

**Supplementary Material**

**Political Competition and the Initiation of International Conflict: A New  
Perspective on the Institutional Foundations of Democratic Peace**

*World Politics*

..... doi:10.1017/S0043887116000307

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Replication materials available at doi: 10.7910/DVN/J06MRI

In this appendix we provide further details regarding the analysis, as noted in the main text, including regarding the dependent variables and our robustness tests.

### **Details of Measures of Interstate Conflict Initiation (dependent variables)**

Our primary source of international conflict data is the International Crisis Behavior (ICB) dataset (Wilkenfeld and Brecher 2010). In these data, “a foreign policy crisis refers to the specific act, event or situational change which leads decision-makers to perceive a threat to basic values, time pressure for response and heightened probability of involvement in military hostilities.” The initiator or “triggering entity” of a crisis is the entity (always a state in our data) that “initiated the act which was perceived by a state as creating a threat to basic values, time pressure and heightened probability of military hostilities.” There are eight types of crisis that we use in the analysis<sup>1</sup>: verbal act, political act, economic act, external exchange, other non-violent act, non-violent military act, indirect violent act, and violent act. The advantage of the ICB data for our purposes is that the initiator and target are clearly specified in the coding rules. The ICB data assess for each case which side was the first to militarize the crisis *and to be perceived as such by the target state*, for example through statements claiming territory (verbal act), troop movements (non-violent military act), a border clash (violent military act), or attack on an ally (indirect violent act). We code a crisis initiation by State A against State B in a given year as 1, dropping all subsequent crisis years from the data, and coding remaining non-crisis years 0.<sup>2</sup> The dependent variable is given a 1-year lead (values for 1951-2006 are paired with data for 1950-2005 for the independent variables) to address concerns of reverse causation.

Although this is, in our view, the best dataset with global coverage for a substantial period of time assessing interstate conflict initiation, it is not above criticism. Downes and Sechser’s (2012) important critique, however, focuses on a more complicated use of ICB data: determining the success or failure of a coercive threat. From examination of many cases in the ICB data, we believe that the vast majority of those in our analysis do indeed code militarized threats issued by

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<sup>1</sup> The ninth, “Internal verbal or physical challenge to regime or elite,” is excluded because it does not involve an inter-state threat.

<sup>2</sup> Thus we focus only on initiation, and neither are new crises that are initiated for a directed dyad during wars or other ongoing crises included in the analysis.

the leadership of one state and targeted at one or more other states deliberately and in a way that is evident to all sides. Examples provided in the documentation make clear the project's intent to do this, even for the seemingly less overt categories of threats. "Egypt's nationalization of the Suez Canal on 26 July 1956 triggered crises for Britain and France" is an example of an economic act, while "Intelligence reports of the construction of a USSR submarine base in Cienfuegos, Cuba [that] triggered a crisis for the U.S. on 16 September 1970" is an example of an external exchange.

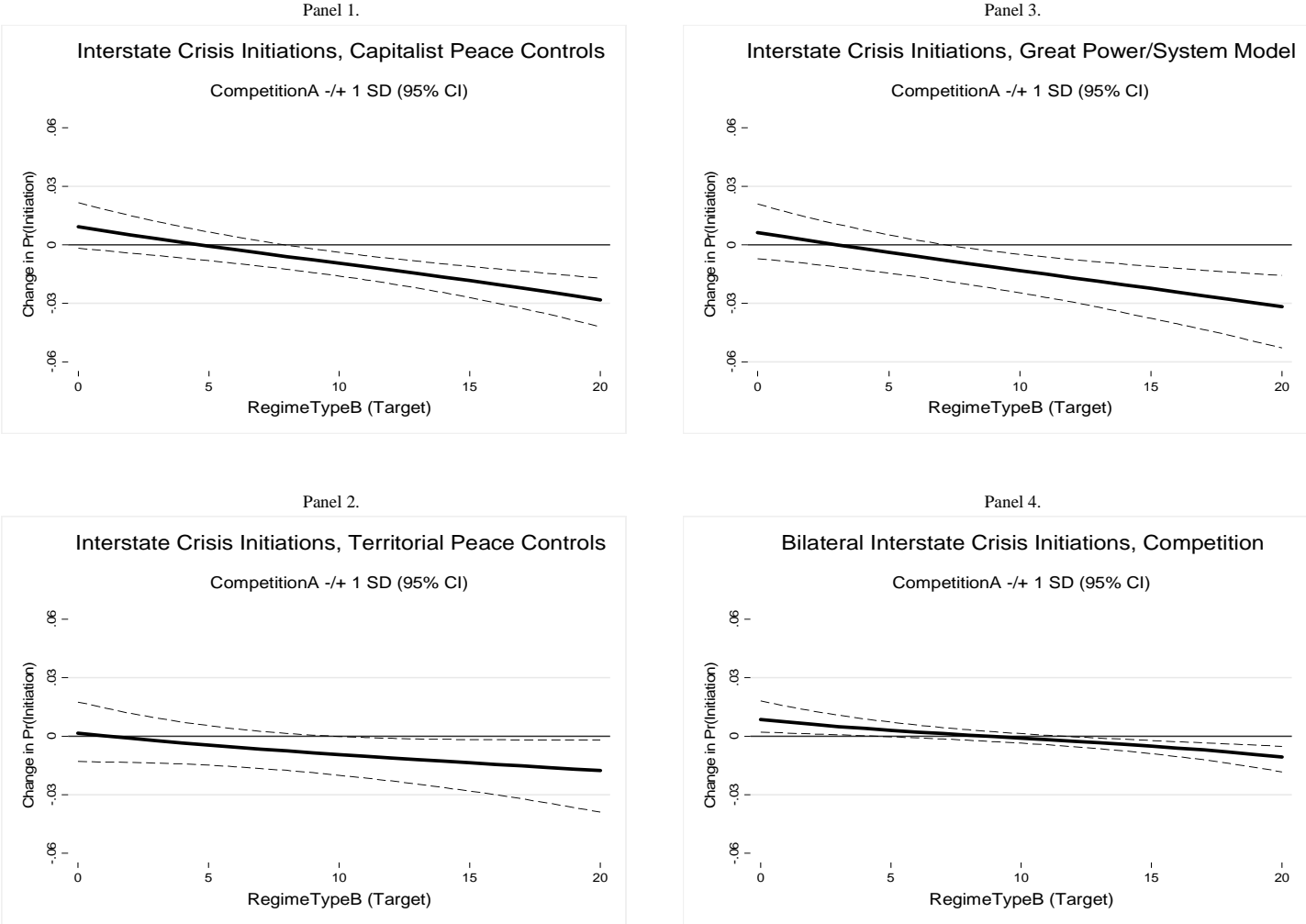
As a further robustness test we run models using the Militarized Interstate Dispute (MID) dataset. The MID dataset codes the first state in a dyad to show, threaten or use force in a way that appears to be directed at the target. We do not prefer this dataset for our analysis because its creators: "caution against misinterpretations of identification of the 'initiator.' The state or states on Side A on the first day of the dispute are simply the first states to take codeable military action. They should not be interpreted to be the states that 'started' the conflict, or that are responsible for the conflict" (Ghosn, Palmer and Bremer 2004, 138-139). The ICB project's focus on explicitly coding the state that initiated the conflict, and ensuring this is consistent with the corresponding perceptions of the target, are strengths in this regard, although our analyses suggest that the codings of MID initiations also have credibility.

### **Results for Political Competition in Tests for Spuriousness and Unmodelled Dependencies (as in Figure 1).**

This section provides results relevant for both our first-level (Democratic Peace) and our second-level (regime components) robustness tests. We ran models including all component variables and their interactions with RegimeTypeB (as in Model 3, Table 2 in the main text), addressing concerns about spuriousness and unmodelled dependencies as in Figure 1. The results for a model for MID initiations are presented in Figure 2 in the main text, so omitted here. The graphs in Figure A\_Comp\_I show that the findings regarding political competition are robust to concerns of spuriousness due to capitalist peace (Panel 1), territorial peace (Panel 2), McDonald's arguments regarding great powers and the international system (Panel 3), and concerns about unmeasured dependencies due to multilateral disputes measured with dyadic data (Panel 4). Please see also Table A\_TERGM for evidence that the interaction of Political Competition A and Regime Type B is negative and significant in our network analysis.

**Figure A\_Comp\_I**

**Marginal Effect of Initiator Competition as Target Regime Type Changes**  
Contiguous States at Risk of Conflict



### **Details of First-level (RegimeTypeA x RegimeTypeB) Robustness Tests**

**MIDs:** The results for the probit models for MID initiations, presented in Figures 1 and 2 in the main text, are very similar to those for the ICB crisis data. These are otherwise equivalent to models 1 and 3 in Table 1, with control variables held at the same dangerous values. The dependent variable is the initiation of any MID, and the coding of initiators and targets and peace years is also based on the MID dataset.<sup>3</sup>

**Capitalist Peace:** Controlling for several variables based on Gartzke (2007) does not affect our core results: there is evidence for democratic peace (Figure 1 in main text) and Competition remains significantly associated with a lower likelihood of initiation against more democratic states (Figure A\_Comp\_I), while neither Constraint nor Participation has a significant association. We use two different sets of control variables. Both control for the natural log of trade dependence of A on B ( $\ln(\text{TradeDependenceA})$ ), as in our main models (Table 2), but also add the logged dependence of B on A ( $\ln(\text{TradeDependenceB})$ ). One specification then adds variables for each state's per capita GDP ( $\ln(\text{GDPpercapitaA})$ ,  $\ln(\text{GDPpercapitaB})$ ) and Trade Openness ( $\text{TradeOpennessA}$ ,  $\text{TradeOpennessB}$ ), and the dyadic interactions for each ( $\ln(\text{GDPpercapitaA}) \times \ln(\text{GDPpercapitaB})$ ,  $\text{TradeOpennessA} \times \text{TradeOpennessB}$ ). This use of interaction terms and first-order terms most closely corresponds to our treatment of the regime institution variables, and so is perhaps the most powerful control for spuriousness. Another set of models uses the weak-link approach to the same data, measuring the lower GDP per capita and the lower trade openness for each dyad year ( $\text{GDPpercapitaLow}$ ,  $\text{TradeOpennessLow}$ ). These are consistent with Gartzke's arguments about connections to international markets, but do not suffer from the severe missing data and other problems noted by Dafoe (2011).

Data from Barbieri and Keshk (2012), Gleditsch (2002), and World Bank (2016) are used. We use the inflation-adjusted per capita GDP, GDP, and trade data, with 2005 as the base year. The trade data run to 2009. Gleditsch's GDP data extend from 1950 through 2000. We use the World Bank GDP data for 2001-2009, and also fill in missing values 1960-2000 in the Gleditsch

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<sup>3</sup> All replication data and code are available at: <https://dataverse.harvard.edu/dataverse/goldsmib>.

data. Trade openness is calculated as the proportion of a state's GDP represented by its total imports and exports with all trading partners.

**Territorial Peace:** Gibler (2012a) has recently argued that democratic peace among neighboring states is an artifact of their "territorial peace." That is, states that have settled their disagreements over mutual borders are more likely to then become more democratic, and thus the true causal mechanism is to be found in factors leading to settled borders, not regime type. He uses a large number of indicators for "geographic and border salients" in his models to show that joint democracy becomes insignificant in its relationship to conflict when these variables are controlled. To check whether our results are robust to this prominent critique of democratic peace, we include eleven variables from the replication dataset for the relevant chapter of his book (Gibler 2012b) in models otherwise like models 1 and 3 (Table 2, main text). We ran analyses using MID initiations, since some of Gibler's variables are coded based on the MID data, with very similar results (not shown). Since Gibler is clear that his theory applies only to contiguous states, it is important to emphasize that our simulations are for contiguous dyads. Clear evidence for democratic peace remains when these variables are included (Figure 1, main text).<sup>4</sup> Competition also remains negative and significant in its association with conflict initiation against a democracy (Figure A\_Comp\_I), but the other two regime components are insignificant and relatively flat. Only Hypothesis 1 regarding political competition finds support.

The variables (several of which raise concerns of endogeneity or spuriousness for us) are from Gibler's replication dataset and merged with our data. They are: Capability ratio, Allied, Natural log of dyad duration, Same colonial master, Peaceful territorial transfer, Violent territorial transfer, Defense pact with all neighbors, Intra-state war in either state, Highest neighbor militarization, Either targeted in territorial MID, Territorial MID×militarization.

**Great Power / International System Model:** McDonald (2015) argues that empirical support for democratic peace is spurious, because great-power relations and dynamics of the international system account for much of the variation of both regime type and interstate conflict. To address

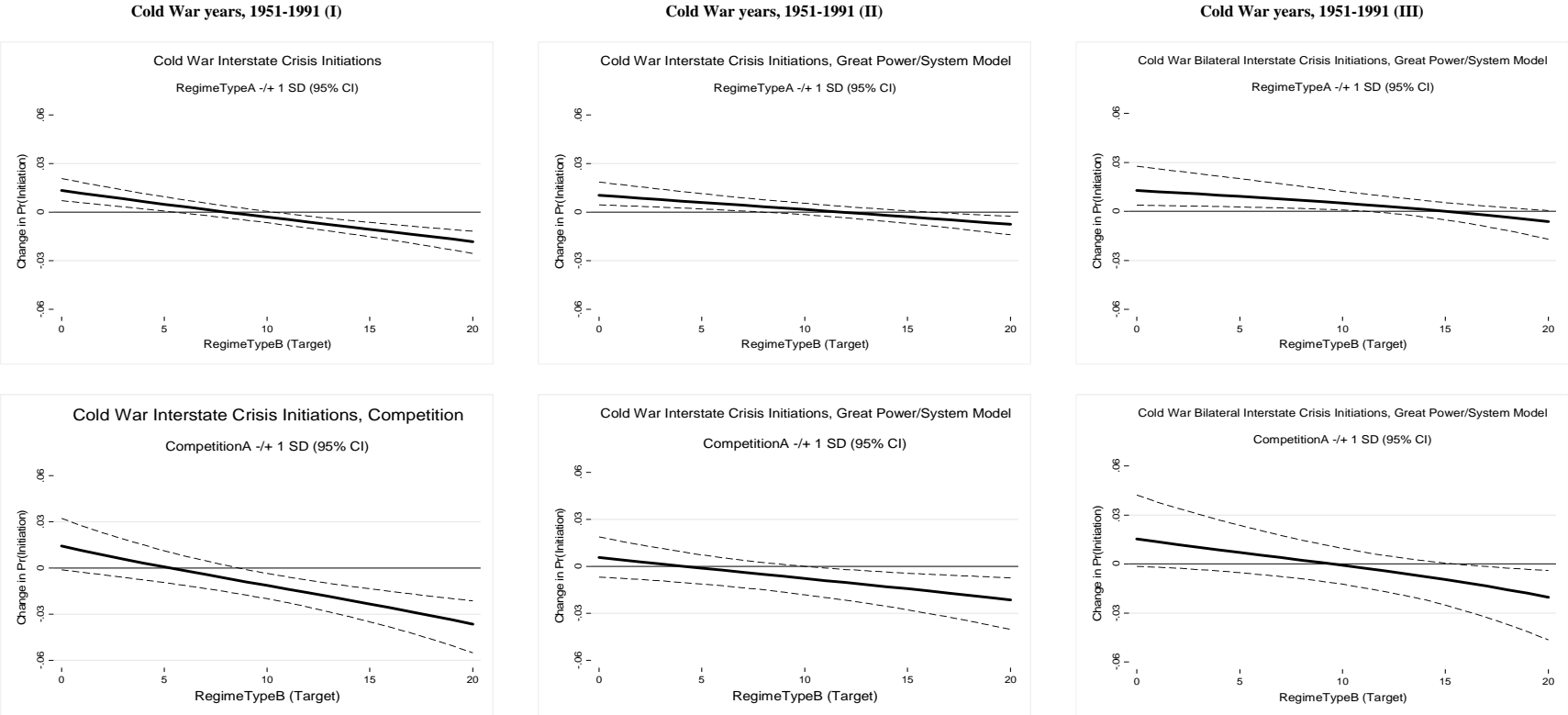
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<sup>4</sup> See also Park and Colaresi. (2014) for analysis showing that democratic peace is not spurious to stable borders.

these concerns as they relate to our analyses, we introduce a control for defensive alliances (defense pact) with any great power, which McDonald uses to indicate hierarchical relations. We also drop several major states that McDonald identifies as having undue leverage in the data. Britain, France, and Germany/West Germany might have had both regime type and foreign policy strongly affected by their location in the US sphere of influence. The same can be said for East Germany and the USSR. They should not be considered independent actors, according to McDonald. And we drop all new democracies that emerged after the end of the Cold War, for example Poland. Following McDonald, we identify these as all new states from 1992 through 2000 that were democracies at some point in that period, as well as all states that made a transition from non-democracy to democracy (Polity score 6 or higher) in that period.

Our robustness checks show that democratic peace is evident in spite of the Great Power Ally control and the dropped cases (Figure 1, main text). Our results regarding political competition are also robust to these concerns (Figure A\_Comp\_I). In addition, McDonald (2015: 568) argues that the Cold War is a period in which these great power and system factors converged to overwhelm evidence for democratic peace, because many dyads in the Soviet sphere “include peaceful autocrats.” We therefore also provide robustness checks for the Cold War years in our data, 1951-1991 (Figure A\_ColdWar). These show results for models otherwise like models 1 and 3 (Table 2, main text). They include models with only the Cold War years (column I), Great Power / International System models for the Cold War years (column II), and Great Power / International System models for the Cold War years that also drops any conflict with more than 2 actors (column III). This final check addresses McDonald’s concern about states that are joiners to international conflicts (which we address in the main text). There is no indication that our findings regarding democratic peace or political competition are spurious to McDonald’s concerns.

**Figure A\_ColdWar.**





**Unmodelled Dependences:** Several critiques of dyadic research designs in international relations, including democratic peace, have pointed out that dyadic data can lead to improper statistical inference due to unmeasured dependencies in the data, including multilateral interactions that are coded as dyadic. We employ two strategies to check the robustness of our results to such concerns. First, we take the straightforward and we believe powerful approach of simply removing all conflicts that the ICB dataset records as having more than two actors. Our evidence for democratic peace (Figure 1) and the effect of political competition (Figure A\_Comp\_I) remains. While this simple approach cannot account for instances in which the causes of peace were multilateral, some powerful non-dyadic peacetime dependencies are likely to be captured by the Great Power / International Systems models that also include only bilateral conflicts (Figure A\_ColdWar).

As a further check, we use network analysis, as suggested by Cranmer and Desmaris (2011). We employ Temporal Exponential Random Graph Models (TERGM). As shown in Table A\_TERGM, the democratic peace emerges clearly in these data. The interaction term RegimeTypeA x RegimeTypeB has a negative coefficient and the 95% confidence interval does not include zero. A shortcoming of this approach, however, is the need for a complete graph among all states included in the analysis for each year of the analysis. This severely limits the sample, to 22 states, as noted in the main text.<sup>5</sup> Converting interaction terms in these analysis into marginal effect plots as in the rest of the analysis is technically challenging, in part because TERGMs do not produce standard errors, and something we did not undertake. When running TERGMs for our component variables and interactions, including the control variables, the interaction of A's Competition and B's Regime Type is negative, and also reaches 95% significance, while those for Constraint and Participation are insignificant. None is significant and the model seems poorly specified without the controls. Thus, our results regarding political competition are largely robust to this check, as well, although we note the small and potentially biased sample, and the fact that the significance of the marginal effect held at meaningful values could not be determined.

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<sup>5</sup> In order to maximize the available continuous time series, we re-coded country indicators for continuity (e.g., Yugoslavia and Serbia, North Vietnam and Socialist Vietnam, are given the same country code) and also filled in missing values for trade dependence with non-missing values from adjacent 1-3 years where available.

It is also important to note that many dependencies in our data are accounted for in our probit models, admittedly within the directed-dyad context. Specifically, we use standard errors clustered on the directed dyads, and we control for each dyad's alliance ties, shared memberships in international organizations, and two indicators of spatial dependence (contiguity and distance).

**Table A\_TERG**

	ICB Crises, Regime Type, 1951-2006						ICB Crises, Regime Components, 1951-2006					
	Estimate	2.5%	97.5%	Estimate	2.5%	97.5%	Estimate	2.5%	97.5%	Estimate	2.5%	97.5%
Edges <sub>AB</sub>	-31.28	-103.88	-15.07	-32.28	-2396.93	-22.18	-35.74	-141.98	-7.99	-37.39	-3.98E+15	-2.55E+01
RegimeType <sub>A</sub>	1.50	0.53	5.38	1.40	0.65	3.41						
RegimeType <sub>A</sub> x RegimeType <sub>B</sub>	-0.08	-0.28	-0.03	-0.08	-0.18	-0.04						
Competition <sub>A</sub>							1.24	0.06	5.04	1.11	-3.66E+01	1.49E+14
Competition <sub>A</sub> x RegimeType <sub>B</sub>							-0.07	-0.27	-0.00	-0.06	-6.81E+12	3.53E+00
Constraints <sub>A</sub>							0.66	-0.40	3.78	0.73	-1.90E+13	4.47E+13
Constraint <sub>A</sub> x RegimeType <sub>B</sub>							-0.03	-0.20	0.03	-0.04	-2.65E+12	1.63E-02
Participation <sub>A</sub>							-0.20	-1.00	0.70	-0.19	-2.40E+13	6.49E+13
Participation <sub>A</sub> x RegimeType <sub>B</sub>							0.01	-0.03	0.05	0.01	-1.60E+12	4.69E+11
RegimeType <sub>B</sub>	1.54	0.56	5.44	1.44	0.70	3.46	1.86	0.24	6.84	1.71	5.81E-01	1.93E+14
ln(TradeDependence <sub>A</sub> )	0.03	-0.05	0.46				0.02	-0.03	0.59			
IntraStateConflict <sub>A</sub>	0.47	-0.08	1.01				0.52	-0.20	1.15			
IntraStateConflict <sub>B</sub>	0.54	-0.02	1.35				0.62	0.01	1.24			
AllianceSimilarity	1.26	-6.00	3.90				1.79	-53.85	5.23			
JointIGOs	-0.03	-0.23	0.01				-0.02	-0.27	0.01			
Capability <sub>A</sub>	5.49	-10.87	9.52				6.98	-8.11	12.72			
Capability <sub>B</sub>	6.50	-2.35	11.57				6.48	-14.77	13.92			
Contiguity	1.67	-0.43	5.06	2.46	0.79	5.71	1.45	-0.62	7.51	2.36	6.29E-01	8.98E+14
ln(Distance)	-0.42	-1.73	1.38	-0.04	-0.94	1.16	-0.42	-1.84	1.84	-0.02	-7.85E+13	9.12E+13
PeaceYears	0.09	-0.32	0.53	0.03	-0.34	0.44	0.08	-0.40	0.68	0.02	-4.89E-01	1.22E+14
PeaceYears <sup>2</sup>	-0.01	-0.03	0.02	0.00	-0.02	0.01	-0.01	-0.03	0.03	0.00	-4.66E+12	1.98E-02
PeaceYears <sup>3</sup>	0.00	-0.00	0.00	0.00	-0.00	0.00	0.00	-0.00	0.00	0.00	-3.00E-04	3.98E+10
Lagged Conflict <sub>AB</sub>	3.09	1.15	6.16	3.61	1.30	8.17	3.13	1.12	6.31	3.69	1.87E+00	2.15E+15

Notes: Temporal exponential random graph models implemented with the package "btergm" (version 1.7.6) in R software, using bootstrapping sample size of 100. Initiation is modeled by coding conflict at t and also including a lagged conflict term (time t-1, the same as the other independent variables).

### **Details of Second-level (ComponentsA x RegimeTypeB) Robustness Tests**

In this section we provide further discussion of our assessments of whether the hypotheses find support when alternative independent variables are used. Results are found in Figure 2 in the main text, Figure A\_Comp\_I, Figure A\_ColdWar, Figure A\_Comp\_II, and Figure A\_GAMs.

We begin by using the single Polity indicators for competition, constraint, and participation that are least correlated with each other, in order to address possible concerns of multicollinearity (Figure 2, Row 2). It is self-evident and acknowledged in the literature that conceptually distinct components of regime type are nevertheless likely to have close empirical association (Clarke and Stone 2008). Our components have high correlation coefficients: 0.9164 for Competition and Constraint; 0.7221 for Competition and Participation; 0.7557 for Constraint and Participation. However, the single indicators Competitiveness of Participation (parcomp) and Regulation of Chief Executive Recruitment (xrreg) are much less correlated, at 0.5924; Competitiveness of Participation and Regulation of Participation (parreg) are correlated at only 0.1428; Regulation of Chief Executive Recruitment and Regulation of Participation at only 0.0595. Further, in a regression model these three indicators have variance inflation factors well below 10, the usual threshold for multicollinearity problems: 4.43 for Competitiveness of Participation; 4.11 for Regulation of Chief Executive Recruitment; 3.05 for Regulation of Participation. Results using these three indicators, in models otherwise identical to Model 3, shown in Row 2 of Figure 2 provide good evidence of the robustness of our findings to potential multicollinearity concerns: they are similar to those in Row 1.

In order to demonstrate that our results are not driven by using the Competitiveness of Participation (parcomp) indicator, we also ran models with the three more correlated indicators. Panel 1 of Figure A\_Comp\_II shows that results for Competitiveness of Executive Recruitment (xrcomp) are similar. As a further check against multicollinearity, we also ran a model as in Model 3 (Table 2 in the main text) but dropping all side-A states with full democracy Regime Type (17 or higher, or 7 or higher on the original Polity scale). This produces lower correlations among our three institutional variables: 0.6959 for Competition and Constraint; 0.4641 for Competition and Participation; and 0.5845 for Constraint and Participation. The marginal effect plot in Panel 2 of Figure A\_Comp\_II shows that Hypothesis 1 retains support. This also allows us to demonstrate that Hypothesis 1 finds support for anocratic initiators, when there is much more variation for each component with a regime (Table 1, main text), and high values on any one are unlikely to be

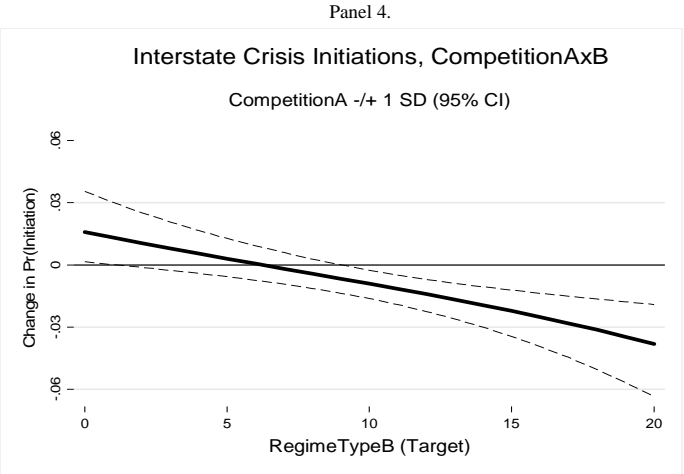
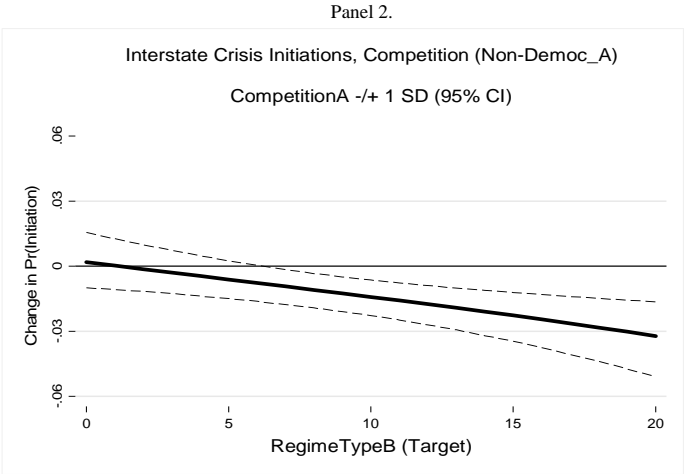
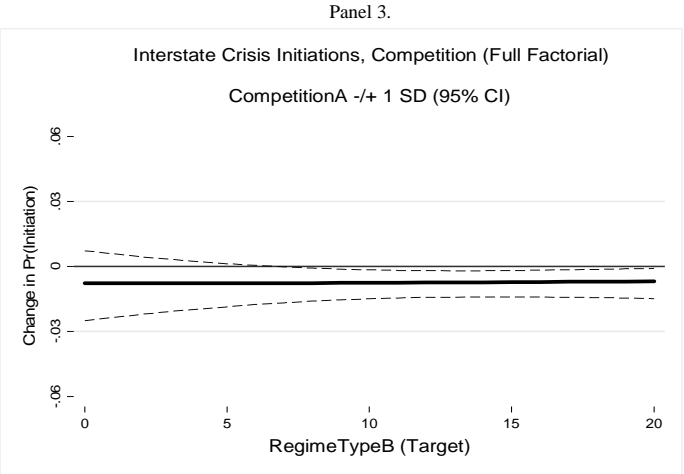
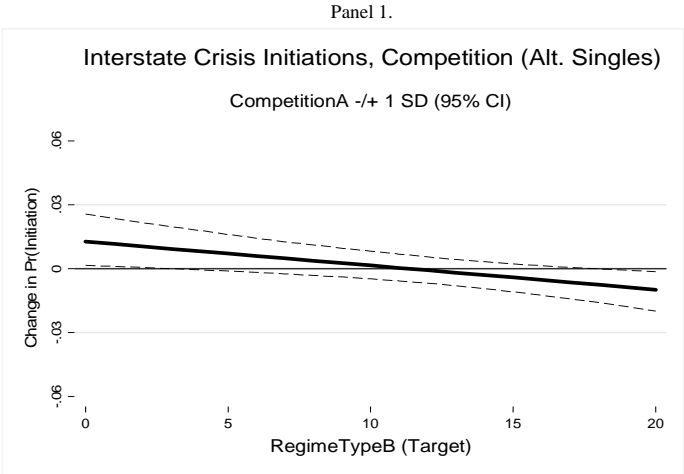
accompanied by high values on another. This supports the linear nature of our hypothesized effect, because it operates even outside of the category of full democracies.

Two more robustness checks are mentioned in the main text. In Panel 3 of Figure A\_Comp\_II we show that Hypothesis 1 retains support in a full factorial model with all possible interactions between our three State A components and the regime type of State B. We do not believe this is an appropriate specification because interacting the three components effectively controls for the overall regime type of State A. This is inconsistent with our theoretical approach of asking which elements drive the observed democratic peace effect. Kam and Franzese (2007) suggest that theoretical appropriateness should be the guide to specifying interaction models, and a full factorial model might not always be appropriate. In any case, hypothesis 1 retains support, with a significant negative association evident when the target regime is more democratic, while the interactions for Constraint and Participation are positive and significant, contradicting democratic peace. But interpretation of these models is unclear because they effectively include multiple measures of A's regime type among the 2<sup>nd</sup> and 3<sup>rd</sup> order terms.

Another way to set up the model would be to interact the component variables for both States A and B. This produces a simpler and more readily interpreted model. Our robustness check shows that this result, the interaction of Competition<sub>A</sub> and Competition<sub>B</sub> also supports Hypothesis 1 (Panel 4, Figure A\_Comp\_II). Because we only interact like with like institutions AxB, this is also a full factorial model. It is not consistent with our assumption that elites and masses tend to perceive overall regime type of the target, rather than specific institutions. But, even if we control for the regime type of state B, there is virtually no change in this result.

**Figure A\_Comp\_II**

**Marginal Effect of Initiator Competition as Target Regime/Comp Changes**  
 Contiguous States at Risk of Conflict



Our next robustness check involves substituting MID initiations for ICB initiation data (and including the appropriate peace-year indicators based on MIDs). While there is some support for Constraint’s contribution to democratic peace, the magnitude of Competition’s association remains larger and statistically significant (Row 3, Figure 2, main text).

Next we use a completely different dataset for regime type, based on Dahl’s (1971) concept of Polyarchy, deriving regime classifications based on the degrees of contestation and inclusiveness. When both are low, a regime is hegemonic, and when both are high, polyarchic. These correspond to the concepts of competition and participation used in this paper, so the polyarchy variables can be considered as robustness tests for Hypotheses 1 and 3, but not 2 (regarding constraint). We use data from the Polyarchy dataset (Vanhanen 2000), which codes contestation (competition) as 100 minus “the percentage of votes won by the largest party” and inclusiveness (participation) as “the percentage of the population who actually voted,” both with reference to the most recent national elections. When the top executive offices are not filled by elections, then both of these values are set to zero. When we use these indicators for State A, and a combined polyarchy regime-type indicator (the unweighted average of contestation and inclusiveness) for State B, the results for simulations otherwise identical to Row 1 (Figure 2, main text) clearly support Hypothesis 1 regarding competition, but Hypothesis 3 regarding participation finds no support. We consider this powerful evidence in support of our expectations regarding political competition, given that it is based on a variable measured in a very different way than our Competition indicator,<sup>6</sup> and indeed on a dataset designed to be theoretically and empirically distinct from the polity dataset (Vanhanen 2000).

Our next robustness check substitutes Bueno de Mesquita et al’s (1999) “W” indicator for the size of the winning coalition for our *Participation* measure. The results in Row 5 (Figure 2, main text) remain essentially unchanged from those in Row 1. This is in spite of what we believe is W’s conceptual overlap with other aspects of regime type.<sup>7</sup> Hypothesis 3 regarding participation

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<sup>6</sup> But we also caution that this type of variable is more sensitive to shifts in the year-on-year political fortunes of viable oppositions in functioning democracies, which makes it less appropriate than our institutional Competition indicator, as discussed in the main text.

<sup>7</sup> Bueno de Mesquita et al. (2003, 134-135) use a combination of four indicators to measure W. They use a variable coded 0 if a regime is not military or military/civilian, 1 for other types, as

finds no support; in fact the association is positive and significant for more authoritarian targets, which directly contradicts the expectation that a wide winning coalition is a driver of democratic peace at the conflict initiation stage.

Acknowledging Bueno de Mesquita et al.'s suggestion that democracies might only be less likely to initiate conflict with other democracies when they are relatively evenly matched militarily, we run a model conditioned on this. We remove all observations for which states A and B do not have a ratio of weaker to stronger capabilities (CINC) of at least .8, where full parity equals 1.0 and total imbalance approaches 0. This (Row 6, Figure 2) produces insignificant results for W but a still significant negative association for Competition, consistent with Hypotheses 1. There is no support for Hypothesis 2. We believe that this is a less-well specified model. Indeed, Morrow et al. (2008, 395) argue that their W indicator should not be included in models which also include some polity components used to construct W. Therefore we also ran models (not shown) in which we include W for State A, and Vanhanen's indicators for State A competition and State B Regime Type, for all dyads and for those with CINC parity at .8 or higher. In each case, W's interaction with regime type was negative but insignificant, while the interaction of Vanhanen's competition term with State B's regime type was negative and significant.

A further robustness test is possible substituting Schultz's (2001b) Democratic Initiator (DEMINIT) indicator for our *Constraint* variable in Row 7 (Figure 2, main text).<sup>8</sup> It is negative but insignificant, while Competition remains negative and is also insignificant. This model can also be considered poorly specified, because it suffers from high multicollinearity (VIFs for DEMINIT and Political Competition and their interactions with Regime Type B range from 22 through 52). When DEMINIT is instead substituted for our measure of competition, multicollinearity is reduced (VIFs below 15) and the results support Hypothesis 1 if DEMINIT is

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well as three polity indicators: xrcomp, xropen, and parcomp. Thus, while there is an emphasis on participation beyond a small circle of elites, there is also an emphasis on degrees of competitiveness, which is usually seen as a conceptually distinct aspect of democracy and regime type (e.g., Dahl 1971).

<sup>8</sup> We construct this variable based on Schultz's (2001b, 129) description, using the polity indicators, such that it equals 1 if xrcomp takes values of 2 or 3 and parreg takes values of 2 or 5, otherwise 0.



considered to represent Competition while controlling for Constraint and Participation. These results perhaps say more about the uncertain nature of the DEMINIT variable, than about constraints, competition, or participation.

#### Extending the Data to 2010

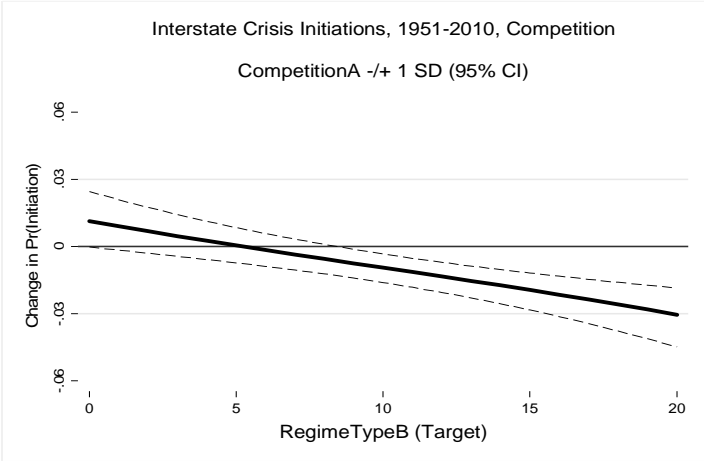
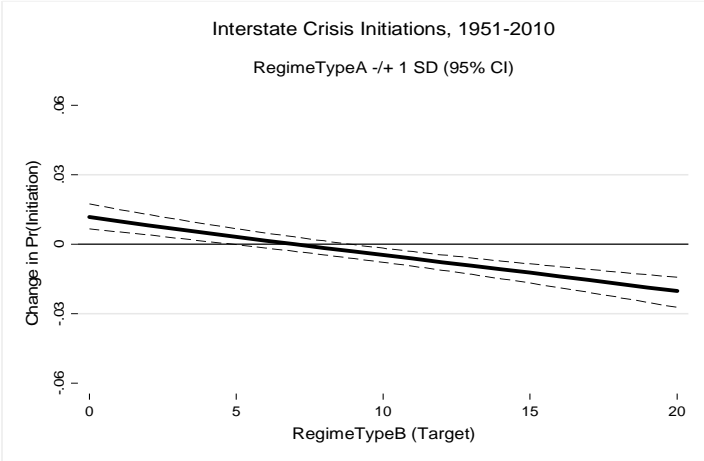
As noted in the main text, the time-period of the analysis can be extended if values are imputed for states' military capabilities and their international organization memberships. Specifically, the capability data end in 2007 and the IGO data end in 2005. By using the most recent year's values for observations through 2009, we can extend the coverage for ICB initiations (with a 1-year lead) to 2010. Pushing further would involve also imputing the trade data, which involve more year-on-year variability and would possibly reduce the integrity of the analysis. With our dataset for conflict initiation, 1951-2010, and covariates, 1950-2009, our results are unchanged. Figure A\_2010 shows marginal effect plots otherwise like those presented in the main text, Figures 1 and 2.

The second row of graphs in Figure A\_2010 shows the results restricted to post-Cold War years. This addresses Gowa's assertion, cited in the main text, that the evidence for democratic peace is not present after the end of the Cold War. We find that this is not the case: both more democratic initiators and those with higher levels of political competition specifically, are less likely to initiate conflict with democracies.

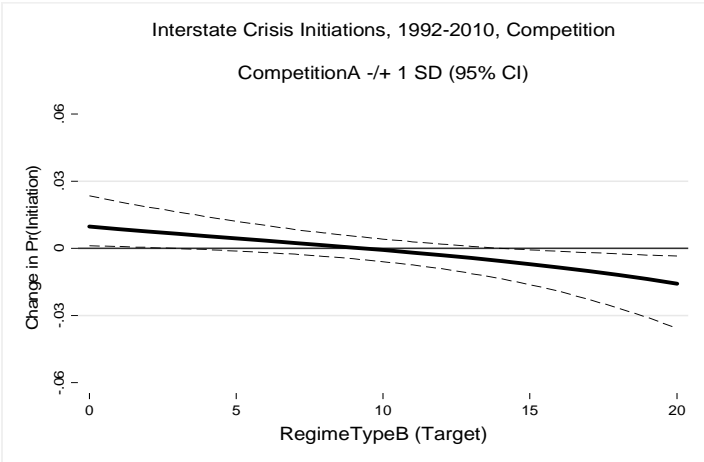
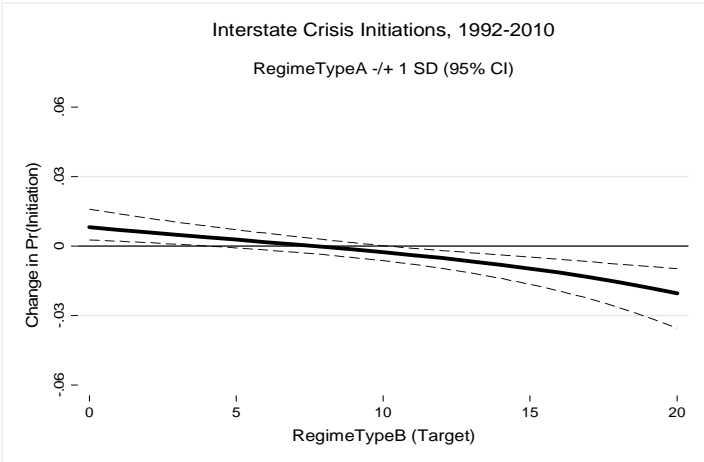
**Figure A\_2010.**

**Marginal Effect of Initiator Regime / Competition as Target Regime Type Changes, 1951-2010**

Imputed values for Capability<sub>A</sub>, Capability<sub>B</sub>, and JointIGOs



**Post-ColdWar Years Only**



**Generalized Additive Models:** Our final robustness check uses models similar to models 1 and 3 (Table 2), but employing semiparametric GAMs. As noted in the main text, GAMs have the advantage of allowing us to relax assumptions of linearity by relaxing the smoothing function.<sup>9</sup> Three-dimensional surface plots are a useful way to identify non-linearities among interacted variables. We present four sets of plots in Figure A\_GAMs.

The top row of Figure A\_GAMs represents results for the interaction of RegimeType<sub>A</sub> and RegimeType<sub>B</sub> (as in Model 1 and Figure 1 [Panel 1]), indicated on the two horizontal axes. The interpretation of these plots is also closely linked to the marginal effect plots presented in the previous figures. The vertical axis represents the probability of ICB crisis initiation by state A against state B. In the leftmost panel, we present a surface graph similar to the probit model, to illustrate the high degree of assumed “smoothing” or linearity. Moving from left to right, we relax the smoothing function and allow nonlinearities to emerge from the data. The bottom three rows present results as in Model 3, with the left panels similar to the probit model (Figure 2 [Row 1]), while the smoothing function is relaxed moving right. High values for regime type and the components for initiator and target are located in the bottom right corner of each graph. Therefore, when the surface dips towards that corner, but is higher in other parts, there is evidence of a dyadic democratic peace pattern. When the surface is low but flat across either axis, or high, there is evidence for monadic pacific effects, or for a higher likelihood of conflict.

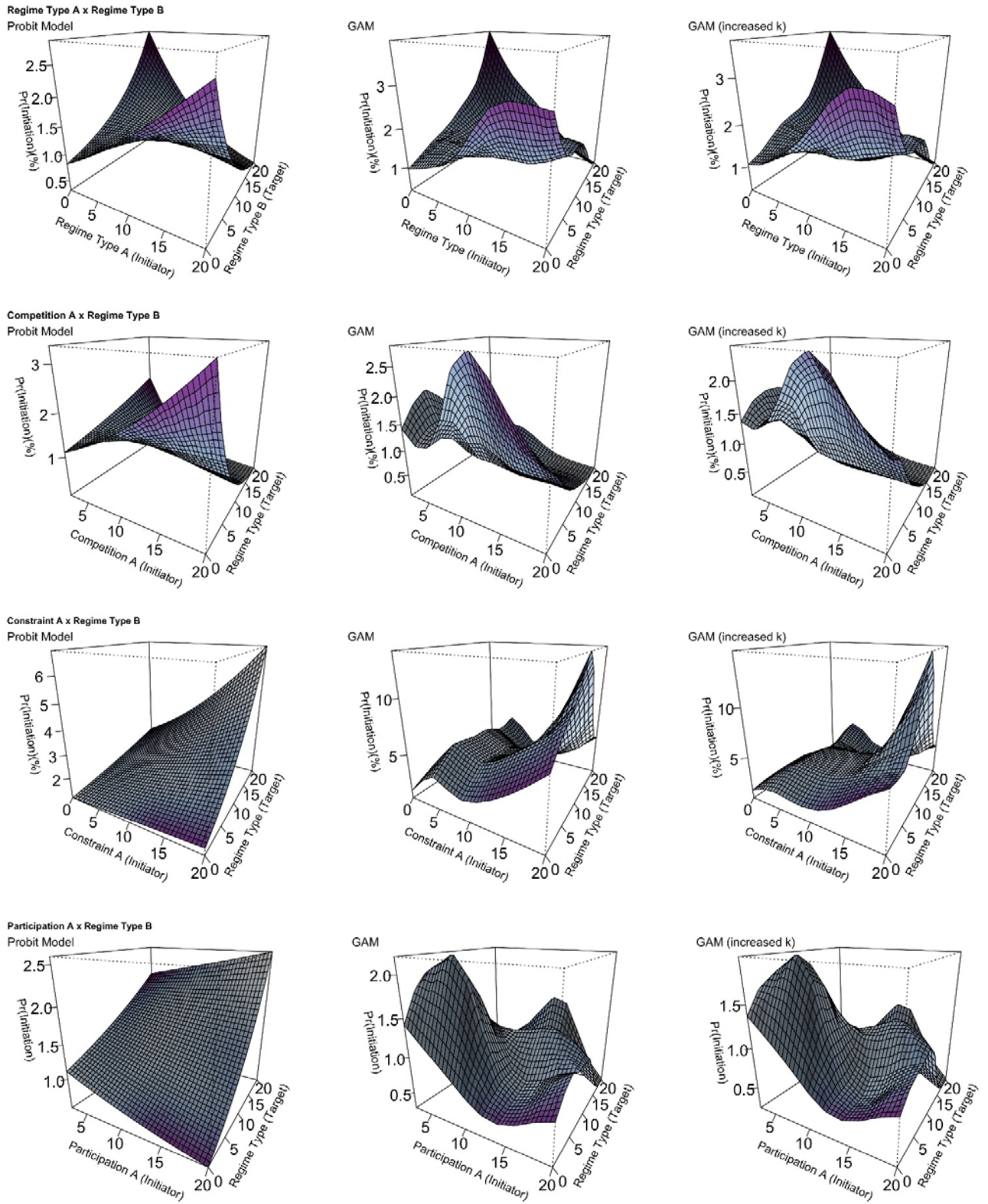
While non-linear aspects do emerge, the conclusions regarding Political Competition are not changed by our GAM analysis. The democratic peace is evident when each state’s polity score is examined: there is a dip in the probability of conflict initiation in the lower right of each of the top-row graphs in Figure A\_GAMs (although when smoothing is most relaxed, this democratic peace appears to pertain mainly to states with the highest levels of democracy). The only institutional sub-component of regime type to be strongly associated with the pattern of democratic peace is political competition, supporting Hypothesis 1. In fact, the pattern is more evident in the surface graphs for political competition than for state A’s overall regime type. It is demonstrably

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<sup>9</sup> The smoothness penalty was chosen using the REML method (Pinheiro and Bates 2009). We present the results with an increased penalty parameter value, as undersmoothing is a commonly observed feature of automatic bandwidth selection methods (Beck and Jackman, 1998).

more linear and of greater magnitude. This adds weight to the contention that political competition is the causal driver of democratic peace.

**Figure A\_GAMs. Generalized Additive Models.**



Notes: The joint effect of the initiator Regime Type (Competition, Constraint, Participation) and target regime type on the probability of conflict for “at risk” dyads as obtained from a standard probit model with a quadratic interaction term (*left*), and a generalized additive model for high (*center*) and low (*right*) values of the smoothing parameter.

### **Political Competition and Categorical Democracy Indicators**

As noted in the main text, our measure of Political Competition corresponds well to various indicators of overall democracy. It is important that this is true not only for the Polity index, but also for more recently developed categorical indicators that some believe have a more robust association to standard democratic theory (e.g., Cheibub, Gandhi, and Vreeland 2010). Table A\_Democ shows the distribution of democracies and non-democracies across our Political Competition indicator. When Political Competition is above 15, 92-94% of states are democratic, and the mean Regime Type value approaches 19. When Competition is below 5, there are 0-1% democracies, and the mean regime Type score is under 4. We are confident that political competition tracks well with democracy, which is not surprising.

**Table A\_Democ**

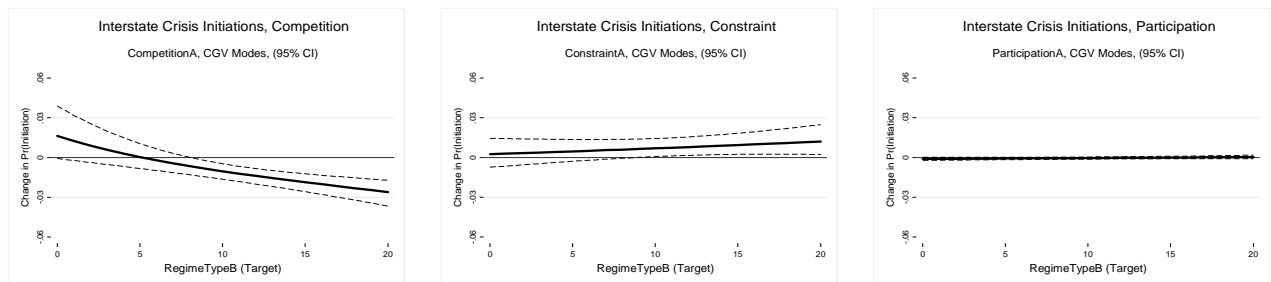
**Overall Regime Type and Political Competition, 1950-2005**

Variable	Obs	Mean	Std. Dev.	Min	Max
<b>Competition<sub>A</sub> &gt;15 &amp; Competition<sub>A</sub> &lt;=20</b>					
RegimeType <sub>A</sub>	348,035	18.77	1.76	10	20
Democracy(CGV)	347,891	0.92	0.26	0	1
Democracy(WTH)	268,501	0.92	0.27	0	1
Democracy(BMR)	347,866	0.94	0.23	0	1
<b>Competition<sub>A</sub> &lt;=15 &amp; Competition<sub>A</sub> &gt;10</b>					
RegimeType <sub>A</sub>	119,476	13.57	3.14	6	18
Democracy(CGV)	119,476	0.45	0.50	0	1
Democracy(WTH)	100,408	0.35	0.48	0	1
Democracy(BMR)	116,899	0.45	0.50	0	1
<b>Competition<sub>A</sub> &gt;=5 &amp; Competition<sub>A</sub> &lt;=10</b>					
RegimeType <sub>A</sub>	395,281	3.51	3.36	0	17
Democracy(CGV)	391,101	0.06	0.23	0	1
Democracy(WTH)	280,259	0.03	0.16	0	1
Democracy(BMR)	379,687	0.05	0.21	0	1
<b>Competition<sub>A</sub> &lt;5 &amp; Competition<sub>A</sub> &gt;=0</b>					
RegimeType <sub>A</sub>	112,635	3.69	1.21	3	10
Democracy(CGV)	112,635	0.01	0.10	0	1
Democracy(WTH)	90,531	0.00	0.00	0	0
Democracy(BMR)	112,250	0.00	0.06	0	1

Notes: CGV indicates Cheibub, Gandhi, and Vreeland (2010); WTH, Wahman, Teorell and Hadenius (2013); BMR, Boix, Miller, and Rosato (2013).

When we assess the marginal effect of Political Competition moving from its modal value for non-democracy as coded by Cheibub, Gandhi, and Vreeland, to its modal value for democracy (8.333333 to 20), the marginal effect plot (Figure A\_CGV) is almost identical to that in Figure 2, Row 1 (based on movement from a standard deviation below to one above the mean). Comparable modal movements for Constraint and Participation are also very similar. Thus our conclusions about political competition track very closely with an overall democratic peace effect.

**Figure A\_CGV. Movement from Component Mode in Non-democracies to that in Democracies**



However, we also point out that if political competition is the main driver of the democratic peace effect, it is more important to measure its variation that to assess how closely it is associated with overall democracy measures. In other words, if democratic peace is more accurately described as political-competition peace, the main question to ask about potential conflict initiators should be what is their level of institutionalized competition.

### References (not contained in main text)

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