturing sector;
Source: International Trade Center (2012)

The ITC's firm-level research in Morocco allows us to gain a more fine-grained understanding of the types of procedural obstacles encountered in the country. Aside from the lack of facilities, procedural obstacles in Morocco relate primarily to time constraints and informal or unusually high payments (Figure A6). Discriminatory behaviour of officials is mentioned directly in a significant number of cases. Yet delays and informal payments themselves are susceptible to discretionary influence. For instance, companies cite the unpredictability of delays as a bigger concern than their existence.

TABLE A1: Distribution of cronies in manufacturing sectors in 1993

ISIC 2-dgt	**Description**	**Cronies**	**No of Sub-Sec**	**Share of Crony Sub-Sec**
17	Textiles	26	7	0.43
15	Food products and beverages	19	17	0.41
24	Chemicals and chemical products	11	9	0.67
36	Furniture; manufacturing n.e.c.	9	6	0.33
19	Tanning and dressing of leather; Leather bags	9	3	0.67
28	Fabricated metal products, except machinery	8	7	0.57
25	Rubber and plastics products	7	3	0.33
26	Other non-metallic mineral products	6	8	0.38
21	Paper and paper products	5	3	0.67
27	Basic metals	4	4	0.75
29	Machinery and equipment n.e.c.	3	15	0.13
34	Motor vehicles, trailers and semi-trailers	3	3	0.67
31	Electrical machinery and apparatus n.e.c.	3	6	0.50
35	Other transport equipment	2	7	0.29
20	Wood and of products of wood and cork	2	5	0.20
23	Coke, refined petroleum products and nuclear fuel	1	3	0.33
18	Wearing apparel; dressing and dyeing of fur	1	2	0.50
22	Publishing, printing and reproduction of recorded media	1	7	0.14
33	Medical, precision and optical instruments	0	5	0.00
32	Radio, television and communication equipment	0	3	0.00
16	Tobacco products	0	1	0.00
37	Recycling	0	2	0.00
30	Office, accounting and computing machinery	0	1	0.00

Notes: This table summarizes the distribution of politically connected firms in 1993 across the two-digit manufacturing sub-sectors of Morocco. The first column reports the ISIC-2 classification; the second column provides a description of the sector activity; the third column reports the total number of cronies active in the corresponding sector in 1993; the fourth column provides the total number of sub-sectors within the broader ISIC-2 sectoral classification; and, finally, the fifth column reports the share of ISIC-2 sub-sectors that were exposed to politically connected firms in 1993.

TABLE A2: Relationship of tariff cuts with pre-EU Agreement sector characteristics

	(1) Change in EU Tariff Rate 2000-2009	(2) Diff. between EU and MFN Tariff Rates Rate 2009
Treated (1993 crony presence)	5.103**	1.134
	(2.398)	(1.506)
Log Imports (wt)	-4.197**	-2.349*
	(1.895)	(1.190)
Log Exports (wt)	3.006	1.248
	(1.974)	(1.240)
Employees	0.0000240	-0.0000395
	(0.000133)	(0.0000835)
Firms	0.0117	0.0122
	(0.0121)	(0.00761)
Value-Add	-0.00755	0.00812
	(0.0181)	(0.0114)
Productivity	0.0118	-0.00121
	(0.0224)	(0.0141)
Constant	23.42***	13.00***
	(2.259)	(1.418)
N	106	106

Notes: Coefficients are reported with robust standard errors, clustered at the sector level, in parentheses. The sample is restricted to the manufacturing sector.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In Table A2 we explore the relationship between the tariff cuts with the pre-EU Agreement industry characteristics at the ISIC-4 level. The dependent variable in column 1 is the change in the EU tariff rate between 2000 and 2009. The dependent variable in column 2 is the difference between MFN and EU tariff rates in the year 2009. Apart from the standard controls, we include the total number of employees, number of firms, value added per firm, and productivity per firm. All variables are measured prior to the year when the EU Agreement came into force. Data for these controls has been obtained from the INDSTAT4 database (UNIDO, 2013). As the results in column 1 show, treatment status (measured as whether a sector had crony presence in 1993) is a strong predictor of the change in tariff during the 2000-09 period. This suggests that treated sectors have witnessed larger tariff cuts. Yet none of the industry-level characteristics, except imports, turn up as statistically significant predictors of the subsequent tariff cuts. Thus, all our main regression specifications include the EU tariff rates and imports.

TABLE A3: Main Moroccan business groups and their owners

Holding	**Year of Incorp.**	**# of Firms**	**Main Activities**	**Revenue (2011, est. Mio USD)**	**Owner**	**Political Connection**
ONA/SNI	1980/81	>70	Manufacturing, finance, real estate, mining, retail	4,476	King Mohammed VI	Royal Family
SAFARI	1968	17	Manufacturing, finance, real estate, trading	>360	Mohammed Karim Lamrani	Politicians & Family
AKWA	1993	60	Energy, media, real estate	2,640 (2010)	Aziz Akhannouch	Foundation Board Members
Ynna holding	1970s	16	Manufacturing, Construction, Public works, Real-estate, Tourism, Retail	2,316	Miloud Chaabi	Politicians & Family
Finance.com	1995	31	Insurance, Transport, Tourism, Manufacturing	1,680	Othman Benjelloun	Foundation Board Members
Douja promotion / Addoha Group	1996	17	Real estate, Tourism	1,116	Anas Sefrioui	Royal Advisors & Friends
SAHAM Group	1995	20	Insurance, Health, Offshoring	708	Moulay Hafid Elalamy	Politicians & Family
HOLMARCOM	1978	23	Finance, Agroprocessing, Retail, Airways, Real estate	396	Mohamed Hassan Bensalah	Foundation Board Members
HMMA	1948	14	Manufacturing, Real estate	384	Moulay Messaoud Aggouzal	Royal Family
Alliances Developpement Immobilier	1994	60	Real estate, Construction, Public works, Tourism	312 (2010)	Mohamed Alami Lazraq	Royal Advisors & Friends
El Alami Group	1950	25	Manufacturing	120	Abdelh. El Alami	Politicians & Family
Sopar Group	1970s	–	Textile, Agriculture, Real estate, Household appl.	–	Kettani Family	Foundation Board Members

Notes: Adapted from Saadi (2013) and supplemented with data on political connections from our own research. Revenue converted at the 2011 average exchange rate of 0.12 MAD/USD.

TABLE A4: Universally applied non-tariff measures

Measure	Start Year	Chapter	Code	Title	Source	Description
1374	1977	F - PCMs	F220	Merchandise handling or storing	Customs Code	General customs code (updated by Finance Laws since)
1375	1984	F - PCMs	F220	Merchandise handling or storing	Decree 2-84-29 (B. O. n°3736)	Sets usage taxes for ships at several ports (per ton)
1381	1986	F - PCMs	F410	General sales taxes	Law 30-85 on Value Added Tax	Establishment of VAT tax for domestic production and imports. Application on imports is the responsibility of the Customs and Excise Department.
1387	1994	G - Finance	G300	Regulation on official foreign exchange allocation	Order 1308-94 of the Ministry of Foreign Trade	Determining the list of goods subject to quantitative import or export restrictions and are therefore subject to licensing
1444	1994	P - Export	P900	Export measures n.e.s.	Order 1308-94 of the Ministry of Foreign Trade	Determining the list of goods subject to quantitative import or export restrictions and are therefore subject to licensing
1380	1995	F - PCMs	F390	Additional charges n.e.s.	Decree 2-94-734	Establishment of the parafiscal import tax (0.25% ad valorem) for financing the promotion and inspection of exports.
1377	1995	F - PCMs	F290	Service charges n.e.s.	Decree 2-95-772	Introduced a levy on the use of the computer systems of the Customs and Excise Department (e.g. 100DH per import declaration).

Note: The data on non-tariff measures for this paper is taken from the World Bank's World Integrated Trade Solutions Database (WITS), accessible at http://wits.worldbank.org. Legal texts were taken from the Government of Morocco's official repository, accessible at http://adala.justice.gov.ma. A careful analysis of the legal texts from which the NTMs listed in this table originate shows that they are universally applied levies or restriction that do not cause distortions between sectors. For instance, Decree 2-95-772, effective since 1995, introduced a levy on the use of the customs authority's computer systems. The levy is charged per import declaration and should hence affect imports in all sectors symmetrically. These universal measures dominate the data without providing any sectoral variation that is of interest for this analysis. It is therefore appropriate to discard them from the analysis, and possible to do so without introducing biases in the data.

TABLE A5: Diff-in-Diff analysis of NTM intensity with individual UNIDO controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.0349	-0.0290	-0.0530	-0.0476	-0.0525	-0.0550	-0.0316	-0.0252
	(0.0327)	(0.0325)	(0.0374)	(0.0376)	(0.0371)	(0.0372)	(0.0323)	(0.0341)
Post X Treated	0.0961**	0.111**	0.101**	0.101**	0.103**	0.0944**	0.0852*	0.0958**
	(0.0461)	(0.0445)	(0.0477)	(0.0481)	(0.0476)	(0.0462)	(0.0463)	(0.0459)
EU Tariff Rate	-0.00823**	-0.00805**	-0.00923**	-0.00882**	-0.00903**	-0.00948**	-0.00792**	-0.00804**
	(0.00335)	(0.00323)	(0.00375)	(0.00362)	(0.00366)	(0.00369)	(0.00328)	(0.00335)
Employees	-0.0170							
	(0.0115)							
Establishments		-0.00261***						-0.00199**
		(0.000970)						(0.000860)
Output/firm			-0.0000727					
			(0.0000974)					
Employees/firm				-0.120				
				(0.126)				
Value-add/firm					-0.0000217			
					(0.0000456)			
Output concent.						-10.47**		-1.777
						(4.785)		(3.619)
Employee concent.							-10.40**	-5.102
							(4.936)	(3.402)
Constant	0.333***	0.413***	0.296***	0.293***	0.291***	0.394***	0.345***	0.436***
	(0.114)	(0.129)	(0.112)	(0.108)	(0.109)	(0.129)	(0.107)	(0.121)
Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sectors	115	115	113	114	113	114	115	114
Periods	2	2	2	2	2	2	2	2
NxT	229	229	226	227	226	228	229	228

Notes: The dependent variable (NTM2 share, i.e. the share of products in the sector subject to at least two NTMs) is constructed based on the refined NTM set (TBTs only). Panel dataset collapsed to pre- and post-periods. All regressions include sector fixed effects. Coefficients are reported with robust standard errors, clustered at the sector level, in parentheses. The sample is restricted to the manufacturing sector. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In Table A5 we include additional industry characteristics using UNIDO's INDSTAT4 database. Since the UNIDO dataset covers shorter time period, we include the additional controls in the two-period DID model. Besides the total number of employees, number of establishments, we successively add in columns 3-5, output per firm, employees per firm, and value-added per firm. In cols. 6-7, we add measures of sectoral concentration of output and employees in a sector. Employment concentration is defined as employees in an ISIC-4 sector as a share of total manufacturing employment. Similarly, output concentration is defined as output in an ISIC-4 sector as a share of total manufacturing output. When included separately, coefficients on both concentration measures are negative and statistically significant, suggesting that sectors with greater concentration of output or employment witnessed relatively lower NTM protection in the post-period. Importantly, in most specifications, the coefficient on treatment interaction with Post remains statistically significant.

TABLE A6: Determinants of the intensity of NTM coverage for full and refined NTM sets

	(1) All NTMs (Panel)	(2) All NTMs (Panel)	(3) All NTMs (Collapsed)	(4) TBTs (Panel)	(5) TBTs (Collapsed)	(6) TBTs (Collapsed)
Post	1.123***	0.257	0.969**	0.152	0.249**	-0.284
	(0.285)	(0.247)	(0.455)	(0.127)	(0.122)	(0.183)
Post X Treated	0.374	0.107	0.365	0.484***	0.392***	0.473**
	(0.270)	(0.241)	(0.303)	(0.164)	(0.142)	(0.187)
Log Imports (wt)	-0.108	0.0851	-0.0314	0.00155	0.0158	0.314
	(0.153)	(0.129)	(0.398)	(0.103)	(0.0756)	(0.239)
Log Exports (wt)	0.0670	-0.178	0.0581	-0.220*	-0.201**	-0.414**
	(0.204)	(0.163)	(0.346)	(0.117)	(0.0930)	(0.164)
MFN Tariff Rate	0.0227*	0.0253**	-0.0301	0.0203**	0.0195***	0.0289
	(0.0118)	(0.0126)	(0.0526)	(0.00777)	(0.00675)	(0.0220)
EU Tariff Rate	-0.00706	-0.0135	0.0344	-0.0219***	-0.0159**	-0.0513**
	(0.0122)	(0.0127)	(0.0531)	(0.00793)	(0.00649)	(0.0213)
Employees			-0.0154			0.00531
			(0.0495)			(0.0217)
Firms			0.00236			-0.00922***
			(0.0110)			(0.00336)
Constant	0.356	-92.04***	0.701	0.121	-2.573	1.123**
	(0.271)	(34.24)	(0.969)	(0.109)	(15.79)	(0.463)
Sector FEs	Yes	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Sect*Yr FEs	No	Yes	No	No	Yes	No
Sectors	119	119	116	119	119	116
Periods	17	17	2	17	17	2
NxT	2,023	2,023	229	2,023	2,023	229

Notes: Observations are at the sector-year level. The dependent variable is the NTM intensity (NTM_cum_avg, i.e. the average number of NTMs applied per product in the sector) in a given sector-year. All regressions include year and sector fixed effects. Coefficients are reported with robust standard errors, clustered at the sector level, in parentheses. The sample is restricted to the manufacturing sector. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In Table A6 we use the average number of NTMs applied per product in a given sector as an alternative measure of the intensity of NTM coverage. Repeating the basic empirical set up, we first define this measure for all NTMs (first panel) and, subsequently, for technical barriers to trade (second panel). As the results suggest, treated sectors witnessed a significantly higher intensity of trade protection via TBTs in the post-EU Agreement period.

TABLE A7: Placebo test: Pre-period defined until 2000 and using 1996/7 as a cut-off

	All NTMs		**TBTs**	
	(1)	(2)	(3)	(4)
	NTM Share	NTM2 Share	NTM Share	NTM2 Share
Post	-0.000230	-0.000657	-0.000734	-0.000734
	(0.000960)	(0.000919)	(0.000917)	(0.000917)
Post X Treated	0.0228	0.0222	0.0221	0.0221
	(0.0220)	(0.0221)	(0.0221)	(0.0221)
Log Imports (wt)	0.00435	0.00471	0.00470	0.00470
	(0.00502)	(0.00508)	(0.00508)	(0.00508)
Log Exports (wt)	-0.000502	-0.00114	-0.00113	-0.00113
	(0.00311)	(0.00304)	(0.00303)	(0.00303)
MFN Tariff Rate	0.0000152	-0.0000300	-0.0000296	-0.0000296
	(0.0000640)	(0.0000761)	(0.0000759)	(0.0000759)
Constant	0.143***	0.117***	0.0215***	-0.000892
	(0.00626)	(0.00637)	(0.00637)	(0.00637)
Sector FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Sect*Yr FEs	No	No	No	No
Sectors	119	119	119	119
Periods	7	7	7	7
NxT	833	833	833	833

Notes: Observations are at the sector-year level. The dependent variable is the NTM coverage ratio (NTM Share and NTM2 Share, i.e. the share of products in the sector subject to at least one or at least two NTMs respectively) in a given sector-year. All regressions include year and sector fixed effects. Coefficients are reported with robust standard errors, clustered at the sector level, in parentheses. The sample is restricted to the manufacturing sector.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE A8: Varying the cut-off for DID Analysis

	2000 Cut-Off		**1996 Cut-Off**	
	(1)	(2)	(3)	(4)
	NTM Share	NTM2 Share	NTM Share	NTM2 Share
Post	-0.101***	-0.0985***	-0.0540***	-0.0532***
	(0.0300)	(0.0300)	(0.0172)	(0.0172)
Post X Treated	0.0703**	0.0690**	0.0537*	0.0528*
	(0.0294)	(0.0294)	(0.0278)	(0.0278)
Log Imports (wt)	-0.000961	-0.00105	0.000777	0.000657
	(0.0163)	(0.0163)	(0.0159)	(0.0159)
Log Exports (wt)	-0.0467*	-0.0474**	-0.0479**	-0.0486**
	(0.0237)	(0.0237)	(0.0241)	(0.0240)
MFN Tariff Rate	0.00500***	0.00506***	0.00490***	0.00497***
	(0.00171)	(0.00171)	(0.00177)	(0.00177)
EU Tariff Rate	-0.00386**	-0.00388**	-0.00385**	-0.00386**
	(0.00151)	(0.00151)	(0.00154)	(0.00154)
Constant	-22.55***	-21.92***	-17.25***	-16.83***
	(6.052)	(6.022)	(4.874)	(4.855)
Sector FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Sect*Yr FEs	Yes	Yes	Yes	Yes
Sectors	119	119	119	119
Periods	17	17	17	17
NxT	2,023	2,023	2,023	2,023

Notes: Observations are at the sector-year level. The dependent variable is the NTM coverage ratio (NTM Share and NTM2 Share, i.e. the share of products in the sector subject to at least one or at least two NTMs respectively) in a given sector-year. All regressions include year and sector fixed effects. Coefficients are reported with robust standard errors, clustered at the sector level, in parentheses. The sample is restricted to the manufacturing sector.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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