Crony Globalization

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Abstract

Can a partial approach to economic globalization comprise a strategy to maintain elite cohesion in nondemocracies? We investigate this question for a group of predominantly nondemocratic Muslim-majority countries across Africa, the Middle East, and Asia. To draw causal inferences, we leverage the timing of the World Trade's Organization establishment in 1995 as a plausibly exogenous (global) shock to trade liberalization to show that many Muslim-majority societies have systematically lagged behind in relative terms (to non-Muslim countries) on measures of *de jure* globalization capturing policies associated with tariffs, hidden import barriers, investment and capital account restrictions. We attribute this "globalization deficit" to policy choices that protect politically connected commercial interests (political cronies). We corroborate the relevance of political connections at the micro-level by compiling new sector-level data from Egypt and Tunisia which ties slower tariff liberalization in sectors penetrated by political cronies.

Keywords: Political economy, autocracy, Muslim societies, international trade and investment, political connections, World Trade Organization, causal inference

Word count: 9985

Since the 1990s developing countries have faced growing pressures to liberalize their economies. The pace and degree of such liberalization has varied, with many countries engaging 'partially' in which they cherry pick reforms in ways that do not upset their country's political equilibrium (van de Walle 2001). This political logic of selective liberalization may be especially pertinent for many Muslim-majority (hereon, Muslim) countries since they exhibit both greater authoritarian stability and lower international economic integration (Stepan and Robertson 2003, Malik and Awadallah 2013, Kuran 2018). While past work on these topics has considered the effects of external rents, such as oil and foreign aid (Ross 2001, Ahmed 2012), there has been insufficient emphasis on the political salience of domestically generated rents from foreign economic policy capture. In this paper, we document a "globalization deficit" in Muslim societies (relative to non-Muslim ones) and argue this deficit may reinforce authoritarian governance.

We theorize and leverage a cross-national quasi-natural experiment and novel sector-level data from Egypt and Tunisia to provide evidence that authoritarian political structures in Muslim societies - *not* Islam - can affect their government's *policy* decisions to generate rents via partial liberalization in international trade and investment (and associated policies, such as regulatory barriers).[1] We refer to this as "crony globalization." Our argument is situated in broader scholarship linking regime type to policy choices, particularly where nondemocratic governments may be prone to manipulate their trade and investment policies as a means to strategically distribute rents to insiders (e.g., Mazaheri 2016, Gawande and Zissimos 2020).[2]

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[1]In evaluating this conjecture, we are cognizant that rents from oil production can foster cronyism independently of a country's international economic exposure (Mazaheri 2016). Accordingly, we conservatively limit our analysis to non-oil producing developing countries. Thus, our paper's causal estimates purposefully purge the direct effects of oil production on various forms of pernicious political economy (e.g., corruption, rent seeking).

[2]This argument is not limited to Muslim societies and may generalize to less democratic *non-Muslim* countries as well. Our analysis in Figure 4, Table 2, and Appendix S2 suggest that countries with a higher (lower) quality of democratic institutions exhibit higher (lower) levels of *de jure* globalization. We leave a more rigorous evaluation of this conjecture to future work.

Figure 1: *Average annual level of globalization in Muslim and non-Muslim countries*
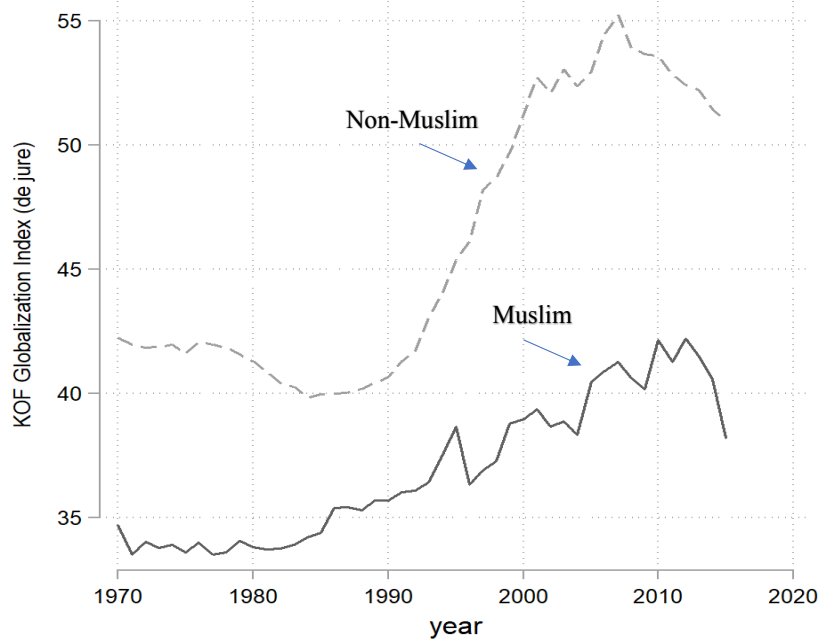
Notes: Annual group average of KOF globalization index across Muslim and non-Muslim non-oil producing countries. A country is classified as being Muslim if at least 75% of its population identifies with Islam.

Since governments may choose a mix of policies in trade, investment, and regulations to protect elite interests, our main analysis employs a broad measure of globalization that captures the multifaceted scope of international economic policies. To motivate and preview our analysis, Figure 1 plots the evolution of the *de jure* component of the KOF Index of Economic Globalization between Muslim and non-Muslim countries.[3] The figure highlights two stylized features. First, Muslim countries have always lagged behind their non-Muslim comparators in terms of their policies regarding economic globalization. Second, since 1995 there has been a greater divergence in the globalization trajectories between Muslim and non-Muslim countries. Prior to 1995, the KOF index was about 7 index points (on average) lower in Muslim countries compared to non-Muslim countries. After 1995, this difference more than doubled to around 15 index points (and corresponds to a "difference-in-differences" of 8 index

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[3]Developed by Dreher (2006), the KOF index has become the most widely used measure of globalization in the academic literature. We employ a revised version of the index from Gygli et al. (2019), which has separate measures of *de facto* and *de jure* globalization. See section 3 and Appendix S1 for further discussion.

points). Together, these patterns suggest that Muslim countries seem to have fallen behind their non-Muslim counterparts in terms of their *de jure* engagement with globalization. Our paper presents more systematic evidence of this divergence and provides evidence of a plausible channel via political cronyism.

Cognizant that omitted variables and endogeneity may unduly bias the pattern in Figure 1, we leverage a quasi-natural experiment and employ a difference-in-differences (DD) research design to draw causal inferences. Our identification strategy leverages the timing of the WTO's establishment in 1995 as a plausibly exogenous "shock" to economic liberalization (see Baccini et al. 2019 for a similar strategy and section 3.1 defending the exogeneity assumption) and investigate whether Muslim countries' (our treatment group) engagement with processes of economic globalization differed substantively after WTO's establishment relative to the non-Muslim cohort (our control group).

Using the KOF index of economic globalization, we show substantial divergence since 1995 between Muslim and non-Muslim countries in their globalization trajectories. Specifically, Muslim countries have systematically lagged behind in relative terms on measures of *de jure* globalization capturing various economic restrictions expressed through tariffs, hidden import barriers, taxes on international trade, and investment and capital account restrictions. Our DD research design allows us to interpret these findings causally; and we perform a number of exercises to bolster our causal inferences such as evaluating the parallel trends assumption, discounting competing explanations, and assessing potential bias from selection on unobservables (see Section 4 and Appendix S5).

We then study channels and present two sets of results. First, we employ a form of mediation analysis to demonstrate how the prevalence of nondemocratic institutions and associated policies (e.g., greater tariffs, adoption of "shallower" trade agreements) in Muslim societies *prior* to the WTO's creation significantly weakens both the magnitude and statistical significance of our DD coefficient estimates. These findings are consistent with our

analytical framework where governments in nondemocracies choose policies of partial liberalization as a means to protect politically connected actors (cronies). We then present novel within country evidence from Egypt and Tunisia tying slower tariff liberalization in sectors penetrated by cronies. This analysis reveals that crony sectors benefit from higher levels of tariff protection than non-crony sectors − on both the extensive and intensive margins − and, importantly, these differences have persisted after the WTO's creation.

In addition to introducing a globalization deficit as a potential source of economic and political underperformance in Muslim societies (Kuran 2018), our paper contributes to scholarship on the political economy of dictatorship (e.g., Acemoglu and Robinson 2006, Svolik 2012). While much of this literature has focused on domestic economic and political factors, our paper contributes to existing scholarship tying regime type to trade policy reform (e.g., Milner and Kubota 2005, Kono 2006) and recent work linking foreign investment to nondemocratic politics (e.g., Ahmed 2020, Gao 2021). Our findings emphasize how foreign economic policies can be manipulated to generate rents for elites and who in return may be more inclined to support the regime. Based on existing scholarship, these forms of political connections may be important in several countries in the Middle East and North Africa region (Cammett 2007, Mazaheri 2016). Notably, our analysis shows how cronyism extends beyond Middle Eastern countries (e.g., Bangladesh, Pakistan, Senegal). Finally, our paper relates to studies linking trade agreements and international organizations to economic and political reforms (e.g., Baccini and Urpelainen 2014, Baccini 2019).

2 Conceptual framework

Our paper's central argument draws on two key ideas. First, Muslim societies tend to exhibit robust authoritarian structures (politics). Second, governments in less democratic settings may have an incentive to partially liberalize international economic policy to protect the

economic interests of elites whose support might be crucial for political survival.[4] Combining these two ideas implies that Muslim societies may exhibit crony globalization.

2.1 Authoritarian structures in Muslim societies

The incentive for autocrats to partially liberalize is relevant for many Muslim societies since their political systems tend to exhibit authoritarian structures (Bellin 2004, Kuran 2018). While the oil curse has been linked to autocracy in numerous Muslim oil producers (Ross 2001), non-oil producing Muslim societies also tend to be autocracies. This is readily apparent in the data. To see this, Figure 2 plots the average annual POLITY score (normalized on a 0 to 1 scale) for Muslim and non-Muslim non-oil producers (our paper's empirical sample). Since a higher polity score corresponds to a higher quality of democracy, the figure shows that Muslim non-oil producers (on average) exhibit a persistent "democratic deficit" relative to their non-Muslim counterparts. This deficit is associated with fewer constraints on executive political authority, a tendency for single party/leader rule, and less political participation from the masses.[5] Substantively, Figure 2 reveals that over the sample period the typical Muslim non-oil producer qualifies as a nondemocracy as its average normalized polity score never exceeds 0.75; a threshold political scientists associate with democracy.[6]

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[4]This strategy is not exclusive to nondemocracies. Democracies may also protect specific private interests (industries, firms, etc.) to strengthen their electoral prospects (Grossman and Helpman 1994).

[5]The difference in group means associated with these characteristics between non-oil producing Muslim and non-Muslim developing countries is statistically significant.

[6]This threshold is +7 on the POLITY index (which ranges from -10 to 10)

Figure 2: *Democracy in non-oil producing Muslim and non-Muslim countries*
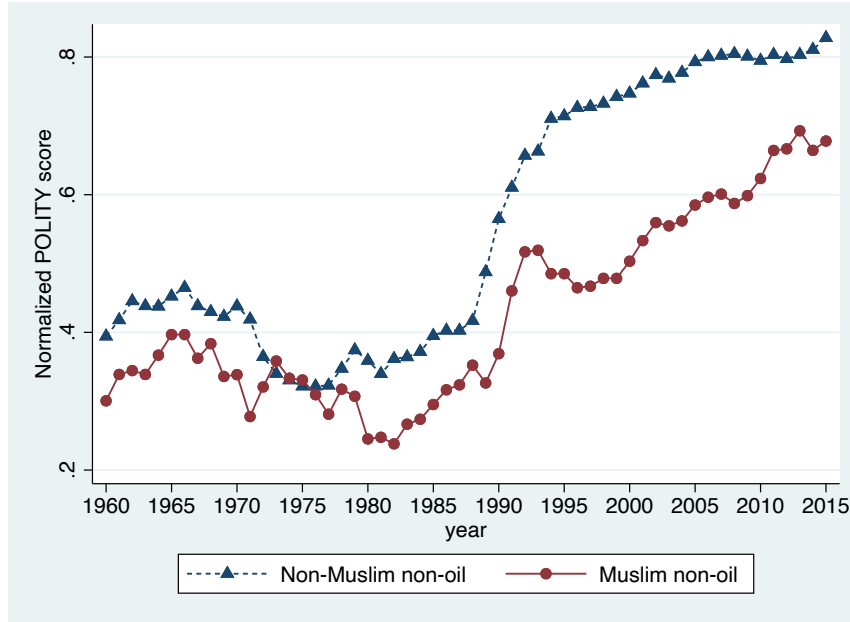
Notes: Annual group average of the normalized POLITY score across Muslim and non-Muslim non-oil producing countries. A normalized POLITY score closer to 1 corresponds to more democratically-oriented institutions and governance.

Figure 2 also reveals both a *persistent* and *time-varying* democratic deficit in non-oil producing Muslim societies. On the former, several studies have linked "history" to the persistence of autocracy in Muslim societies; for instance, by probing the effect of historical factors "unique" to Muslim societies that can be traced back to the period following the initial expansion of Islam between 632-1100 CE (Chaney 2012). For example, Kuran (2011) argues the introduction of sharia law in Muslim countries (starting around 1100 CE) limited economic and subsequent political development (e.g., the emergence of a commercial middle class). In contrast, Blaydes and Chaney (2016) argue that an alliance between clerics, the ruler, and military held back economic and political "innovations" that may have inimical to democracy today (e.g., dissemination of ideas via the delayed introduction of the printing press).[7] While this literature on the "long divergence" can (partially) explain differences in the *level* of economic and political development across Muslim and non-Muslim societies,

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[7]Blaydes and Chaney (2016) contend this alliance emerged around 1100 CE.

they are limited in explaining changes in democracy within Muslim societies *over time.* On this, several studies examine the role of time-varying factors, such as military spending that underlies the repressive capacity of many contemporary Muslim states (Bellin 2004) and the role of foreign financial transfers (e.g., foreign aid, remittances) in financing patronage politics in many non-oil producing autocracies since the 1970s (Ahmed 2012). As we discuss below, the manipulation of foreign economic policies may comprise another strategy.

2.2 Elite cohesion

Having established that Muslim non-oil producers tend to exhibit robust authoritarian structures, we now articulate why these countries might be prone to crony globalization. As we describe in this section, the analytical foundations of our argument are *not* necessarily specific to Muslim societies; rather, they arise from prominent theories of democracy/dictatorship that model the interaction of two actors − the masses ("poor") and elites − as guiding the autocrat's choice of policies to remain in power (e.g., Acemoglu and Robinson 2006, Svolik 2012). These policies typically entail some (optimal) combination of state repression and the provision of targeted benefits (patronage). In nondemocracies, the elites tend to enjoy patronage.[8]

In these accounts, elite cohesion is crucial to authoritarian resilience. Without it, elite defection comprises a prevalent pathway from dictatorship to (more) democracy. For example, Collier (1999) contends that democracy arises when some subset of the authoritarian coalition (the "soft-liners") joins with the disenfranchised (masses). In selectorate theory, Bueno de Mesquita et al. (2003) articulate a model that connects elite defection to the dictator's ability to supply targeted economic and political benefits to members in his "winning coalition." The model's comparative statics show that a reduction in targeted benefits (e.g.,

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[8]In more democratic settings, these theories formally show that patronage is increasingly targeted to the masses through the distribution of a variety of economic and political goods, such as welfare payments and political freedoms/rule of law.

imposition of tariffs to protect sectors important to elite interests) weakens the loyalty of elites to the autocrat; which in turn, heightens the likelihood of defection to another challenger. This challenger may be another would-be dictator or could be a more representative government that can credibly supply benefits.[9]

2.3 Partial liberalization in nondemocracies

The importance of elite cohesion in nondemocracies suggests the manipulation of foreign economic policy may be a prudent political strategy to protect the income (or "rents") of elites.[10] This protection − which, we refer to as crony globalization − could entail various instruments, including trade taxes (tariffs), non-tariff barriers, export subsidies, regulatory barriers, exchange rate controls, investment restrictions, among many others. Crony globalization may also forestall democratization by dampening revolutionary threats from the masses. Zissimos (2017), for example, endogenizes trade policy in a model of regime formation and transitions. The model combines a Heckcher-Ohlin model of international trade and trade policy with Acemoglu and Robinson's (2006) model of regime formation to delineate conditions under which elites (the dictator) may pursue protectionist policies to prevent a political transition. In equilibrium, various policy options are viable. One policy entails directly protecting the economic interests of elites (e.g., via trade taxes on products from sectors controlled by the elites), thus lowering the likelihood of elite defection. This is consistent with our arguments above. Another policy choice considers a country's (relative) factor endowments and their owners. This can affect the incidence and strength of revolutionary threats: if the masses own the scarce factor, the elites (via the autocrat) may opt to protect sectors employing these scarce factors in order to reduce the incentives to mount a

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[9]In a potential transition to a democratic regime, the provision of benefits may not be targeted exclusively to elites. Rather, the benefits could be a strengthening of property right protections that improves the economic welfare of the elites and masses (e.g., by spurring more private investment and innovation).

[10]Autocrats can also create institutions to "share" power with elites (see Svolik 2012). Our paper identifies a non-institutional channel via foreign economic policies.

revolution.[11]

Governments have a menu of policy instruments available for protection. Historically, for most developing countries with limited fiscal capacity, trade taxes (or tariffs) comprised the main instrument (Acemoglu and Robinson 2006, Zissimos 2017). However, as the multilateral trading system has strengthened since World War II, tariff levels around the world have fallen precipitously. In response, governments often resort to non-tariff barriers and various types of regulations (e.g., domestic content requirements, voluntary export restraints) as a means to protect (certain) economic interests in-lieu of tariffs.

In an effort to counteract these policies from their trading partners, governments increasingly sign and implement preferential trade agreements (PTAs). According to Baccini (2019, 76), "the most important change is that modern PTAs not only reduce tariffs but also regulate investment, intellectual property rights, competition policy, government procurement, and many other matters. In other words, PTAs remove barriers not only at the border but also behind the border, producing what has been referred to as deep integration between countries." As a consequence, PTAs often help introduce and consolidate broader economic and political reforms (Baccini and Urpelainen 2014).

In this regard, governments in nondemocracies may approach PTAs with caution. Liu and Ornelas (2014) develop a model of endogenous changes in political regime in which participation in PTAs can serve as a commitment device to destroy future protectionist rents. Since such rents are attractive to autocratic groups, PTAs lower their incentives to seek power. In nascent (or unstable) democracies this dynamic can incentivize an incumbent (democrat) to participate in PTAs as a means to consolidate democracy. A corollary to this conjecture portends that autocracies may opt to adopt fewer PTAs, and if they do, ratify those with shallower provisions. Baccini and Chow (2018) provide some empirical support,

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[11]While analytically distinct, these strategies could overlap: an autocrat could protect (certain) tradeable sectors tied to elites (e.g., steel) and the masses (e.g., textiles).

finding that autocracies sign PTAs with less depth (i.e., strength of their commitments).

Autocracies may also have incentive to strategically restrict their foreign investment. For example, Gao (2021) develops a model of oligopolistic competition linking globalization in the form of increasing foreign direct investment (FDI) to democratization. Rising wages associated with FDI liberalization encourage workers to support democratization, while capitalists (elites) become less willing to support democratization because with increased competition (from inward FDI) they seek protection from the autocrat in the form of FDI restrictions. To the extent that elite cohesion is important for authoritarian stability, autocrats are inclined to restrict FDI, particularly in politically connected industries.

2.4 Empirical implications

Our conceptual framework suggests that partial economic liberalization may be a viable strategy for authoritarian regimes to generate rents for politically connected (relevant) elites. In doing so, autocrats are in stronger position to maintain elite cohesion. Since Muslim societies tend to exhibit robust authoritarian structures (see section 2.1), this generates two empirical implications. First, liberalization is likely to be partial in Muslim countries, which can be characterized as being slower and potentially divergent relative to non-Muslim countries. Second, the presence of partial liberalization may arise from various policy choices (channels), including the adoption of fewer and shallower trade agreements and generating rents to politically connected firms (cronies) through, for example, targeted tariffs.

3 Empirical strategy

Attempts to empirically evaluate the causal relationship between international economic policy and domestic politics is challenging, particularly from omitted variables and/or reverse

causality.[12] To address these concerns, we employ a difference-in-differences (DD) research design that leverages the timing of the World Trade Organization's (WTO) creation in 1995 as a plausibly exogenous and common shock to trade liberalization and economic liberalization more broadly (we elaborate below). We then study whether patterns of economic globalization differed substantively across Muslim and non-Muslim countries after the WTO's establishment.

3.1 The plausible exogeneity of the WTO's creation

A crucial component underlying our empirical strategy is the plausible exogeneity of the WTO's creation to political and economic conditions in Muslim countries. The successful completion of the 1986 Uruguay Trade Round ushered in the creation of the WTO in 1995. As Preeg (2012) describes the negotiation process tackled many issues, including those related to agricultural subsidies, investment protections, phasing out of various export quotas (e.g., in textiles), and concerns with state sovereignty (initially, a concern of the United States).[13] Importantly, the motives and decisions underlying the WTO's creation were largely orthogonal to economic and political developments in Muslim countries. While many factors might influence a country's decision to join the WTO or not (which we strive to control for in our regressions), a country's religious practices is not a criteria for admission to the organization. Relatedly, our second observation reveals that after the WTO's creation, Muslim and non-Muslim countries (in our sample of non-oil producing developing countries) have not systematically differed in their propensity to join the WTO.[14] In the context of our research design, this suggests the WTO may be viewed as a common shock that has not necessarily

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[12]On the former, an omitted variable, perhaps culture, could affect both a country's domestic politics and trade policy preferences.

[13]This list is not exhaustive of the issues during the negotiation process. See Preeg (2012) for further details.

[14]We tested this formally by regressing a country's year of accession to the WTO on a Muslim dummy. The dummy was statistically insignificant.

differentially targeted non-Muslim countries (relative to Muslim countries).

The WTO's creation can also be viewed as a broader movement towards economic liberalization; and one that places competitive pressures on both members and *non-member* countries to liberalize (Bown and McCollough 2007). As Zissimos (2019, 2) stresses the advent of the WTO marked the emergence of a truly "rules-based" system that created the "strongest dispute settlement system (DSS) in the history of international law." Like its predecessor, the General Agreement on Trade and Tariffs (GATT), the WTO strives to reduce tariffs among member countries. However, unlike the GATT, the WTO introduced several provisions − most notably, its DSS − that allows member countries to challenge policies in other countries that discriminate in trade (e.g., regulatory barriers, export subsidies, "dumping" of products, etc.).[15] Adhering to the WTO's commitments can often be quite costly; some estimates suggest as much as a year's development budget for the least developed countries (Zissimos 2019, 8). Despite these costs, even after the WTO's creation, many countries have continued to participate and join preferential trade agreements (PTAs) and bilateral investment treaties (BITs). For example, Mansfield and Pevehouse (2013, Figure 1) show the accelerated rate of growth in PTAs worldwide *after* the WTO's creation, which include agreements with non-WTO member countries. The provisions to liberalize trade and investment in these treaties tend to be more expansive than those contained in the WTO. In short, the period after the WTO's creation (i.e., post 1995) embodies a general, global movement towards economic liberalization for both member and non-member countries of the WTO.

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[15]Several verdicts from the WTO's DSS has compelled member governments to change their domestic laws.

3.2 Specification

Baseline model. To examine why Muslim societies may be prone to crony globalization, we compare differences in globalization in the post-WTO period relative to the pre-WTO period between Muslim and non-Muslim countries. Our baseline specification is:

$$G_{it} = \alpha + \beta(Muslim_i \times Post_t) + X_{it}\theta + Y_t + C_i + \epsilon_{it} \quad (1)$$

In equation (1), G_{it} is the level of globalization in country i in year t. $Muslim_i \times Post_t$ is the interaction between an indicator variable equal to 1 if the country is Muslim-majority (and zero if otherwise) and a post-WTO "shock" dummy equal to 1 from 1995 onwards (and zero otherwise). X_{it} is a vector of time-varying country characteristics, such as log GDP per capita and population. In several specifications − particularly in our evaluation of competing explanations − we also include the interaction of various initial country characteristics, X_i (e.g., timing since the Neolithic Revolution, fixed geographic drivers of trade, etc.) and our post-WTO dummy. C_i are country fixed effects that account for any time-invariant differences across countries. Y_t are year fixed effects that account for any perturbations that apply to all countries in a given year (e.g., world interest rate, the end of the Cold War).

Importantly, as long as we control for year and country fixed effects, we automatically control for any independent effects of a country being Muslim or not (with each country fixed effect) and the timing of the WTO's creation (with a fixed effect for each year). To the extent that a country's decision to join the WTO (or not) is endogenous to the outcomes we study, we also control these factors (all pre-treatment and interacted with $Post_t$). Finally, we conservatively cluster our standard errors at the country level. The coefficient of interest, β, measures the observed change in globalization in Muslim countries (relative to non-Muslim countries) after the WTO shock (relative to before).

Identification assumptions. Conditional on our controls, our identification strategy relies

on the interaction effect, $Muslim_i \times Post_t$, being exogenous with respect to globalization (G_{it}). Here, we confront two specific challenges. First, if there are country characteristics that influence globalization and also shape the relationship between the WTO shock and globalization then this would violate the exogeneity assumption. Second, if Muslim countries were on a different trend in terms of their globalization prior to the WTO shock (relative to non-Muslim countries) then the assumption would be violated. We address the first concern by including country and year fixed effects in our benchmark specifications. Furthermore, we evaluate (and discount) several country characteristics that may be both correlated with a country's level of globalization and the WTO shock, such as market potential, geographic, and historical characteristics (see Appendix S4).

To address the second challenge, we estimate the fully flexible specification given by:

$$G_{it} = \alpha + \Gamma_t(Muslim_i \times Year_t) + X_{it}\theta + Y_t + C_i + \epsilon_{it} \quad (2)$$

This specification allows us to investigate whether Muslim countries were trending differently in terms of levels of globalization relative to non-Muslim countries prior to the WTO shock. In equation (2), G_{it} is the level of globalization in country i in year t. $Muslim_i \times Year_t$ are interactions between *each* year fixed effect and the Muslim indicator variable (e.g., $Muslim_i$). C_i and Y_t are country and year fixed effects, respectively. The vector of estimated interaction coefficients, Γ_t, shows the relationship between being a Muslim country and its level of globalization in each year (t) of our panel. If, for example, Muslim countries were *not* on a different trend in terms of their level of globalization prior to the WTO shock then we would expect the coefficients to be more or less constant and statistically indistinguishable from zero for the years prior to 1995. However, if Muslim countries engaged in partial liberalization after the WTO shock (as we hypothesize), then we would expect the coefficients to become more negative as we move further into the post-shock period. Equation (2) is also advantageous in discerning whether other global "shocks" (e.g., the Cold War's termination circa 1990) might also affect subsequent trajectories of globalization.

3.3 Data

Sample. Our research design exploits panel data to compare the level of globalization across Muslim and non-Muslim non-oil producing developing countries before and after the WTO's creation in 1995. In constructing our sample, we consider a country "developing" if it is categorized as lower or middle-income by the World Bank and differentiate oil and non-producers according to British Petroleum's definition. Based on existing studies (e.g., Ahmed 2012, Campante and Yanagizawa-Drott 2015), we categorize a country as being Muslim if at least 75 percent of its population identifies with the Islamic faith.[16] Notably, our sample excludes several prominent oil producing Muslim countries (e.g., Saudi Arabia, Kuwait). We do so because these countries tend to suffer from the well-known resource curse and exhibit pervasive cronyism (Mazaheri 2016), independent of concerns with protecting connected elites in tradeable sectors. Thus, by restricting our analysis to non-oil producing countries our estimated effects are unlikely to be biased in our favor. Our resulting sample, therefore, is a panel of 56 non-oil producing developing countries from 1970 through 2015.[17]

***De jure* globalization.** Our conceptualization of partial liberalization emphasizes the variety of protectionist policies governments may pursue (e.g., trade taxes, non-tariff measures, capital account restrictions, etc.). Thus, studying one particular measure of liberalization (e.g., trade as a share of GDP) is unlikely to capture this multifaceted process. Cognizant of this, we utilize a composite variable − the KOF Index of Globalization (Dreher 2006) − which carefully measures globalization along its economic, social, and political dimensions for almost every country in the world since 1970. Its comprehensive country, temporal, and topical coverage has made the KOF index the most widely used measure of globalization in

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[16]Our results remain robust if we use different percentage cutoffs. Reassuringly, we also verified that our control group of non-oil producing non-Muslim countries were "similar" to our treatment group on various observable characteristics (e.g., per capita GDP, political institutions) prior to the start of our sample period.

[17]Appendix S1 contains the country sample and summary statistics.

the academic literature (see Potrafke 2015 for a discussion).

To hone in on the policy dimension, we focus on *de jure* economic globalization (hereon, *de jure* globalization). We employ a revised version of the KOF Globalization Index, constructed by Gygli et al. (2019), that distinguishes between *de facto* globalization and *de jure* globalization (see Appendix S1 for a detailed description of the index). While *de facto* globalization measures actual international flows and activities, *de jure* globalization measures policies, and conditions that, in principle, enable, facilitate and foster flows and activities. Our measure of *de jure* globalization compiles information on trade (regulatory barriers, tariff rates, and membership in trade arrangements) and finance (openness of the capital account, investment restrictions) from a variety of sources and ranges from 0 to 100. An index value closer to 100 implies fewer restrictions on policies and conditions that facilitate cross-border economic exchange. An attractive feature of the index's construction is the ability to make comparisons across countries and over time (see Gygli et al. 2019 for further details).

4 Results

4.1 Baseline estimates

Table 1 reports estimates from our baseline specification. In column (1) we estimate a parsimonious model that only includes country and year fixed effects. The negative and statistically significant coefficient on $Muslim_i \times Post_t$ implies that Muslim countries experienced smaller increases in *de jure* globalization (relative to non-Muslim countries) after the WTO's creation (relative to before). In the remaining columns in Table 1, we control for factors that might affect patterns of globalization. In column (2), we control for a country's "timing since the Neolithic Revolution" interacted with $Post_t$ to capture the potential long-run effect of state development on globalization. Prior studies find that countries with

longer state histories (associated with an earlier transition to settled agriculture) tend to exhibit less democratic institutions today (Hariri 2015). Adding this control both increases the coefficient size and statistical significance of $Muslim_i \times Post_t$ compared to our benchmark estimate in column (1).

Table 1: *Globalization across Muslim and non-Muslim countries*

	KOF Globalization Index, *de jure*				
	(1)	(2)	(3)	(4)	(5)
Muslim x Post WTO	-5.395**	-8.762***	-8.981***	-7.716***	-7.359**
	(2.394)	(2.349)	(2.369)	(2.344)	(3.046)
Controls:					
Years since Agricultural Transition (x Post)		✓	✓	✓	✓
GDP per capita, natural log			✓	✓	✓
Total population, natural log				✓	✓
Arab conquest (x Post)					✓
Country fixed effects	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓
Observations	2,176	2,176	2,176	2,176	2,176
R^2	0.827	0.837	0.845	0.849	0.849

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The unit of observation is country-year. Years since Agricultural Transition and Arab Conquest vary across country but not year.

Our main DD effect remains robust when accounting for several standard confounders. Column (3) controls for a country's GDP per capita (in log units), which captures the potential role of economic development and market size on *de jure* globalization.[18] Accounting for per capita income may be considered "dirty" since it is post-treatment. In column (4) we control for a country's population size (in log units), which may proxy for market size. While adding this control slightly diminishes the effect on $Muslim_i \times Post_t$, it remains statistically significant and larger in magnitude (coefficient = -7.7) compared to column (1).

Finally, our main DD result remains robust when controlling for democracy. In column

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[18]For example, higher income countries may enjoy comparative advantage in industries that benefit from more liberal economic policies (e.g., higher returns to capital from fewer capital and investment controls).

(5) we do *not* use a *contemporary* measure of democracy which is likely to be endogenous with trade and investment policies. Rather, we control for a pre-treatment covariate that has been associated with the 'rigidity' of authoritarian structures in many contemporary Muslim countries: the percentage of a modern country's territory conquered by Arab armies during the expansion of Islam (Chaney 2012).[19] Recent work suggests Arab conquest introduced governing and institutions (e.g., sharia law, an alliance between the state, clergy, and military) that set conquered territories on a long-run trajectory of pernicious political economy and authoritarian political institutions in the contemporary era (Blaydes and Chaney 2016); and this in turn may differentially affect each country's economic policies after the WTO's creation.[20]

The estimated coefficients on $Muslim_i \times Post_t$ in columns (1) to (5) are negative and statistically significant. Moreover, accounting for confounders strengthens both the estimated effect's magnitude and statistical significance. The coefficient on $Muslim_i \times Post_t$ is substantively meaningful. For example, averaging the estimated DD effect across columns (2) to (5) suggests that Muslim countries experienced smaller increases (about 8.2 index points less) in *de jure* globalization relative to non-Muslim countries after the WTO shock (relative to before). This 8 point difference is equivalent to 19 percent of the average level of *de jure* globalization across our sample and has significant welfare implications. For instance, estimates from Gygli et al. (2019, Table 5) imply an 8 point reduction in *de jure* globalization is associated with a 0.49 percent decline in annual economic growth.

Our main finding on $Muslim_i \times Post_t$ remains robust in specifications that varies the size of the treatment group, for example by increasing and decreasing the threshold for qual-

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[19]Since this percentage is specific to each modern country and time-invariant, we interact it with $Post_t$ to capture its differential effect on *de jure* globalization after the WTO's creation. It is worth noting that Arab conquest attempts to measure the *time invariant* component of autocracy in Muslim countries that were conquered by Arab armies.

[20]Thus, Arab conquest plausibly captures the subsequent effect of Islamic law and the triparite governing coalition described in section 2.1.

ifying as being Muslim to 60 and 80 percent respectively and dropping individual countries from the treatment group (see Appendix S3). The latter addresses concerns that particular countries (outliers) might unduly drive the main findings. Our main finding also holds when we use the trade component of the KOF *de jure* index as the dependent variable.[21] This is reassuring, as one would expect the WTO shock to affect trade related policies. As we discuss shortly, our results remain robust when controlling for a battery of potential confounders associated with being Muslim and/or predispositions towards globalization (e.g., geography, political instability).

Flexible specification. To unpack the average effects presented in Table 1, we estimate equation (2) which interacts $Muslim_i$ with *each* year fixed effect. Performing this exercise is helpful in capturing how the relationship between a country's Muslim status and *de jure* globalization evolves over time and also probes whether the parallel trends assumption is violated. In Figure 3 we plot the coefficient estimates and corresponding 95 percent confidence intervals for the interactions. Two important insights emerge. First, there are no statistically significant differences in *de jure* globalization between Muslim and non-Muslim countries prior to the WTO shock. It is only after the WTO shock that *de jure* globalization in Muslim countries experiences smaller increases relative to non-Muslim countries. Second, the magnitude of the (negative) interaction effects increases for about 7 years after the shock (i.e., through 2002) and is strongly persistent thereafter. This supports our conjecture that governments in Muslim countries have partially liberalized their policies relative to non-Muslim countries after being exposed to the common globalization shock in 1995.

This interpretation is substantively important as it allows us to rule out other (competing) global shocks, such as the Cold War's termination around 1990. For example, if the period surrounding the end of the Cold War affected the subsequent trajectory of economic

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[21]In this model, the coefficient on $Muslim_i \times Post_t$ is -6.51 with a corresponding p-value<0.05.

liberalization in Muslim societies (relative to non-Muslim societies), one would expect Figure 3 to demonstrate statistically significant coefficient estimates around 1990.[22] Figure 3 does *not* exhibit this pattern, implying the Cold War's termination − nor *any* other global shock *prior* to 1995 − is driving our findings.

Figure 3: *The difference in de jure economic globalization between Muslim and non-Muslim countries, over time*
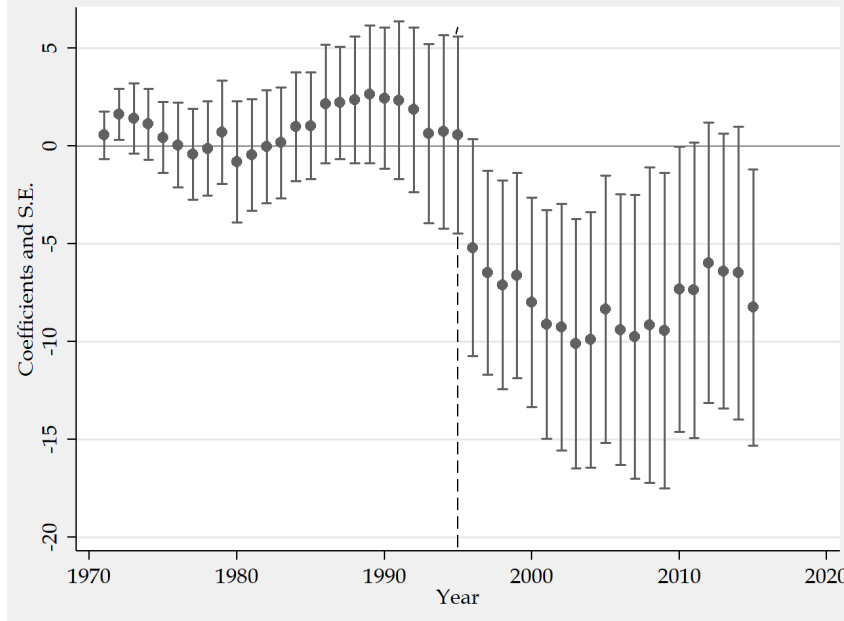
Notes: Each (coefficient) point is that year's fixed effect (Y_t) interacted with $Muslim_i$ on *de jure* globalization based on estimation of equation (2), with the corresponding 95 percent confidence interval. Standard errors are clustered at the country level. The regression includes the baseline controls from Table 1 (e.g., log GDP per capita $\times Post_t$) plus country and year fixed effects.

4.2 Discounting competing explanations

It is plausible that our main results may be driven by other factors that differentially affect *de jure* globalization (across Muslim and non-Muslim countries) after the WTO-shock. If these competing explanations "matter" one would expect them to *weaken* the statistical

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[22]As an additional check, we also control for $Muslim_i$ interacted with a post Cold War dummy (plus our baseline controls). In this specification, $Muslim_i \times Post_t$ is equal to -8 with a p-value<0.01, while $Muslim_i \times PostColdWar_t$ equals -0.92 and is not statistically significant (p-value=0.54).

effect of $Muslim_i \times Post_t$ on globalization. We consider three broad categories of explanations: geographic determinants of trade (e.g., market potential, distance to ports, etc.) and measures of political stability (e.g., civil unrest), societal factors (e.g., ethnic fragmentation), and reliance on external rents (e.g., foreign aid). In Appendix S4, we evaluate these explanations by controlling for their interactive effect (with $Post_t$) in our baseline specification given by equation (1). Our analysis shows $Muslim_i \times Post_t$ to remain robust in these regressions. This suggests these competing explanations are *not* driving the globalization deficit in Muslim societies.

4.3 Potential threats to causal inference

There are two main threats to our causal inferences: violation of the parallel trends assumption and selection on unobservables. On the former, we perform several exercises to assuage this concern. In the previous section, we decomposed our main DD estimates with a flexible specification that interacts our treatment dummy (i.e., whether a country is Muslim) on the full set of year fixed effects. Our estimates (presented in Figure 3) reveal that Muslim countries were no different from non-Muslim countries in their level of *de jure* globalization prior to the WTO's creation. In Appendix S5, we conduct additional evaluations that demonstrate that (1) Muslim countries did not differ not in their "trend differences" prior to the WTO's creation based on an approach advanced in Kahn-Lang and Lang (2020) and (2) show our main DD estimates hold in specifications that account for group-specific time trends. To address concerns about potential bias associated with selection on unobservables, we employ a test statistic developed by Altonji et al. (2005) and demonstrate that (potential) selection on unobservables is unlikely to bias our inferences (see Appendix S5).[23] Together, these findings reassure our causal interpretation: the globalization deficit widened

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[23]Moreover, this test also allows us to evaluate whether unobservables related to the initial decision to join the WTO (or not) unduly affects our results.

in Muslim countries (relative to non-Muslim countries) after the WTO's creation.

5 Evaluating channels

Guided by our conceptual framework in section 2, we now evaluate why and how Muslim countries have partially liberalized after the WTO's creation. We present two set of results. First, we unpack the "Muslim" effect from our main DD analysis in section 4. Employing a form of mediation analysis, we show that political institutions and *policy choices* associated with autocratic politics (as discussed in section 2) significantly weakens the effect of $Muslim_i \times Post_t$ on *de jure* globalization. For the latter, we show that Muslim countries adopted specific policies *prior* to the WTO's creation (e.g., entered trade agreements with less stringent commitments, exhibited higher tariff rates) that may have provided them greater scope for protectionism *after* the WTO shock. Building on these insights, we then provide within-country evidence from Egypt and Tunisia that protected (crony) sectors have benefited from protectionist policies in the wake of each country's adoption of free trade agreements.

5.1 The mediating role of political institutions

Our paper's theory is predicated on the notion that nondemocratic politics may incentivize governments to pursue a more hesitant and partial approach to globalization. As we illustrate in Figure 4, this argument is not exclusive to Muslim societies. For our sample of non-oil producing developing countries, the figure plots the annual average level of the KOF *de jure* globalization index across groups of democracies and nondemocracies.[24] Two stark patterns emerge. First, nondemocratic countries tend to be less globalized than democratic societies.

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[24]A country is classified as a democracy if its average *pre-WTO* normalized POLITY score is greater than or equal to 0.75 (which corresponds to a +7 or higher on the POLITY index). A nondemocracy is a country below 0.75.

Second, the divergence widens after 1995. Table 2 provides statistical corroboration using our DD research design.

Figure 4: *Globalization across democratic and nondemocratic non-oil producers, over time*
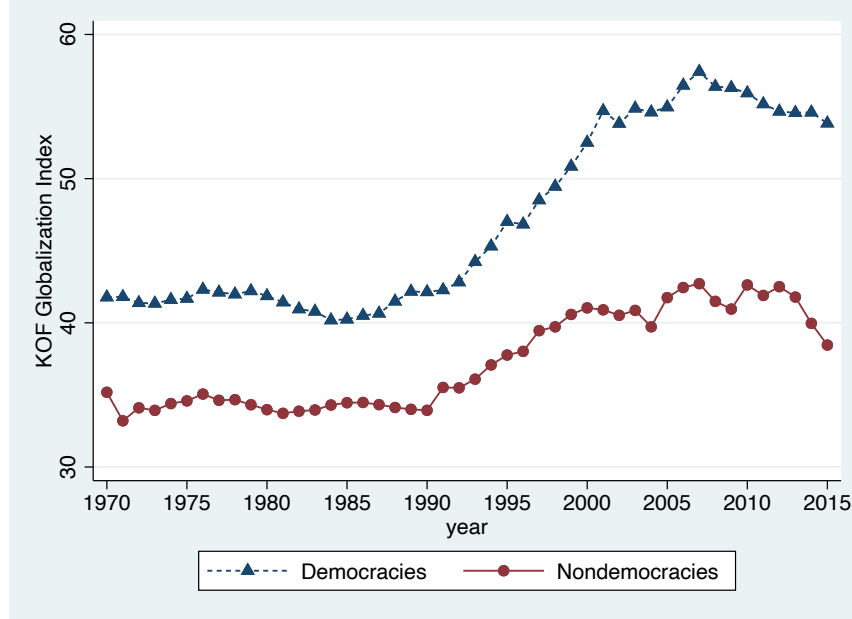
Notes: Annual group average of the KOF *de jure* economic globalization index across democratic and non-democratic non-oil producing countries. A country is democratic if its average pre-WTO normalized POLITY score is greater than or equal to 0.75. A nondemocracy is a country below 0.75.

Table 2: *Globalization across democracies and nondemocracies*

	KOF Globalization Index, *de jure*	
	(1)	(2)
Normalized POLITY (pre-WTO average) x Post WTO	15.65	13.435
	(5.713)***	(6.027)**
Muslim x Post WTO		-2.01
		(2.451)
Country fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	2,176	2,176
R^2	0.834	0.835

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. **, *** = significant at 5 and 1 percent respectively. The unit of observation is country-year. A constant and fixed effects for each country and year are not reported.

23

In column (1), the *positive* effect on $Polity_i \times Post_t$ implies that countries with *less* democratically oriented political institutions prior to the WTO are associated with *lower* levels of globalization after the WTO's creation compared to before (Appendix S2 provides further corroboration, with different measures of democracy). Since Muslim societies tend to exhibit robust authoritarian structures (see Figure 2), this inference suggests that a country's pre-WTO quality of political institutions may "mediate" the main DD effect in Table 1. To probe this conjecture more rigorously, column 2 shows that controlling for a country's quality of democratic institutions (prior to the WTO) effectively "kills" the effect of $Muslim_i \times Post_t$ on globalization. The estimated coefficient of -2.01 is smaller in magnitude than our benchmark estimates in Table 1 and is no longer statistically significant. Together, this suggests the prevalence of authoritarian political institutions largely accounts for (i.e., mediates) the widening globalization deficit in Muslim societies (compared to non-Muslim countries) after the WTO's creation. We now probe how institutions shape policy choices.

5.2 Pre-WTO policy choices

As we argued in section 2, policy choices comprise pathways for governments in less democratic settings to partially liberalize. One policy dimension is a country's overall stance on tariffs. To capture this, we use the overall trade restrictiveness index (OTRI) in manufacturing and all sectors compiled by the World Bank, where a higher index corresponds to a greater commitment to reduce tariffs.[25] Another policy dimension relates to the number and strength of commitments (depth) of preferential trade agreements (PTAs) adopted by governments. If governments are hesitant to liberalize, they may opt for fewer PTAs and those with less depth. To measure these aspects of PTAs, we draw on information from the

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[25]The Overall Trade Restrictiveness Index (OTRI) summarizes the trade policy stance of a country by calculating the uniform tariff that will keep its overall imports at the current level when the country in fact has different tariffs for different goods. In a nutshell, the OTRI is a more sophisticated way to calculate the weighted average tariff of a given country, with the weights reflect the composition of import volume and import demand elasticities of each imported product.

DESTA database (Dür et al. 2014).

Table 3 evaluates whether these policy choices shaped a country's *de jure* globalization after the WTO shock. To capture this differential effect, we interact a country's average value on these measures in the pre-shock period (i.e., prior to 1995) and our post-WTO shock, $Post_t$. We re-estimate our baseline specification given by equation (1) with these interactive policy measures as additional controls. Two important patterns emerge. First, countries that adopted more favorable policy stances towards trade liberalization (e.g., signed more PTAs) experience larger gains in *de jure* globalization after the WTO shock (compared to before). Second, the estimated effect on $Muslim_i \times Post_t$ weakens, both in magnitude and statistical significance. For instance, the coefficient estimate on $Muslim_i \times Post_t$ in column (4) is 40 percent smaller compared to our benchmark estimate in column (1) that does not control for policy choices. Moreover, $Muslim_i \times Post_t$ is no longer statistically significant.

Together, these two patterns suggest that policy choices may be important mediating factors. Substantively, it implies that our "Muslim effect" is likely capturing the differential policy choices these governments chose (relative to non-Muslim countries) in the pre-WTO period and the subsequent effect it had after the WTO's creation. Table 4 provides additional evidence that governments in Muslim countries pursued PTAs with less stringent commitments towards liberalization prior to the WTO's creation. We regress the average depth of a country's PTAs in the pre-WTO period on a Muslim dummy and control for a series of confounding factors (e.g., geographic factors, average receipts of rents, per capita GDP, a democracy indicator). Across these specifications, the coefficient on Muslim is negative, quite stable, and statistically significant.

Table 3: *Policy decisions and globalization*

	KOF Globalization Index, de jure						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Consistent sample					Full sample	
Muslim x Post WTO	-7.772***	-5.864***	-5.094*	-4.902*	-4.163	-4.803*	-3.824
	(2.442)	(2.128)	(2.649)	(2.684)	(2.631)	(2.661)	(2.576)
Controls: (x Post WTO)							
Overall Trade Restrictiveness, manufacturing		58.70***					
		(13.07)					
Overall Trade Restrictiveness, all sectors			42.07**				
			(16.80)				
Number of deep FTAs, maximum				2.660***		2.401***	
				(0.802)		(0.800)	
Depth of FTAs, average					7.004***		5.676***
					(1.672)		(1.733)
Baseline controls	✓	✓	✓	✓	✓	✓	✓
Country fixed effects	✓	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓	✓
Observations	2,089	2,089	2,089	2,089	2,089	2,176	2,176
R^2	0.850	0.868	0.857	0.863	0.866	0.859	0.861

Notes: Robust standard errors, clustered by country in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. Overall Trade restrictiveness (manufacturing, all sectors), and the number and depth of FTAs are country averages prior to the WTO's creation. The control variables are the pre-period (i.e., before 1995) average value interacted with $Post\ WTO_t$. In columns 1-4, the sample is held constant. We refer to this as a consistent sample.

Table 4: *Depth of trade agreements in Muslim and non-Muslim countries prior to 1995*

	Depth of Free Trade Agreements					
	(1)	(2)	(3)	(4)	(5)	(6)
Muslim	-0.607**	-0.718**	-0.714**	-0.714**	-0.714**	-0.670**
	(0.276)	(0.312)	(0.325)	(0.313)	(0.318)	(0.291)
Controls						
Latitude	✓	✓	✓	✓	✓	✓
Longitude	✓	✓	✓	✓	✓	✓
Regional fixed effect		✓	✓	✓	✓	✓
Foreign Aid (% of GDP)			✓	✓	✓	✓
Remittances (% of GDP)			✓	✓	✓	✓
Log of GDP per capita				✓	✓	✓
Democracy indicator					✓	✓
Total trade (% of GDP)						✓
Countries	56	56	56	56	56	56
R^2	0.208	0.333	0.396	0.396	0.397	0.407

Notes: Robust standard errors in parentheses. ** = significant at 5 percent. Foreign aid (% GDP), remittances (% GDP), log GDP per capita, democracy indicator (from Cheibub, Ghandi, and Vreeland 2010) and total trade (% GDP) are country averages. The dependent variable, "Depth of trade agreements", is drawn from Dür et al. (2014) and where a higher value corresponds to more depth (i.e., stricter PTA commitments).

5.2 Within-country evidence

Our analysis in the previous sub-section suggests the adoption of shallower trade agreements and prevalence of greater trade barriers may (partially) explain why Muslim countries have experienced a smaller increase in *de jure* globalization (relative to non-Muslim countries) after the WTO's creation (compared to before). We draw on these insights to study how trade liberalization (after the adoption of a new PTA) affects cronyism at a more fine-grained within-country level. We compile and map information on trade protectionist measures and political connections across sectors. Discerning the latter can be particularly challenging as political connections are not as readily apparent in countries with less transparent reporting practices and greater informalities in economic transactions (e.g., nondemocracies).

To address these challenges, we draw on original data from Egypt and Tunisia that

varies at the sector-level and crucially identifies political connections (cronies) in these two nondemocracies.[26] Our analysis focuses on studying patterns of protection across crony and non-crony firms/sectors following the adoption of PTAs with the European Union after the WTO's creation. This therefore offers us an opportunity to study patterns of trade protectionist measures following a post-WTO "PTA shock."

5.2.1 Data

Our main analysis focuses on politically connected actors in Egypt. Construction of this data involved a three-step procedure (see Appendix S6 for a visual representation). First, crony firms are identified from Roll's (2010) list of Egypt's financial and economic core elites and supplemented with addition information guided by the commonly used definition of politically connected firms proposed by Faccio (2006). More specifically, a firm is classified as being politically connected if the owner or top manager is a member of parliament, cabinet official (minister), head of state, or connected with regime insiders through marital ties and business interests. This approach is conservative as it only identifies firms as politically connected if there is a clear and documented link. Second, this information on crony firms is combined with detailed information on the list of products manufactured by these companies. Unfortunately, this information is not compiled by any statistical agency and required gathering data from a number of sources, including company websites, press archives and Orbis. Third, each product was then assigned to its respective sector using the most detailed 4-digit International Standard Industrial Classification (ISIC) developed by UNCTAD. Together, this three step procedure allows us to generate an ordinal variable, *Crony Activity*, which increases by one unit for every additional politically connected actor in a sector.[27]

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[26]Despite their differences in colonial legacies, Muslim traditions (and associated political structures) remain strong in each society; and may influence international economic policies.

[27]Our data from Tunisia is constructed in similar manner, albeit from different sources.

For each country, we identify (match) crony activity in 119 manufacturing sectors at the 4-digit ISIC classification. On average, there are 1.85 and 3.54 crony firms per sector in Egypt and Tunisia, respectively.[28] Looking across sectors, there is significant variation in crony activity (see Table S6.1 for statistics at the 2-digit ISIC classification). In Egypt, for example, metals, rubber, motor vehicles, and machinery and equipment exhibit high crony activity, whereas such activity is less prevalent in sectors related to computing and medical devices.

Our data begins after the WTO's creation, which precludes us from studying how the WTO shock affected patterns of protection (tariff rates) across crony and non-crony firms. Instead, we exploit each country's adoption of its trade agreement with the EU as a plausibly shock to liberalization that was largely orthogonal to its domestic political economy. For example, the impetus for the EU to sign a PTA with Egypt was determined outside of Egypt's domestic political arena and was an outcome of high-level geopolitical concerns that linked trade and security in the post-9/11 period (Adly 2019).[29]

5.2.2 Protection in politically connected sectors

We begin our analysis by examining patterns in tariff rates across crony and non-crony sectors in Egypt. In Figure 5, we first plot the average tariff rates across sectors that have at least one crony firm (*crony sector*) and those without any. The figure suggests that crony sectors tend to enjoy higher tariff protection, and notably this favoritism continued after the implementation of the Egypt-EU PTA in 2004. While suggestive, the pattern in Figure 5 could be driven by unobserved heterogeneity and omitted variables. Moreover, the figure does not necessarily reveal any information about the intensive margin: whether sectors

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[28]We focus on Egypt, in part because the lower degree of crony activity is likely to generate more *conservative* estimates linking crony penetration to trade protection.

[29]"Exogenous" reasons also affected the EU's decision to sign FTAs with Tunisia. For example, the main impetus for the EU to sign a PTA with various North African countries stemmed from geo-political objectives to link security and stability in the Mediterranean with trade cooperation as part of the Barcelona process.

with more intensive penetration by cronies exhibit greater tariff protection. To address these concerns, we probe whether sectors with more active cronies predicts higher tariff levels over time while controlling for a number of sectoral characteristics.

Figure 5: *MFN tariff rate in Egypt in crony and non-crony sectors*
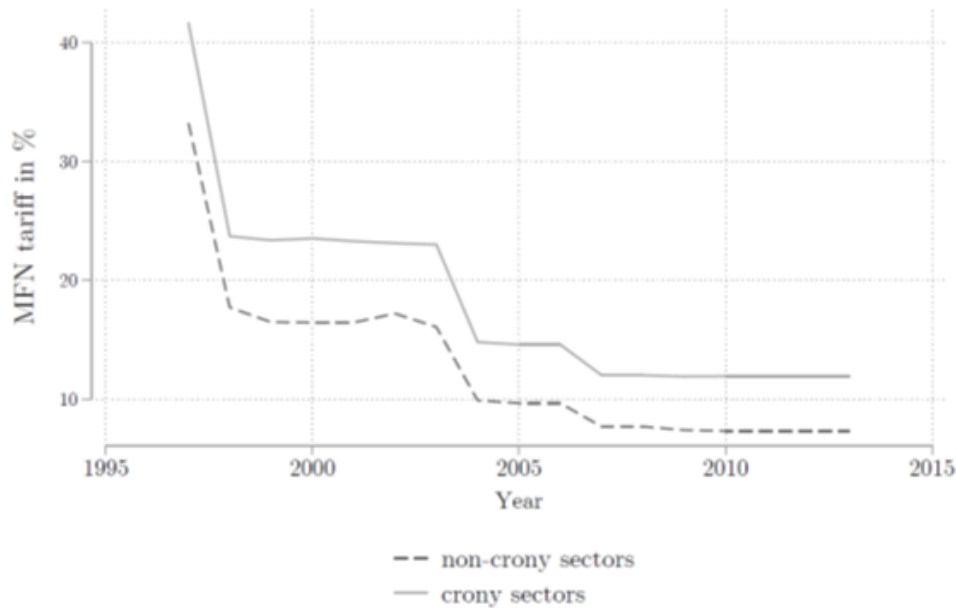
Notes: Annual average tariffs in sectors with any crony activity ("crony") and those without any.

To evaluate the effect of political connections on tariffs, we estimate a Prais-Winston specification with an AR1 error structure, estimated using OLS and robust standard errors clustered by sector. As tariff levels are likely to be affected by their level in the previous period, the adjustment of the error structure is important to control for this serial correlation. Given the limited number of time periods in our data, we prefer the Prais-Winsten specification to a lagged dependent variable. Moreover, considering the downward trend of tariffs in the MENA region during the 2000s (World Bank 2009), we include time and sector fixed effects at the ISIC-2 level. Since our explanatory variable measuring political connections does not vary over time, we refrain from using lower-level fixed effects for different sectors.

Table 5: *Crony activity and trade protection in Egypt*

|	MFN tariff rate (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
Crony Activity	2.867***	2.795***	3.092***	3.317***	2.519***	2.094***
	(0.223)	(0.213)	(0.222)	(0.218)	(0.217)	(0.297)
Controls						
Establishments	✓	✓	✓	✓	✓	✓
Employees	✓	✓	✓	✓	✓	✓
Output to GDP		✓	✓	✓	✓	✓
Value added to GDP		✓	✓	✓	✓	✓
Output concentration			✓	✓	✓	✓
Imports				✓	✓	✓
Fixed effects						
Period					✓	✓
Sector						✓
Observations	22,767	21,912	21,9121	21,355	21,355	21,355

Notes: Estimation via Prais-Winston regressions with AR-1 error. Robust standard errors, clustered by sector in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The dependent variable is annual MFN tariff rates and the main variable of interest is the total number of cronies active in a sector (Crony Activity). Analysis is carried out at the sector-year level with 119 ISIC-4 manufacturing sub-sectors. Estimations are carried out on an unbalanced panel over the period, 2002-2010. The following controls are included: log of the total number of enterprises (Establishments), log of the total number of employees (Employees), the share of output and value-added to GDP, output per enterprise as a ratio of total output (Output concentration), and the log of total imports.

Table 5 shows that on the intensive margin, tariffs in Egypt tend to be significantly higher in sectors with more active cronies. In column (1), we control for two measures of sector size: the number of establishments and employees. The positive and precisely estimated coefficient on crony activity implies that a sector with an additional politically connected firm enjoys an additional 2.9 percentage point of tariff protection. In columns (2) and (3), this effect holds when controlling for several measure of a sector's output, such as its share of output to GDP. It is plausible that failing to account for a sector's competition from abroad may overstate the estimated effect of cronyism. This does not seem to the case, as the coefficient on crony activity increases in magnitude when also accounting for a sector's

import penetration (column 4). Finally, we account for unobserved heterogeneity that varies over time (column 5) and also at the sector level (column 6). While controlling for these fixed effects reduces the estimated effect on crony activity, it nevertheless remains positive and statistically significant.

Figure 6: *Effect of cronyism on tariff protection on the intensive margin*

A: *Egypt*

B: *Tunisia*
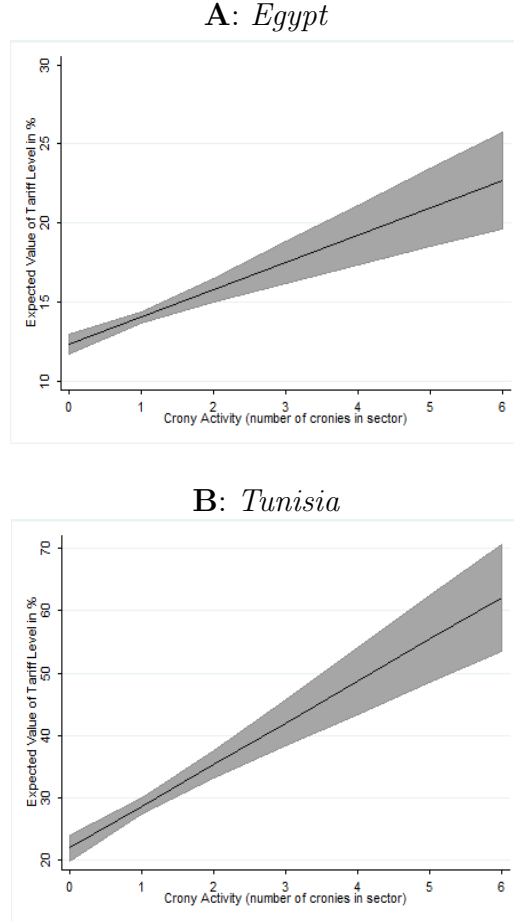
In Figure 6a, we graph the expected value of tariffs across sectors with greater crony penetration associated with our most conservative specification (corresponding to column 6 in Table 5). The figure suggests that sectors with the greatest crony penetration enjoy three times greater tariff protection than a non-crony sector. In a similar vein, Figure 6b provides additional evidence from Tunisia following the implementation of its respective PTA with the EU: sectors with more active cronies tend to exhibit higher tariff levels over time compared

to non-crony sectors (while also controlling for sector and time fixed effects). These patterns in Egypt and Tunisia offer two substantive implications. First, liberalization has affected both crony and non-crony firms but has not closed the gap in protection between crony and non-crony firms. Second, crony firms continue to enjoy preferential protection in the wake of liberalization.

6 Conclusion

Globalization is often viewed as propelling economic and possibly political liberalization. This paper raises some skepticism. We present evidence that many Muslim societies have adopted a more hesitant and partial approach towards economic globalization, plausibly due to their predisposition to cronyism; a condition that tends to be associated with authoritarian political structures. Our analysis suggests Muslim countries experienced significantly smaller increases in *de jure* globalization (compared to non-Muslim countries) after the WTO's creation (compared to the period before). This finding is robust, in particular to concerns with parallel trends and several competing explanations (e.g., geographic drivers of trade, political instability).

In investigating why Muslim countries have partially liberalized, our analysis reveals two plausible channels. First, the prevalence of authoritarian structures may have incentivized governments to view trade and related foreign economic policies as a means to generate rents for important commercial elites. Second, this policy preference was reflected in government decisions to adopt fewer and, notably, shallower preferential trade agreements that provide greater opportunities and scope to pursue protectionist measures (e.g., regulatory barriers, imposition of non-tariff measures, etc.). Moreover, since many Muslim countries exhibit less democratic politics, distributing rents to elites through cronyism likely bolstered the incumbent regime's political durability. Our analysis of politically connected sectors in

provides further substantiation: crony sectors continue to enjoy greater and preferential protection (e.g., higher tariff rates, access to greater non-tariff measures) in the wake of recent trade agreements with the EU. Together our findings strong suggest the globalization deficit in many Muslim societies may have their roots in politics.

Our paper offers at least two substantive implications that may be applicable beyond Muslim societies. First, in the wake of global pressures to liberalize, political factors may be influential in the speed and depth of economic reforms that countries undertake. Second, this partial approach to globalization may differentially affect firms and interests within countries. In particular, crony firms and industries tend to be the main beneficiaries of protection, often through a variety of government policies (e.g., tariffs, non-tariff measures, regulatory barriers). The preferential protection that cronies receive in foreign economic policy may be particularly pervasive in countries with less democratic politics.

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Table of Contents: Appendices

Appendix S1: Data

Description of the KOF index. We follow Dreher (2006) and Gygli et al. (2019) in conceptualizing globalization as a "process of creating networks of connections among actors at intra- or multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods. Globalization is a process that erodes national boundaries, integrates national economies, cultures, technologies and governance, and produces complex relations of mutual interdependence."

Since our conceptual identifies policy choices, we focus our empirical analysis on *de jure* economic globalization (hereon, *de jure* globalization). We employ a revised version of the KOF Globalization Index, constructed by Gygli et al. (2019) that distinguishes between *de facto* globalization and *de jure* globalization. While *de facto* globalization measures actual international flows and activities, *de jure* globalization measures policies, and conditions that, in principle, enable, facilitate and foster flows and activities. In practice, *de jure* globalization is often a prerequisite for *de facto* globalization. As Gygli et al. (2019, 564) observe "tariffs need to be reduced or abolished to promote international trade. Infrastructure such as internet access needs to be available to exchange information and ideas. International agreements need to be signed and embassies built to enable political collaboration. When *de jure* globalization has occurred, *de facto* globalization proceeds. Goods and services need to be traded, information exchanged, and policies in line with international agreements implemented."

Our measure of *de jure* globalization compiles information on trade (regulatory barriers, tariff rates, and membership in trade arrangements) and finance (openness of the capital account, investment restrictions) from a variety of sources and ranges from 0 to 100. An index value closer to 100 implies fewer restrictions on policies and conditions that facilitate cross-border economic exchange. An attractive feature of the index's construction is the ability to make comparisons across countries and over time (see Gygli et al. 2019 for further details).

The trade dimension uses variables on trade regulation, trade taxes, tariff rates and free trade agreements. Trade regulation includes the average of two subcomponents: prevalence of non-tariff trade barriers and compliance costs of exporting. The variable trade taxes measures the income of taxes on international trade as a share of total income in a country. The variable tariff rates refers to the unweighted mean of tariff rates. The variables trade regulation, trade taxes and tariff rates are calculated as the inverse of the normalized values such that higher values relate to a higher level of *de jure* trade globalization. Free trade agreements refer to the stock of multilateral and bilateral free trade agreements.

The finance dimension measures the openness of a country to international financial flows and investments. The IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) is the primary source for most measures of *de jure* financial globalization. It measures the openness of the capital account of a country using the most widely used index based on the AREAER reports: the Chinn-Ito index. The second variable measures investment restrictions based on the WEF Global Competitiveness Report. To account for

policies that are potentially favorable to capital flows, the index also includes the number of international treaties which covers bilateral investment agreements and treaties with investment provisions. It does not include information on the strength of treaty commitments ("depth").

Table S1.1: *Summary statistics*

	Non-Muslim					Muslim				
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max
KOF de jure	1567	46.269	14.215	9.422	85.829	781	36.91	11.648	13.832	67.917
GDP per capita, log	1749	7.395	0.967	4.754	9.596	874	6.911	0.922	5.481	9.35
Population, log	2068	15.72	1.109	13.169	18.431	1120	15.954	1.473	11.334	19.057
Arab Conquest	2376	0.004	0.023	0	0.153	1180	0.496	0.441	0	1
Agricultural transition	2417	3.601	1.86	1	8	1251	5.86	2.813	2.9	10.5
FTA Depth Index	2417	1.482	0.798	0.327	5	1251	1.182	0.607	0.227	2.286
Deep FTAs, Average	2417	2.312	0.753	1	3.913	1251	1.628	0.489	1	2.5
Deep FTAs, Max No.	2417	4.594	1.664	2	7	1251	3.141	0.857	1	4
Distance from Coast	2376	266.757	348.036	12.252	1675.81	1251	360.473	375.613	26.24	1180.26
Foreign Aid (% of GDP)	1652	7.342	11.207	-0.643	147.059	885	8.033	8.378	0.003	57.828
Trade Restrictiveness Index, Overall	2204	0.167	0.078	0.031	0.401	1251	0.111	0.058	0.005	0.235
Trade Restrictiveness Index, Manufact.	2204	0.118	0.099	0.009	0.42	1251	0.089	0.069	0.002	0.257
Real Market Potential, RV (log)	2417	15.187	1.054	13.271	18.588	1251	14.845	1.153	13.179	17.282
Real Market Potential, HM (log)	2417	13.363	0.793	11.965	14.968	1251	13.365	0.889	12.185	15.169

Table S1.2: *Sample of non-oil producing developing countries*

Muslim	Non-Muslim	
Afghanistan	Armenia	Malawi
Albania	Bolivia	Mongolia
Bangladesh	Botswana	Mozambique
Burkina Faso	Bulgaria	Nicaragua
Djibouti	Chile	Panama
Egypt	Cote d'Ivoire	Paraguay
Gambia	Dominican Republic	Philippines
Guinea	El Salvador	Poland
Jordan	Eritrea	Serbia & Montenegro
Lebanon	Ghana	South Africa
Mali	Guatemala	Sri Lanka
Morocco	Guinea-Bissau	Tanzania
Niger	Guyana	Togo
Pakistan	Haiti	Uganda
Senegal	Honduras	Ukraine
Sierra Leone	Hungary	Uruguay
Somalia	Jamaica	Zambia
Sudan	Kenya	Zimbabwe
Tunisia	Liberia	
Turkey	Madagascar	

Appendix S2: Regime type and globalization

Our conceptual framework advanced in section 2 suggests that countries with more (less) democratically oriented institutions exhibit higher (lower) levels of globalization. In the table below, we employ several different measures of democracy to empirically substantiate this assertion. In particular, the statistical associations show that countries with a higher quality of democratic institutions experienced larger gains in *de jure* globalization after the WTO's creation. Our measures of democracy are the pre-treatment period average for each country. In column (1), we use a dichotomous measure of democracy constructed by Chiebub, Ghandi, and Vreeland (2010). This variable is based on four key dimensions: (a) elected chief executive; (b) elected legislature; (c) presence of more than one party in competition for major offices; (d) alternation in power under electoral rules identical to the ones that brought the incumbent to office. In column (2), we use Boix, Miller, and Rosato's (2012) continuous measure of democracy. BMR rely on a variety of sources to measure two central dimensions for democracy: contestation and participation (and involves a minimal suffrage requirement). In column (3), we use a measure of checks and balances from the Database of Political Institutions compiled by the World Bank.[30] Across all three specifications, the coefficient on democracy $\times$ Post WTO is positive and statistically significant; which suggest that countries with more democratically oriented institutions (and practices) are positively associated with higher levels of *de jure* globalization.

Table S2.1: *Globalization across democracies and nondemocracies*

	KOF Globalization Index, *de jure*		
	(1)	(2)	(3)
CGV democracy measure x Post WTO	12.05***		
	(4.419)		
BBM democracy measure x Post WTO		8.300*	
		(4.641)	
Measure of checks and balances x Post WTO			0.0114**
			(0.00487)
Baseline controls	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	2,176	2,176	2,176
R^2	0.848	0.844	0.839

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The unit of observation is country-year. Each row reports the coefficient on a country's pre-period (i.e., prior to 1995) average of democracy interacted with the Post WTO indicator. All specifications control for Years since Agricultural Transition x Post WTO, GDP per capita (log), total population (log), Arab conquest x Post WTO, country and year fixed effects. These coefficients and a constant are not reported.

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[30]The DPI data is available at: https://datacatalog.worldbank.org/dataset/wps2283-database-political-institutions).

Appendix S3: Additional results

Table S3.1: *Globalization across Muslim and non-Muslim countries, with at **least 60%** of population identifying as Muslim*

	KOF Globalization Index, *de jure*				
	(1)	(2)	(3)	(4)	(5)
Muslim x Post WTO	-5.185**	-8.735***	-8.952***	-7.756***	-7.653**
	(2.427)	(2.363)	(2.384)	(2.346)	(3.047)
Controls:					
Years since Agricultural Transition (x Post)	No	Yes	Yes	Yes	Yes
GDP per capita, log	No	No	Yes	Yes	Yes
Total population, log	No	No	No	Yes	Yes
Arab conquest (x Post)	No	No	No	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,148	2,148	2,148	2,148	2,148
R^2	0.827	0.839	0.846	0.850	0.850

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The unit of observation is country-year. Years since Agricultural Transition and Arab Conquest vary across country but not year.

Table S3.2: *Globalization across Muslim and non-Muslim countries, with at **least 80%** of population identifying as Muslim*

	KOF Globalization Index, *de jure*				
	(1)	(2)	(3)	(4)	(5)
Muslim x Post WTO	-4.027	-7.814***	-8.153***	-6.792***	-5.840*
	(2.409)	(2.450)	(2.459)	(2.462)	(3.417)
Controls:					
Years since Agricultural Transition (x Post)	No	Yes	Yes	Yes	Yes
GDP per capita, log	No	No	Yes	Yes	Yes
Total population, log	No	No	No	Yes	Yes
Arab conquest (x Post)	No	No	No	No	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,056	2,056	2,056	2,056	2,056
R^2	0.828	0.838	0.846	0.849	0.849

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The unit of observation is country-year. Years since Agricultural Transition and Arab Conquest vary across country but not year.

Table S3.3: *Globalization across Muslim and non-Muslim countries, dropping Muslim countries (one-by-one)*

	Effect on Globalization index, de jure			
	Muslim x Post WTO			
Excluded country	Coefficient	SE	Observations	R-squared
	(1)	(2)	(3)	(4)
Albania	-7.595**	(3.268)	2,140	0.850
Bangladesh	-7.357**	(3.366)	2,131	0.838
Burkina Faso	-5.774*	(2.921)	2,130	0.851
Egypt	-7.279**	(3.052)	2,130	0.850
Gambia	-9.351***	(2.656)	2,130	0.854
Guinea	-7.230**	(3.255)	2,146	0.844
Jordan	-6.762**	(3.040)	2,135	0.850
Lebanon	-7.653**	(3.047)	2,148	0.850
Mali	-7.311**	(3.062)	2,130	0.847
Morocco	-7.334**	(3.040)	2,130	0.849
Niger	-7.354**	(3.072)	2,130	0.846
Pakistan	-7.464**	(3.051)	2,130	0.848
Senegal	-8.249**	(3.236)	2,130	0.848
Sierra Leone	-7.342**	(3.491)	2,130	0.846
Sudan	-6.338**	(3.116)	2,130	0.854
Tunisia	-7.350**	(3.047)	2,130	0.847
Turkey	-7.335**	(3.041)	2,130	0.848

Notes: Estimation via OLS. Robust standard errors, clustered by country reported in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. The unit of observation is country-year. Each row reports the coefficient on Muslim x Post WTO (on the KOF globalization index, de jure) in a sample that excludes observations from the indicated country in the "Excluded country." All specifications control for Years since Agricultural Transition x Post WTO, GDP per capita (log), total population (log), Arab conquest x Post WTO, country and year fixed effects. These coefficients and a constant are not reported.

Appendix S4: Evaluating competing explanations

Geographic determinants of trade. Workhorse models of international trade demonstrate that markets (populations) more distant from the coast or navigable rivers tend to engage in less trade. We consider four standard measures. Columns 1-2 in Table S4.1 show that countries with a greater share of its surface area or population within 100 kilometers of the sea or river exhibit higher levels of *de jure* globalization after the WTO shock. Columns 3-4 show that landlocked countries and those whose centroid is farther from a coast or navigable river exhibit lower levels of *de jure* globalization after the WTO shock. These effects are consistent with existing models. Across all four specifications, the effect of $Muslim_i \times Post_t$ remains highly statistically significant (p-value<0.01) with a relatively stable coefficient estimate hovering between -7 to -8.1.

Geography may also affect export capacity and market potential (Head and Mayer 2004, Redding and Venables 2004). Columns 5-8 control for several measures of market potential (interacted with $Post_t$) stemming from on work in economic geography. While the coefficient on $Muslim_i \times Post_t$ is reduced slightly, our main DD effect remains statistically significant. In these specifications, only Head and Mayer's (2004) measure of real market potential is a robust determinant of a country's level of *de jure* globalization after the WTO's creation.

Political stability. Governments experiencing or facing a heightened risk of political instability (e.g., civil unrest, interstate state) may be less inclined to pursue policies that liberalize cross-border economic exchange. This concern may be particularly acute in many Muslim societies which are prone to experiencing civil unrest and interstate war (Kuran 2018). To the extent that heightened political instability is correlated with our Muslim dummy, failing to account for such unrest may comprise omitted variable bias. In Table S4.2 we control for several measures of intrastate and interstate violence, each interacted with $Post_t$. These measures include both realized (e.g., incidence) and perceived (e.g., risk) types of political instability. Across all the specifications, our estimated effect of $Muslim_i \times Post_t$ on *de jure* globalization remains negative and statistically significant.

External rents (foreign aid). A country's reliance on external rents might affect its pace of international economic liberalization (as described in section 2). Since our sample is comprised of non-oil producing developing countries, an important (possible) source of external rents can be its dependence on foreign aid (as a share of GDP).[31] Accordingly we use foreign aid (as a share of GDP) to proxy for external rents, but are agnostic as to its expected effect on globalization. On the one hand, if donors "tie" aid to trade, then greater aid receipts may induce stronger efforts at globalization. On the other hand, if foreign aid entrenches authoritarian politics (e.g., financing repression and/or patronage), greater aid receipts may lessen a government's pursuit of globalization; an effect which follows our conceptual framework (from section 2). Prior work suggests that foreign aid received in

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[31]Our measure of aid is the pre-shock country average.

Muslim non-oil producers may have strengthened authoritarian politics (Ahmed 2012); thus, slowing their pace of globalization.

We untangle the possible role of foreign aid on globalization (as a competing explanation) in two ways. Column (1) in Table S4.3 shows that countries more reliant on foreign aid have experienced smaller gains in *de jure* globalization after the WTO shock compared to less aid dependent countries (after the WTO shock). For example, the coefficient estimate implies that countries where foreign aid comprises 10 percent of its national income exhibit a level of *de jure* globalization that is nearly 3 index points lower after the WTO's creation than countries that do not receive any aid. In column (2) we control for aid in our baseline specification (given by equation (1) in the main paper). While the coefficient on $Muslim_i \times Post_t$ attenuates slightly (to -7.1) relative to the estimates in Table 1, it remains statistically significant. Aid exhibits a negative effect on globalization. Together, the results in columns (1) and (2) suggest that reliance on external rents (proxied with aid) is negatively associated with a country's globalization policies but the effect is not strong enough to dislodge our main DD effect given by $Muslim_i \times Post_t$.

Table S4.1: *Robustness to geographic drivers of trade*

	KOF Globalization Index, de jure							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Muslim x Post WTO	-7.555***	-8.145***	-7.188***	-7.908***	-7.167***	-7.311***	-6.898***	-6.640**
	(1.949)	(1.940)	(2.247)	(2.197)	(2.331)	(2.583)	(2.349)	(2.608)
Additional controls: (x Post WTO)								
Share of surface area within 100 km of sea or river	0.0994***							
	(0.0295)							
Share of population within 100 km of sea or river		0.0972***						
		(0.0281)						
Distance from coast or navigable river			-0.00629*					
			(0.00332)					
Dummy for landlocked countries				-5.166*				
				(2.708)				
Log of real market potential (Head and Mayer)					4.169***			
					(1.376)			
Log of foreign market potential (Head and Mayer)						-0.997		
						(2.763)		
Log of real market potential (Redding and Venables)							1.526	
							(0.983)	
Log of foreign market potential (Redding and Venables)								-2.866
								(2.840)
Observations	2,130	2,130	2,176	2,176	2,176	2,176	2,176	2,176
R^2	0.861	0.861	0.854	0.854	0.857	0.849	0.851	0.850

Notes: Robust standard errors, clustered by country in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. All specifications include baseline controls (years since agricultural transition x Post, log GDP per capita), country and year fixed effects. These coefficients and a constant are not reported.

Table S4.2: *Robustness to measures of political in(stability)*

	KOF Globalization Index, de jure						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Muslim x Post WTO	-7.716***	-7.484***	-7.597***	-7.183***	-7.588***	-6.794***	-5.227**
	(2.344)	(2.300)	(2.385)	(2.205)	(2.406)	(2.474)	(2.234)
Controls: (x Post WTO)							
Occurrences of civil unrest	No	Yes	No	No	No	No	No
Likelihood of civil unrest	No	No	Yes	No	No	No	No
War	No	No	No	Yes	No	No	No
Cross-border conflict, ICRG	No	No	No	No	Yes	No	No
External conflict risk, ICRG	No	No	No	No	No	Yes	No
Civil war risk, ICRG	No	No	No	No	No	No	Yes
Observations	2,176	2,176	2,176	2,176	2,176	2,176	2,176
R^2	0.849	0.850	0.849	0.854	0.849	0.851	0.857

Notes: Robust standard errors, clustered by country in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. All specifications include baseline controls (years since agricultural transition x Post, log GDP per capita), country and year fixed effects. These coefficients and a constant are not reported. Additional controls are the country average values of the variables in the pre-treatment period (i.e., prior to 1995) and their interaction with the post-WTO indicator variable.

Table S4.3: *Foreign aid and globalization*

	KOF Globalization Index, de jure	
	(1)	(2)
Muslim x Post WTO		-7.098***
		(2.325)
Pre-period average of foreign aid (% of GDP) x Post WTO	-0.285**	-0.220*
	(0.130)	(0.128)
Baseline controls	Yes	Yes
Country FE	Yes	Yes
Year FE	Yes	Yes
Observations	2,176	2,176
R^2	0.842	0.851

Notes: Robust standard errors, clustered by country in parentheses. *, **, *** = significant at 10, 5, and 1 percent respectively. All specifications include baseline controls (years since agricultural transition x Post, log GDP per capita), country and year fixed effects. These coefficients and a constant are not reported.

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Appendix S5: Potential threats to causal inference

Parallel trends. The causal interpretation of our results is bolstered if the parallel trends assumption is not violated: in the absence of the treatment (WTO-shock), the difference between the treatment (Muslim) and control (non-Muslim) group is constant over time. While there are no formal tests per se for this assumption, there are several specification tests to account for differential trends across treated and non-treated units. We conduct several exercises that reassures us that the parallel trends assumption is unlikely to be violated. First, our flexible specification reveals that Muslim and non-Muslim countries did not differ in their levels of *de jure* globalization prior to the WTO shock. As Figure 3 in the main paper shows, while the difference in the *de jure* globalization index between Muslim and non-Muslim countries is positive, the magnitude is very small (about 1-2 index points) and statistically indistinguishable from zero.

Figure S5.1: *Testing for trend differences based on Kahn-Lang and Lang (2020)*
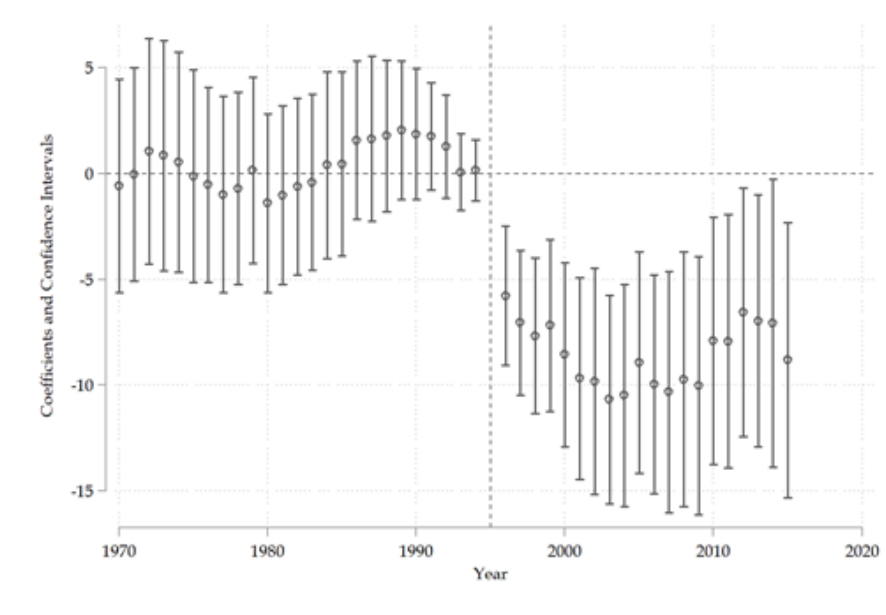
Notes: Each point refers to the corresponding year fixed effect (Y_t) interacted with $Muslim_I$i on *de jure* globalization based on the procedure described in Kahn-Lang and Lang (2020), with the corresponding 95 percent confidence interval. Standard errors are clustered at the country level. The regression controls for Years since $Agricultural transition_i \times Post_t$, the log of GDP per capita, country and year fixed effects.

Our second exercise, tests for differences in trends of *de jure* globalization in the pre-shock period between Muslim and non-Muslim countries. Following the approach in Kahn-Lang and Lang (2020), we use the year prior to the treatment (i.e., in our case 1994) as the base year and estimate the differences between our control (non-Muslim) and treatment (Muslim) groups in each previous year relative to the base year. This allows us to test the null

hypothesis that outcomes prior to the treatment year exhibited parallel trends. Conditional on our baseline controls (i.e., log GDP per capita, time since the Neolithic transition, country and year fixed effects), we fail to reject the null of equal trends. (See Figure S5.1 for a visual inspection.)

Our third approach includes a linear time trend as well as the linear trend interacted with our dummy for the treatment group ($Muslim_i$) in our main specification. Including these additional trends does not affect the negative and statistically effect on our main DD interaction ($Muslim_i \times Post_t$). Furthermore, the interaction between the linear time trend and $Muslim_i$ is statistically insignificant. Together, these findings show that even if there was a difference in the pre-trend for Muslim and non-Muslim countries, our main DD effect continues to hold even controlling for this "trend difference" in the pre-WTO shock period in our main specification.

Selection on unobservables. Despite our attempts to control for many observable factors (e.g., the historical and geographic drivers of globalization, market potential, per capita income, time-invariant characteristics with country fixed effects), the estimates in Table 1 may still be biased by unobservable factors correlated with selection into the WTO and subsequent patterns of globalization. To assess the likelihood that selection on unobservables biases our inferences, we calculate a test statistic derived from Altonji et al. (2005) that quantifies how much stronger selection on unobservables, relative to selection on observables, must be to explain away the full estimated effect. We follow an empirical application from Nunn and Wantchekon (2011) that "compares" the regression coefficient on $Muslim_i \times Post_t$ from estimating equation (1) with a restricted set of controls ($\hat{\beta}^R$) against another with a full set of controls ($\hat{\beta}^F$). We then calculate the ratio: $\hat{\beta}^F/(\hat{\beta}^R\text{-}\hat{\beta}^F)$, where a value less than 1 implies selection on unobservables is greater than selection on observables. In interpreting this ratio, Nunn and Wantchekon (2011, 3238) state: "The intuition behind the formula is straightforward. First, consider why the ratio is decreasing in ($\hat{\beta}^R\text{-}\hat{\beta}^F$). The smaller is the difference, the less the estimate is affected by selection on observables, and the stronger selection on unobservables needs to be (relative to observables) to explain away the entire effect. Next, consider the intuition behind $\hat{\beta}^F$ in the numerator. The larger $\hat{\beta}^F$, the greater is the effect that needs to be explained away by selection on unobservables, and therefore the higher is the ratio."

We estimated various restricted regressions and report ratios associated with a parsimonious specification that controls for per capita GDP, the interaction of Years since the Agricultural Transition and $Post_t$, and country and year fixed effects (i.e., this corresponds to column 3 in Table 1). We consider two sets of full covariates: the baseline set of controls from equation (1) corresponding to column 5 in Table 1 and a second, adding to this the geographic determinants of trade (e.g., share of a country's territory within 100km of a river or sea, landlock dummy, measure of real market potential) all interacted with $POST_t$. Performing this exercise yields two ratios of 4.53 and 5.80 (the latter associated with the second "full covariate" model). Taking the lower value implies that to attribute the entire OLS estimate to selection effects, selection on unobservables would have to be at least four

times greater than selection on observables. In our view, this inference makes it less likely that the estimated effect of $Muslim_i \times Post_t$ is fully driven by unobservables.
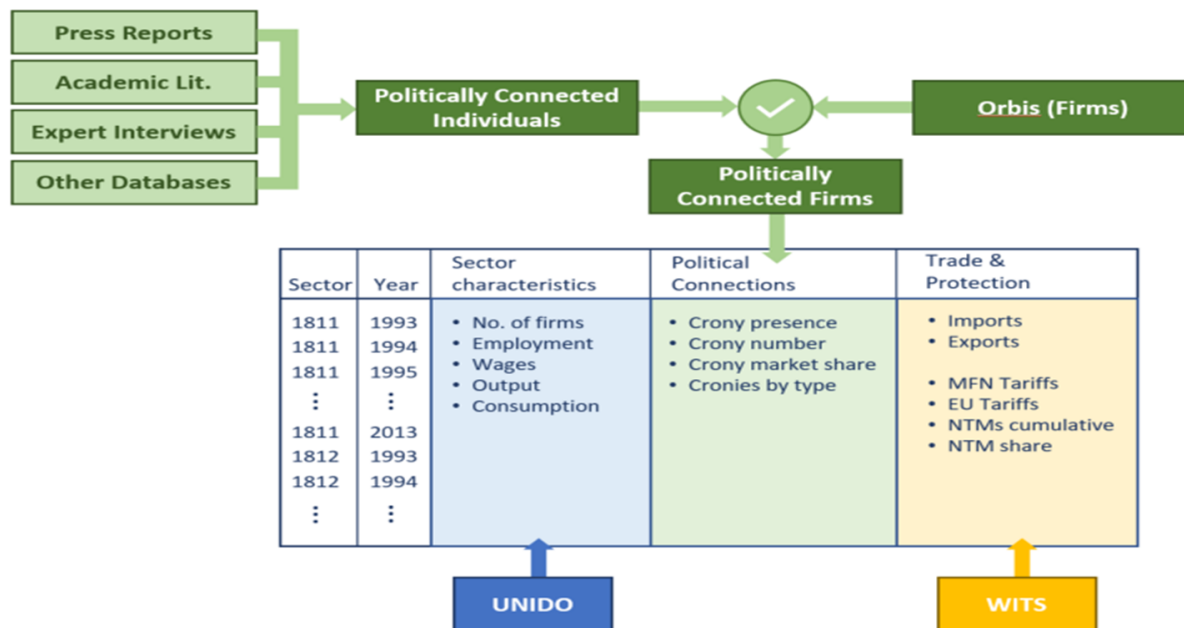
References

Nunn, Nathan and Leonard Wantchekon. 2011. "The Slave Trade and the Origins of Mistrust in Africa", *American Economic Review*, 101(7): 3221-52.

Appendix S6: Political connections and trade data

Figure S6.1: *Overview - Mapping political connections to sector-level trade data*

Table S6.1: *Crony activity in Egypt and Tunisia at the 2-digit sector level*

ISIC 2-digit manufacturing sector	Egypt		Tunisia	
	Average	Max. number	Average	Max. number
Food products and beverages	1.147	7	2.353	10
Tobacco products	0.800	1	3	3
Textiles	1.350	3	0.333	1
Wearing Apparel	2	4	0.500	1
Leather, luggage and footwear	1.333	2	0.667	2
Wood Products	0.400	1	0.200	1
Paper and paper products	0.317	1	1.667	3
Publishing and printing	1.025	3	0.167	1
Coke and refined petroleum products	0.867	4	0	0
Chemicals and chemical products	1.078	6	1	4
Rubber and plastics products	2.200	4	4	10
Other non-metallic mineral products	2.863	8	5.222	13
Basic metals	3.025	6	2.333	6
Fabricated metal products	0.950	3	2.143	4
Machinery and equipment	0.683	5	1.733	5
Office, accounting and computing machinery	0	0	1	1
Electrical machinery and apparatus	2.6667	7	1.500	5
Radio, television and communication equipment	1.967	3	0.667	2
Medical, precision and optical instruments	0.540	1	0	0
Motor vehicles, trailers and semi-trailers	1.983	5	1.667	4
Other transport equipment	0.143	1	0	0
Furniture	1.933	6	0.500	3