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When the STARs Align

What International Organizations Promote Democratization

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Introduction

In the run-up to the 2004 Ukrainian presidential election, Viktor Yushchenko—one of the major candidates--made a pledge to seek Ukrainian membership in the European Union and the North Atlantic Treaty Organization (NATO). Looking back at Yushchenko's presidency today, this was one pledge to which he held true. In the five years of his presidency, Yushchenko was able to implement a number of social reforms that brought Ukraine closer to this goal. These reforms ranged from substantial improvements in freedom of speech to standardizing entrance examinations that helped address corruption in higher education. Democratization as an attempt to meet international organizations' (IO) membership requirements is not uncommon in international relations (IR), yet we know surprisingly little about the process.

What types of IOs are most effective at promoting democratization? Are regional IOs more effective than global IOs? How do other known differences among IOs (presence or absence of enforcement mechanisms, scope of issues covered, degree of control by the hegemon, etc.) affect their ability to democratize members?

Most large-N studies do not differentiate among different types of IOs. Scholars assume that those with little institutional capacity, such as the African and Malagasy Council for Higher Education, have the same effect as the highly institutionalized IOs, such as NATO or the EU. I aim to address this and other weaknesses of the literature and identify the specific conditions that make IO membership most likely to effect a domestic regime change. But before any of the above questions can be addressed, it is necessary to reassess the relationship between IO membership and democratization. This relationship does not always lend itself to a straightforward analysis. As a general rule, states are members to multiple IOs at the same time.

Such overlapping membership creates a challenge for statistical analysis that the literature has failed to address successfully.

Pevehouse (2005) limits his analysis to state membership in only one IO—the one with the highest level of democracy. Such a methodological solution, however, is problematic. Limiting the analysis of state membership to just one organization may misattribute the effect of other omitted variables to the "democratic level"[1] of the organization. This paper remedies this by adopting a more refined measure of IO membership—that of additive weighted indices of state *i*'s total number of membership in particular types of IOs.

Another challenge to testing the effects of IOs on domestic processes is that IOs' effects are not limited to their members (Goldstein, Rivers, and Tomz 2007; Kelley 2004). As demonstrated by the above example of Ukraine, the promise of membership may sometimes be sufficient to cause domestic reform. Though data on aspiring members in not currently available, I try to capture some of these effects by incorporating data on IO associate membership and observer status into the membership indices.

Another methodological challenge to testing for the effects of IO membership is due to the specifics of the causal mechanisms at work. While most theoretical models posit causal mechanisms related to spatial interdependence (e.g. diffusion, socialization), few available statistical techniques allowed for direct testing of these types of effects until recently (Anselin 1980, 2003; Anselin, Gallo, and Jayet 2008; Anselin, Syabri, and Kho 2006; Beck, Gleditsch, and Beardsley 2006; Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010). Yet the value of empirical inferences is largely dependent on correct model specification. The use of improper models puts significant limits on our ability to draw valid statistical inferences about the phenomena of interest. For instance, some common techniques aimed at

[1] "Democratic level" of an IO is usually measured as the average democracy score of its members.

correcting for spatial and temporal dependence (e.g. lagged dependent variable) fail when the theory postulates contemporaneous rather than lagged spatial dependence (e.g. diffusion or socialization). Other techniques, such as the use of panel-corrected standard errors (Beck and Katz 1995), while correcting for spatial dependence in the current period, treat it as a nuisance rather than explicitly modeling it (Franzese and Hays 2007, 141).

This paper addresses this methodological issue by employing a multi-parametric spatio-temporal autoregressive model (m-STAR), developed by Hays et al (2009). M-STAR allows for explicit modeling and estimation of contemporaneous spatial effects. Its ability to estimate spatial effects occurring within the same time-period as the unit-level effects makes this model particularly useful at evaluating such phenomena as diffusion and socialization. To demonstrate the advantages associated with explicit modeling of contemporaneous spatial effects, I compare the m-STAR estimates to those generated using by two naïve models: a nonspatial OLS model that accounts for space and time by including a lagged dependent variable (DV) and fixed effects, and an OLS with panel-corrected standard errors.

Democracy from Above

The field of comparative politics offers a wealth of knowledge on the causes and consequences of democratic transitions (Moore 1966; Huntington 1993; Putnam, Leonardi, and Nanetti 1994; Linz and Stepan 1996; Przeworski et al. 2000; Ross 2001; Tilly 2005). One aspect of democratization that is not as rich in systematic research, however, is the role played by international factors (Whitehead 1991a, 1991b; Pridham 1994; Pridham and Vanhanen 1994; Pridham, Herring, and Sanford 1997; Gillespie and Whitehead 2002; Pevehouse 2005; Gleditsch and Ward 2006; Kelley 2004).

Existing studies make three different types of arguments concerning the mechanisms through which international forces can alter domestic regimes: consent, contagion/diffusion, and control (Whitehead 1996). Adherents to the consent theory emphasize the importance of links between democratic movements within autocracies and groups within democratic states (e.g.: exile clusters, churches, human rights organizations). These actors within states may play an important role in fostering pro-democracy movements by lobbying their governments, as well as by providing these movements with information, training, and other types of logistical support.

Contagion theories emphasize similar links. Noting the tendency of democratic states to support democratic movements within neighboring autocracies, proponents of contagion theories observe the effect of geographic proximity, which results in regional diffusion of democratic transitions (Whitehead 1991a, 1996; Gleditsch and Ward 2006).

A related view emphasizes the demonstration effects of democratization, according to which regimes experience pressure to democratize as their citizens get exposed to the images of "the good life" in democratic states. Proponents of this view diverge, however, on how this effect changes with distance. Some suggest that the most powerful effect of demonstration is regional: initially reluctant elites might view democracy in a more favorable light once they observe the positive experiences of their democratized neighbors (Gleditsch and Ward 2006). Others argue that demonstration results in global rather than a regional contagion. Proximity to democratic states may fail to trigger democratic reform, due to the relative ease of mass migration to a more democratic polity (voting with one's feet). As a result, then, demonstration effects put the greatest pressure for democratization on more distant locations (Whitehead 1996, 21-22).

Finally, the contagion/diffusion theory suggests that as the majority of states in a region undergo democratization, the remaining autocracies might feel pressure to democratize in order to avoid the costs of isolation and possible exclusion from lucrative regional treaties or foreign aid (Gleditsch and Ward 2006). The last set of theories linking international factors to democratization is referred to as control theories (Whitehead 1991b, 1996). These theories point out the role of major international players (US, Britain, IOs) in promoting democratization, their tools ranging from conditionality (specific conditions that states have to meet in order to join) to military interventions. The EU conditionality as it related to minority treatment in Slovakia and Romania are an example of the former effect (Kelley 2004). An example of the latter effect is the UN-established International Security Assistance Force following US intervention in Afghanistan.

The Effect of IOs on Domestic Regime Change

Pevehouse (2002, 2005), who pioneered research on the link between IO membership and domestic regime change, finds that membership in democratic IOs leads to domestic democratic transitions. This relationship is explained in terms of three central mechanisms. The first mechanism is the diplomatic and economic pressure that IOs exercise upon their members using tools that include diplomatic pressure, economic sanctions, and expulsion from the organization (Pevehouse 2002, 2005; Donno 2009). Building on Pevehouse (Pevehouse 2002, 2005), Donno (2009) further studies the specific tools associated with diplomatic and economic pressure: positive and negative conditionality, diplomatic missions and negotiations, and shaming. She finds that regional IGOs help promote democratic change when they implement enforcement in the wake of flawed elections.

The effects of IO conditionality are largely explored in the comparative literature, especially in the context of the EU (Pridham 1991; Kelley 2004). Such studies find that positive

and negative conditionality is likely to have a powerful effect at the initial stages of democratization, but less so at democratic consolidation.

The second mechanism that IOs employ consists of providing credible guarantees to key groups that would relieve their fear of democracy. For example, elites may fear that democratization will bring leftists or extremists to power, jeopardizing their property rights or financial interests. IOs can mediate these fears by serving as the guarantor of the future economic and political well-being of the authoritarian elites (Pevehouse 2002).

The third mechanism that IOs can employ consists of creating conditions for liberalization by socializing political elites to democratic norms and values Pevehouse (2002). For example, joint training exercises undertaken by security IOs may expose the military personnel from the less liberal state to the role of the military in democratic societies. The causal mechanisms of socialization have long been identified in psychological research. Persuasiveness of information depends heavily on its source. Information obtained from in-group members tends to be more convincing than that from out-group members. In cases of conflicting information or multiple equivalent alternatives, actors tend to prefer the choices of their in-group (Cao 2010; Johnston 2001). IOs help create a sense of in-group belonging among member states (Simmons, Dobbin, and Garrett 2006).

Though providing an important first look at the links between IOs and democratization, the studies discussed above leave many important questions unanswered. What types of IOs (security/economic, minimal/structural/interventionist, regional/global) are most likely to promote democratization? What practices are most likely to be affected by this democratizing effect? Do IOs help improve fairness of elections, human rights practices, or the rule of law?

The Argument: Institutional Design and Democratization

The central assumption of this paper is that democratic states prefer to see democratic transitions in authoritarian states. This assumption is grounded theoretically and empirically. Theoretically, the notion that democracies prefer to interact with other democracies goes back to Kant (Doyle 1983), who talks about the "separate peace" among liberal states. Whether as a result of institutional constraints or ideological and normative compatibility, democracies seem to have fewer conflictual relationships with each other (Russett and Oneal 2001; Maoz and Russett 1993). Democratic reforms constitute a standard part of conditionality requirements attached to foreign aid (Crawford 2001; Knack 2004) and membership in international organizations (Kelley 2004). There is even some empirical evidence that democracies initiate foreign interventions to induce democratic regime change in other states (Meernik 1996).

This paper contributes to the literature by identifying specific institutional features that are more or less conducive to democratization. In accomplishing this endeavor, I draw upon the extensive literature on institutional design (Botcheva and Martin 2001; Koremenos, Lipson, and Snidal 2001).

Botcheva and Martin (2001) show that the effects of IOs on state behavior depend largely on the purposes of the IOs. IOs created to solve coordination problems, for example, are most effective when they possess the mechanisms necessary to facilitate bargaining (e.g., by providing information on the reservation bargaining point, costs of holding out, and patience of each player). On the other hand, IOs that aim at resolving collective-action problem excel when they are able to monitor state behavior, providing accurate information about each member's compliance.

Refining this initial typology, Koremenos et al (2001) identifies five major design components of international institutions: membership, scope, centralization, control, flexibility,

and distribution. This paper focuses on exploring the effects of three of these organizational components—scope, centralization, and control—on the domestic regime of their members.

The first design component of interest is the scope of the issues covered (Koremenos, Lipson, and Snidal 2001). What type of issues does the IO regulate? Is the role of the organization limited to one or two types of issues (e.g. the International Convention for the Prevention of Pollution from Ships) or to a broader set of issues (e.g. the EU)?

The argument of this paper is that multi-purpose IOs are more conducive to the democratization of their members than single purpose IOs, as larger scope provides better opportunities for issue-linkage. The literature on neoliberal institutionalism identifies issue linkage as one of the main advantages of joining an IO for several reasons (Keohane 2002). First, IOs with large scope increase the bargaining space by making it easier to link particular issues and to arrange side-payments. When a concession on one issue results in a gain on another, agreements become easier. By clustering issues, in Keohane's words, IOs create more potential *quid*s for each potential *quo* (2002, 91).

In addition, combining several issues under the jurisdiction of one organization alleviates the transaction costs of reaching bargains. When each issue is managed by a separate organization, issue-linkage requires coordination and negotiating across several organizations. Moreover, issue-linkage across organizations may be more costly, for it almost inevitably means that some organizations are going to lose as a result. Reaching a deal, then, may mean the need to provide additional payments to the losing institution. Multi-scope organizations allow for issue linkage without the additional costs of overcoming these types of institutional barriers (Keohane 2002). Thus, IOs with broader scopes of influence may promote member

democratization by making some of the benefits conditional on domestic democratic practices (e.g. the EU).

Hypothesis 1: Membership in large scope IOs will be more conducive to democratization than membership in IOs with limited scope.

The second design component examined in this paper is institutional capacity (or what Koremenos, Lipson, and Snidal (2001) term "centralization"). Institutional capacity refers to a range of IO characteristics related to their abilities to gather and disseminate information and/or enforce their decisions. Such characteristics may include, for example, the presence of physical headquarters, budget, the number of employed personnel, the availability and type of an enforcement mechanism.

In order to understand the link between IO institutional capacity and member democratization, it is useful to think of states' failure to democratize as a result of an imperfect information/commitment problem (Fearon 1995; Powell 2006)[2]. Autocratic members of IOs may desire the benefits of membership without paying the costs of improving domestic democratic standards. Under the conditions of imperfect information (IOs with low centralization), autocratic states have no incentive to democratize. IOs with low institutional capacity are less efficient at gathering information and cannot effectively ensure state compliance with their requirements. Hence, the autocratic states can enjoy the benefits of such IOs without paying the costs of democratization. IOs with greater institutional capacity, on the

[2] The logic of commitment problem is typically used to explain why states engage in wars even when there exists a peaceful settlement that is preferred by each party. The argument is that, under conditions of international anarchy, the peaceful agreement is unenforceable except through the use of force (Fearon 1995; Powell 2006). Similar commitment logic can be applied to IOs.

other hand, are able to gather timely and accurate information about member compliance and exclude the non-compliers from benefits (Martin 1993; Simmons 2000).

IOs with high institutional capacity are also better at mediating the possible adverse domestic effects of democratization by providing domestic elites with credible guarantees. For example, high capacity IOs have the resources to draft legal frameworks that facilitate such transitions and thus gain the support of key domestic actors. Another aspect of IO institutional capacity is the presence of an enforcement mechanism. Enforcement is crucial for the ability of IOs to promote member democratization (Pridham 1991; Kelley 2004; Donno 2009). Enforcement achieves democratic reforms by increasing costs (economic or reputational) of failure to democratize or by providing benefits for members who undergo democratic transitions.

Hypothesis 2: Membership in IOs with greater institutional capacity will be more conducive to democratization than membership in IOs with lower institutional capacity.

The third institutional design component that this paper examines is control, defined as the rules of collective decision-making (Koremenos, Lipson, and Snidal 2001). This paper conceptualizes control as the relationship among members in making the decisions on behalf of the organization. This relationship depends on the power relations among members. When the power relationship is asymmetrical, stronger members (e.g., major powers) have more control over the organization than weaker members. This may take the form of a veto (UN Security Council) or a disproportionate share of the voting power (the IMF).

Organizations with asymmetrical control are more effective at promoting the democratization of their members. This argument draws on the logic of coordination game, such

as the Dating Game (Gibbons 1997)[3]. In a coordination game, even when all actors have the same or similar preferences on the outcome, their disagreement on the appropriate means of reaching the outcome may lead to a suboptimal result. The suboptimal outcome in large N groups may also result from free-riding (Olson 1971). As it applies to IOs, a notable example of such a failure occurred during the first days of NATO intervention in Kosovo, when the US and the European allies could not agree on the appropriate action plan (Boyer and Butler 2006). Consistent with the traditional solution to the problem of collective action/coordination game, concentration of the IO decision-making power in the hands on a single major power, then, should increase the likelihood of member democratization.

Hypothesis 3: Membership in IOs with asymmetrical control by a democratic major power will be more conducive to democratization than membership in IOs with symmetrical control.

Research Design

The accuracy of the empirical tests depends on the choice of an empirical model, which should be theoretically driven. According to the causal mechanisms identified in this paper, the IOs effect on their members' level of democracy operates not at the domestic, but at the inter-state level. In other words, the number of state *i*'s IO memberships does not automatically affect *i*'s democracy score. The specific types of IOs identified in this paper will only have a democratizing effect when democracy is a desired policy objective of this particular IOs. IO policy objectives, in turn, depend on the policy objectives of their members. While, as argued above, the IO institutional design may facilitate achievement of particular goals, the goals themselves are not independent of the preferences of IO members. Whether the causal effects

[3] The Dating Game is also known as Battle of Sexes (Osborne 2004).

posited in this paper take place depends on the democratic make-up of the IOs of which state *i* is a member.

To understand the causal dynamic posited in this paper, it is useful to think of state *i*'s IO membership in spatial terms. Just like geographic contiguity, common IO membership is a mechanism that decreases the "distance" between states, as it leads to increases in the number of their interactions (Beck, Gleditsch, and Beardsley 2006). The characteristics of this space interact with the IO design features in affecting *i*'s level of democracy. In order for the democratizing effects posited above to take place, state *i*'s IO space has to be populated by democratic states.

Figure 1 provides a visual illustration. It shows state A's membership in two IOs: IO1 and IO2. In this demonstration, State A's IO space would include states B, C, D, and E. If this space is democratic (i.e. states B, C, D, and E are democratic), then membership in this space will interact with the types of IO1 and 2 in their effect on state A's democracy level. If this space is not democratic, however, then we would expect that membership in it will have no effect on A's democracy level.

Thus, testing this paper's hypotheses requires accounting for the spatial nature of the effects. There currently exist several methodological techniques that allow this: using a lagged dependent variable (DV), fixed effects, spatially lagged errors, panel corrected standard errors, as well as the series of spatio-temporal autoregressive (STAR) models developed (Anselin 1980, 1988, 2003; Anselin, Gallo, and Jayet 2008; Anselin, Syabri, and Kho 2006; Cao 2009; Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010). In what follows, I discuss the advantages and disadvantages of each of these modes, then test my hypotheses using three different specifications: an OLS with a lagged DV and fixed effects, an OLS with panel-

corrected standard errors, and a multi-parametric spatio-temporal autoregressive model (m-STAR). Before I proceed to the discussion of the models, however, it is useful to describe the data and the operationalization of the variables.

The Dependent Variable

This study uses pooled time-series cross-national data with a unit of analysis of country-years between 1820 and 2000[4]. This creates a sample of 6,125 observations. The dependent variable is the level of democracy. There currently exist several available datasets that attempt to measure level of democracy in the form of a quantitative indicator. For the purpose of replicability, I follow Pevehouse in using the Polity scores from the Polity dataset (Marshall, Jaggers, and Gurr 2009). Unlike Pevehouse (2005), however, I use the Polity score as a continuous variable instead of recoding it into a binary variable. This methodological decision has multiple advantages and only few potential disadvantages[5].

The Independent Variables

In order to test Hypothesis 1, I create two binary variables (*Multi-Purpose IOs* and *Single-Purpose IOs*), using Boehmer et al. (2004) *Scope of IO* variable. Each IO in which a state is a full, an associate member, or an observer in a given year is coded as 1 if Boehmer at al. (2004) identify it as multi-purpose, and 0 otherwise. Next I create two indices: *Multi-Purpose IOs* captures the number of state *i*'s memberships in multipurpose organizations. The index of

[4] In the Correlates of War data, IO membership is coded in 5-year intervals until 1965 and yearly after that. In order to avoid information loss, I include all of the observations in my data as they are. As a result the unit of analysis changes from country-quinquennium to country-year in 1965.

[5] First, transforming continuous variables into dummies involves substantial and unnecessary loss of information. The theoretical motivation behind this decision is unclear: it is equally interesting whether IO membership can increase states' Polity score from, say, 4 to 6, as it is from 5 to 7. Yet, coding transition as a binary variable would lead to ignoring the first effect. Second, transforming interval variables into binary necessitates making a somewhat arbitrary decision of what the cut-off for democracy is. Thus, in most literature, a move in Polity score from 5 to 6 constitutes a democratic transition, while a move from 6 to 7 does not. Keeping the dependent variable in a continuous form allows one to avoid such arbitrary decisions. Finally, transforming a continuous variable into a dummy is necessarily associated with the need for a less efficient binary estimator. Unlike the results of models with continuous dependent variables (e.g., OLS), results of binary estimators are more difficult to interpret.

Single-Purpose IOs is constructed analogously.

To test Hypothesis 2, I use the same procedure to create indices measuring the number of high, medium, or low capacity IOs to which a state belongs. In coding this variable, I rely on *Degree of Institutionalization* variable from Boehmer at al. (2004). Boehmer et al. (2004) code *Degree of Institutionalization* in three categories: (1) *Minimal* organizations that contain plenary meetings, committees, and possibly a secretariat without an extensive bureaucracy beyond research, planning, and information gathering; (2) *Structured* organizations that contain an assembly, executive (nonceremonial), and/or bureaucracy to implement policy, as well as formal procedures and rules; and (3) *Institutionalized* (interventionist) organizations that contain mechanisms for mediation, arbitration and adjudication, and/or other means to coerce state decisions (such as withholding loans or aid), as well as means to enforce organizational decisions and norms. In order to transform these categories into variables, I first recode them as a series of the following binary variables: *Minimal IO, Structural IO, Instiutional IO.* Then, I construct additive indices of the total number of each type of IO to which a state belongs in a given year. Finally, I create three alternative indices that measure *Minimal, Structural, and Interventionist* as the number of memberships in these types of IOs.

The third explanatory variable—control—is based on the number of democratic major power members of a given IO. Though major power status does not guarantee greater control, empirical observations suggest that more often than not major power members do indeed hold privileged positions in IOs. I code the level of control as a series of dummy variables. *High Control* takes a value of 1 for IOs that include only one major power, *Medium Control* takes on a value of 1 for IOs that include two major powers, and *Low Control* takes on a number of 1 for IOs that include either no major powers or more than two major powers. Then indices are

constructed following the same process as for the first two independent variables. All of the IO-type variables are coded on the dyadic level (e.g. dyadic number of shared large scope IOs) and used as spatial weights in the m-STAR model.

Control Variables

To measure the level of democracy of an IO, I use member states' democracy scores from Polity IV (Marshall, Jaggers, and Gurr 2009), coded as the average Polity score of its members in a given year. As Pevehouse (2005) points out, IOs can only have democratizing effects on members that are not already democratic. In order to account for this effect, I use a dummy variable *Already Democratic* to isolate states with Polity scores that are equal or higher to those of their more democratic IO.

Other factors can strengthen or undermine the ability of IOs to promote democratization. Before we can understand the role of IOs in member democratization, we need to identify and control for the well-established causal factors associated with democratization. For any particular model, there exist a potentially infinite number of alternative explanations. However, the effectiveness of a model depends on how well it limits control variables (Achen 2005; Kadera and Mitchell 2005; Clarke 2005). Therefore, I limit my model specification to the minimum of most relevant control variables.

The literature on democratization has long established a strong link between the level of democracy and the status of the domestic economy (Lipset 1959; Dahl 1971; Przeworski, Alvarez, Cheibub, and Limongi 2000). To capture such effects over the relevant time perdiod, the literature typically relies on capability scores (CINC) (Singer, Bremer, and Stuckey 1972). Though not a direct measure of economic growth, CINC scores provide a good second best

choice by incorporating data on such factors as electricity consumption and production of iron and steel. Higher CINC scores are expected to have a positive effect on the level of democracy.

The OLS model includes several variables that help account for spatial diffusion effects, such as *Borders* (the total number of borders that state *i* shares with other states), as well as binary variables for geographic region (Gleditsch and Ward 2006). The expectation here is that states with similar regime types tend to interact with their geographic neighbors and this should strengthen the norms associated with the existing regime, whether democratic or not. In the m-STAR model, regional effects are captured by a dyadic *Contiguity* spatial weight.

Model Specification and Estimation

As discussed by Franzese and Hays (2009), empirical modeling of spatial interdependence is met with a number of challenges. The first challenge lies in proper modeling of effects at different levels of analysis: individual unit-level/domestic effects, common system-level exogenous effects, and the effects related to unit-level interdependence. Ignoring or failing to model effects at each of these levels may result in over-estimation of the effects of the variables included in the model. For example, a failure to model system-level shocks may lead to inflated estimates of unit-level coefficients. The reverse is true as well. It is, however, the effects of spatial inter-dependence, that tend to be most commonly omitted or inadequately modeled.

The empirical approaches to accounting for spatial and temporal inter-dependence generally fall in two categories: a data-driven and a theory-driven approach (Franzese and Hays 2007). The difference lies in the relative interest in the interdependence itself, with space acquiring a broader meaning beyond merely geography (Beck, Gleditsch, and Beardsley 2006), such as economic, political, or social proximity. The data-driven approaches, such as semi-naïve

models (e.g., panel-corrected standard errors) or spatial-error models, treat spatial and temporal dependence as a data problem and a nuisance and seek to correct rather than estimate it. Theoretically-driven spatial models, such as the spatial-lag regression, aim at explicit modeling and estimating such effects. Both approaches highlight caution against ignoring spatial dependence and are equally valid, yet each may be more or less appropriate depending on the research question (Franzese and Hays 2007).

Spatial Error Models

Spatial error models generally treat spatial dependence as the stochastic component attributable to unmeasured covariates only. There models take the form of:

$$y_i = \mathbf{X}_i\beta + \varepsilon_i + \lambda\mathbf{W}_i\varepsilon \qquad (1)$$

where λ is a parameter, $\mathbf{W}_i$ is the i^{th} row of $\mathbf{W}$. $\mathbf{W}$ is a matrix weighing the relationship between error terms; this allows the errors to be interrelated. Consider a three-state example, in which states A and B are both members of the IO1, states B and C are both members of the IO2, but states A and C do not have any shared IO memberships. The spatial error lag matrix based on shared IO membership (1=shared membership, 0=no shared membership) would look in the following way:

$$\mathbf{W} = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}.$$

Based on this three state example, we get the following equation using the spatial error model:

$$\begin{bmatrix} Y_A \\ Y_B \\ Y_C \end{bmatrix} = \begin{bmatrix} 1 X_A \\ 1 X_B \\ 1 X_C \end{bmatrix} \begin{bmatrix} \beta_0 \\ \beta_1 \end{bmatrix} + \lambda \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} \varepsilon_A \\ \varepsilon_B \\ \varepsilon_C \end{bmatrix} + \begin{bmatrix} \varepsilon_A \\ \varepsilon_B \\ \varepsilon_C \end{bmatrix}.$$

This can be reduced to:

$$\begin{bmatrix} Y_A \\ Y_B \\ Y_C \end{bmatrix} = \begin{bmatrix} \beta_0 + \beta_1 X_A + \lambda \varepsilon_B + \varepsilon_A \\ \beta_0 + \beta_1 X_B + \lambda(\varepsilon_A + \varepsilon_C) + \varepsilon_B \\ \beta_0 + \beta_1 X_C + \lambda \varepsilon_B + \varepsilon_C \end{bmatrix}.$$

The weakness of the spatial error lag model, at least in its application to social science models, is that inter-dependence among states can only have an effect through inter-related error terms; the error term of each country is related to all the errors of all other countries defined as "sharing the same space" (Beck, Gleditsch, and Beardsley 2006, 30). To demonstrate the problem, let *y* be the level of democracy. As argued above, the level of democracy in one country is affected by the levels of democracy of other countries that it interacts with. For example, if Russia's freedom of the press[6] improved because of some variable not included in the model, that increase would affect all the states that Russia interacts with (e.g. the members of the Commonwealth of Independent States, CIS). But if Russia's freedom of the press improved because a liberal leader came to power, and if that variable was included in the model, then this extra improvement in freedom of the press would have no impact on the other members of the CIS. As freedom of the press in states that are in close interaction with Russia depend in part on overall freedom of the press standards in Russia, and not just the portion that is treated as the "error" term, the spatially lagged error model does not seem appropriate.

The Spatial Lagged DV Model

The spatially lagged dependent variable model accounts for spatial dependence by including a lagged dependent variable on the right hand side of the equation. Its functional form appears as:

$$y_i = \mathbf{X}_i \beta + \lambda \mathbf{W}_i \mathbf{y} + \varepsilon_i. \qquad (2)$$

[6] Freedom of the press is one of the components of the Freedom House democracy measure.

where λ is a parameter, $\mathbf{W}_i$ is a matrix weighing the relationships between observations, and **y** is the vector of values for *y*. In this case, actions of other states influence each other by "feeding back through" via the dependent variable on the right hand side of the equation. Using the same hypothetical three-state example, we find that

$$\begin{bmatrix} Y_A \\ Y_B \\ Y_C \end{bmatrix} = \lambda \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} Y_A \\ Y_B \\ Y_C \end{bmatrix} + \begin{bmatrix} 1X_A \\ 1X_B \\ 1X_C \end{bmatrix} \begin{bmatrix} \beta_0 \\ \beta_1 \end{bmatrix} + \begin{bmatrix} \varepsilon_A \\ \varepsilon_B \\ \varepsilon_C \end{bmatrix},$$

which can be reduced to

$$\begin{bmatrix} Y_A \\ Y_B \\ Y_C \end{bmatrix} = \begin{bmatrix} \beta_0 + \beta_1 X_A + \lambda Y_B + \varepsilon_A \\ \beta_0 + \beta_1 X_B + \lambda (Y_A + Y_B) + \varepsilon_B \\ \beta_0 + \beta_1 X_C + \lambda Y_B + \varepsilon_C \end{bmatrix}.$$

In this model, the spatial autocorrelation is accounted for by the disturbance in the lagged DV weighted by the connectivity matrix. If the connectivity matrix is that of common IO membership, for example, the lagged DV would allow state *i*'s democracy level to be affected by changes in democracy levels of states with which it shares IO membership. To use the above example of Russia's freedom of the press, this model would allow sudden changes in Russia's freedom of the press to directly affect the freedom of the press standards in the other CIS states.

The spatially lagged DV "differs from the spatially lagged error model, in that both the error term and the covariates in nearby units impact the current unit" (Becket al. 2006: 30). As Beck et al. (2006) conclude, this makes the lagged DV model generally more preferable for estimating social theories.

The Spatial Lag Estimators and the m-STAR Model

Franzese and Hays (2007) use Monte Carlo simulations to compare several estimators that use spatially lagged DVs: a spatial OLS (S-OLS), a spatial maximum likelihood (S-ML), and a

spatial two-stage least squares (S-2SLS). They find that, when applied to spatial data, all of these models greatly outperform the non-spatial OLS model, which suffers from omitted variable biases and inefficiency. The S-OLS suffers from the simultaneity bias which grows with the strength of the inter-dependence relationship. Finally, the S-ML and S-2SLS models, while computationally intense, are found to be consistent and asymptotically efficient, if correctly specified.

In their later work, Franzese et al. (2009) present a refined version of the S-ML estimator—the m-STAR model—a spatio-temporal lag model with multiple spatial-weights matrices. This model is able to jointly estimate unit-level effects (e.g. country-specific variables), $\mathbf{d}_{it}$, temporal effects, $\phi \mathbf{y}_{i,t-1}$, as well as the effects of interdependence among units, $\rho \sum_{j \neq i} \mathbf{W}_{ij} \mathbf{y}_{jt}$:

$$y_{it} = \rho \sum_{j \neq i} \mathbf{W}_{ij} \mathbf{y}_{jt} + \phi \mathbf{y}_{i,t-1} + \beta_d' \mathbf{d}_{it} + \varepsilon_{it} \qquad (3)$$

i_{jt} is the outcome in another $(j \neq i)$ unit, which in some manner (given by $\rho \mathbf{W}_{ij}$) directly influences the outcome in unit *i*. $\mathbf{W}_{ij}$ estimates the relative degree of connection between *i* to *j*, and ρ is the overall strength of dependence of the outcome in unit *i* on the outcomes in the other $(j \neq i)$ units, as weighted by $\mathbf{W}_{ij}$ (Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010). Substantively, in the democratization model presented in this paper, the $\mathbf{W}_{ij}$ stand for the state's *i* and *j*'s shared memberships in different types of IOs. It is also common in the literature to use $\mathbf{W}_{ij}$ in order to gauge the effects of geographic contiguity and/or trade[7] between *i* and *j* (Beck, Gleditsch, and Beardsley 2006; Cao 2010; Franzese and Hays

[7] Trade has been included in alternative specifications of the models for robustness checks. Its inclusion does not alter the results. Since it is not directly related to the theoretical argument , and contiguity measures a similar concept, trade is excluded from the final models for the sake of parsimony.

2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010). The other right-handside elements represent non-spatial components of the model. In this paper, the unit-level/domestic factors include state *i*'s capabilities, and number of memberships in each type of IO, and democracy level of the most democratic IO of which *i* is a member.

The m-STAR model has several advantages over alternative estimation techniques. First, by explicitly modeling effects at different levels of analysis (in this paper, domestic and inter-unit) it avoids what is referred to as Galton's problem (Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010). The crux of the problem is that by failing to explicitly model effects at different levels, one is running the risk of coefficient inflation or bias. For example, a failure to include interdependence effects might result in over-estimation of the unit-level effects, and vice versa (Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010).

Another advantage of the m-STAR estimator is in its ability to separately estimate multiple spatial effects. Thus, instead of including the rough spatial dependence measure such as a single weighted lagged DV, one is able to include a set of spatial variables that are dictated by the theoretical model. Multiple spatial lags help reduce bias by allowing to explicitly model all of the sources of inter-dependence (in this paper, memberships in different types of IOs and contiguity).

Before proceeding to the discussion of empirical results, it is worth noting that estimation of the m-STAR model is computationally intense, especially for the use with pooled time-series data. The testing of this paper's hypotheses required setting up of eight NxN connectivity

weighting matrices (not counting alternative specifications).[8] This task is further complicated by the space, memory and speed limitations of the available statistical software[9].

Results

Tables 1 and 2 presents the main empirical results, estimated using three different specifications. Table 1 shows the results of a naïve nonspatial OLS with a lagged DV and fixed effects, and a semi-naïve nonspatial OLS with panel-corrected standard errors. Table 2 shows the results of an m-STAR model using different specifications (including all spatial lags or groups of them).

The most striking result is the seeming absence of difference in the estimates of the three models[10]. In all six models, most of the coefficients behave in exactly the same way. There is general support for Hypotheses 1 and 3: memberships in *Large Scope* and *Highly Controlled IOs* have a positive effect on the level of democracy. Hypothesis 2, on the other hand, is not supported: membership in *Institutional IOs* (Hypothesis 2) tends to have a negative, rather than effect. These effects are statistically significant in almost all of the models.

This striking similarity in empirical estimates, however, may be deceptive. In order to evaluate this, one needs to look at the effects of the spatial lags (bottom of Table 2). While only one spatial effect (Contiguity) is statistically significant in the first model, this result alone is sufficient to indicate that the estimates of the naïve models are biased. Unable to account for the spatial effects of contiguity, these models will allocate its effect to other variables included in the

[8] Some, though not all studies employ row-standardized matrices. The theoretical argument in this paper, however, suggests that the number of IOs that a state shares with a democratic state is more important than the percent of such IOs. Hence, I do not standardize the matrices.

[9] All estimation in this paper has been conducted in Stata 11.1 using *spreg* command (MacMillan, Franzese, and Hays 2009).

[10] Note that m-STAR coefficients cannot be directly interpreted. They represent the (usually unobservable) pre-interdependence impetuses to outcomes from each independent variable (Hays et al 2010: 15). Their effects are usually interpreted through the effects of counterfactual shocks to some units of themselves or other units over time (see below).

model, generating bias. The mis-specification of the naïve models becomes even more apparent after examining Models 1-3 of Table 2. Once separated into groups of effects (to reduce high multi-collinearity among them), most of the spatial lags (*Large-Scope, Institutionalized, Structural, Minimal, Intermediate Control,* and *Low Control)* show a positive and significant effect. These effects suggest two conclusions. First, they provide support for the spatial nature of the central hypotheses of this paper: the make-up of state *i*'s IO space (democratic or not) interacts with IO types to influence *i*'s level of democracy. Second, these results point to the necessity of modeling or correcting for spatial dependence in the data in order to minimize potential estimation bias (Franzese and Hays 2007, 2008, 2009; Hays, Kachi, and Franzese 2009, 2010).

Substantive Effects

Figures 2-4 show the substantive effects of the primary independent variables. It is common to show the spatial effects using "shock" maps—counterfactual maps that display the predicted values of the dependent variable after "shocking" the dependent variable for one of the observations. To provide a substantive visual illustration of this paper's results, imagine the following counterfactual of how the Cold War could have ended. Imagine that, in accordance with Fukuyama's (1992) optimistic predictions, Russia had actually undergone a successful democratic transition in 1991. If, as shown by the empirical results of this paper, state *i'*s level of democracy affects those levels in other states through contiguity and shared IO space, then what would have the effect of Russia's democratization on the rest of the world?

Figures 2 and 3 display the short-term (same year) and the long-term (8 years) effects of changing Russia's level of democracy from its actual level of 5 to 10 in each year after 1991. In order to see these effects, compare the actual levels of democracy (the top maps) to the predicted

levels of democracy after the shock of Russia's democracy (the middle maps). The bottom maps display the changes in democracy levels after the shock to Russia's democracy, color-coded by quintiles.

Some of the results are that, if Russia democratized for the whole period between 1992 and 2000, the model predicts positive change in democratic levels of such states, as Russia's near abroad (e.g. Kyrgyzstan with a change of +0.12). More interestingly, however, the model predicts Russia's democratization leading to more democratic China (+0.7), Afghanistan (+0.96), Iran (+8), and Iraq (+0.5).

Figure 4 shows the first differences of changing state *i*'s IO memberships in different types of IOs from its minimum to its maximum, while setting all other effects at their mean and model values. As we can see, when the spatial effects are controlled for, the effect of IO membership is trivial. For none of the IO types, changing the number of IO memberships from minimum to maximum affected state *i*'s democracy level by more than a fraction of a point. This finding confirms the spatial nature of the effects examined in this paper and re-emphasizes the need to properly model these effects.

Implications and Conclusions

This paper sought to offer a more explicit understanding of IO effects on democratization. More specifically, the goal was to establish whether and how the wide variation in IOs that we observe today translates into their ability to influence their members' regime type. This goal has been achieved, with some potentially important implications for foreign and domestic policy-making.

The results have demonstrated that not all IOs are created equal. Membership in large scope or high capacity IOs is associated with higher (but substantively unimportant) levels of

democracy. But more interestingly and importantly, certain IOs, mainly those that cover large issue scope, have high or medium capacity, or are symmetrically controlled by all members, have substantively large spatial effects on the likelihood of their members' democratization.

The results of this paper suggest some valuable policy implications. Inducing domestic democratic transitions or preventing transitions to authoritarianism have long been a foreign policy goal for some states (Whitehead 1991b). For example, there is some evidence that this goal motivated such costly US interventions as the Vietnam War, the US War in Afghanistan, and the Second Gulf War. Knowing that war is not the only way to induce domestic regime change is reassuring for such states. Inducing states to join IOs is much cheaper than initiating a foreign intervention. Another advantage of operating through IOs might lie in its perceived legitimacy (Ikenberry 2000; Keohane 1984).

The work presented in this paper is, however, preliminary and requires further investigation. The first step would be to check and account for the possible sample selection effects. This would require identifying a range of variables that influence states' decisions to join IOs and re-estimating the models as a two-stage selection model. Second, research show that IOs' effects are not limited only to official members (Goldstein, Rivers, and Tomz 2007; Kelley 2004). In fact, IO effects on the aspiring members might be even more prominent. Despite the attempt to capture IO effects on states lacking full membership by including states with observer status and associate membership, the data on aspiring members is largely non-existent. Third, the IO design features explored in this paper are not exhaustive. Future analysis should focus on other important components of IO design, such as membership or distribution, to uncover their role in member democratization.

Tables and Figures

Table 1. Naïve Models: The Effect of IOs on Members' Democracy

	Naïve OLS (Fixed Effects)	*Semi-Naïve OLS (PCSE)*
Temporal Lag	0.79***	0.89***
	(0.02)	(0.01)
Large Scope IOs	-0.01	0.05*
	(0.07)	(0.03)
Institutional IOs	-0.06*	-0.06***
	(0.04)	(0.02)
Minimal IOs	-0.02	0.01
	(0.02)	(0.01)
Highly Controlled IOs	0.11**	0.06***
	(0.06)	(0.03)
Low Control IOs	-0.01	0.01
	(0.03)	(0.01)
Most Democratic IO	0.29***	0.15***
	(0.06)	(0.02)
Borders	0.01	0.01
	(0.03)	(0.02)
Capabilities	-3.06	1.25*
	(4.03)	(0.88)
Africa	-2.67***	-0.12
	(1.03)	(0.15)
Asia	-2.96***	-0.44***
	(1.00)	(0.15)
Europe	-1.13	0.23**
	(0.95)	(0.13)
Middle	-1.76**	-0.37**
	(0.95)	(0.20)
Constant	4.11	-0.75***
	(5.95)	(0.16)
N	4189	4189
R^2	0.92	0.91
Sigma	2.04	

Note: Stars indicated significance for one-tailed test: **p<0.1, **p<0.05, ***p<0.01*. Fixed effects are not reported.

Table 2. M-STAR: The Effects of IO Membership on Democratization

	Scope	*Capacity*	*Control*	*All Spatial Lags*
Temporal Lag	0.89***	0.89***	0.89***	0.89***
	(0.01)	(0.01)	(0.01)	(0.01)
Large Scope IOs	0.08***	0.06***	0.04*	0.03
	(0.03)	(0.03)	(0.02)	(0.03)
Institutional IOs	-0.04***	-0.03*	-0.04***	-0.03**
	(0.01)	(0.02)	(0.02)	(0.02)
Minimal IOs	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Highly Controlled IOs	0.05***	0.07***	0.06***	0.08***
	(0.02)	(0.02)	(0.02)	(0.02)
Low Control IOs	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Most Democratic IO	0.14***	0.14***	0.15***	0.14***
	(0.02)	(0.02)	(0.02)	(0.02)
Capabilities	0.65	0.55	0.64	0.88
	(1.27)	(1.27)	(1.28)	(1.30)
Constant	-0.62***	-0.50***	-0.58***	-0.47***
	(0.10)	(0.10)	(0.10)	(0.11)
Spatial Weights				
Contiguity	0.01***	0.01***	0.01**	0.01***
	(0.01)	(0.01)	(0.01)	(0.01)
Large-Scope IOs	0.01***			-0.01
	(0.01)			(0.01)
Institutionalized IOs		0.01***		0.01
		(0.01)		(1.02)
Structural IOs		0.01***		0.01
		(0.01)		(1.02)
Minimal IOs		0.01***		-0.01
		(0.01)		(1.02)
Highly Controlled IOs			-0.01	0.01
			(0.01)	(1.02)
Intermediately Controlled IOS			0.01*	-0.01
			(0.01)	(1.02)
Low Control IOs			0.01***	-0.01
			(0.01)	(1.02)
Sigma	2.12***	2.12***	2.12***	2.11***
	(0.02)	(0.02)	(0.02)	(0.02)
N	4192	4192	4192	4192
Log Likelihood	-9098.04	-9089.44	-9096.39	-9087.64
Chi-Square	33356.04	28949.14	30251.22	27232.56

Stars indicated significance for one-tailed test: **p<0.1, **p<0.05, ***p<0.01*.

Figure 1. Conceptualizing State *i*'s IO Membership in Spatial Terms

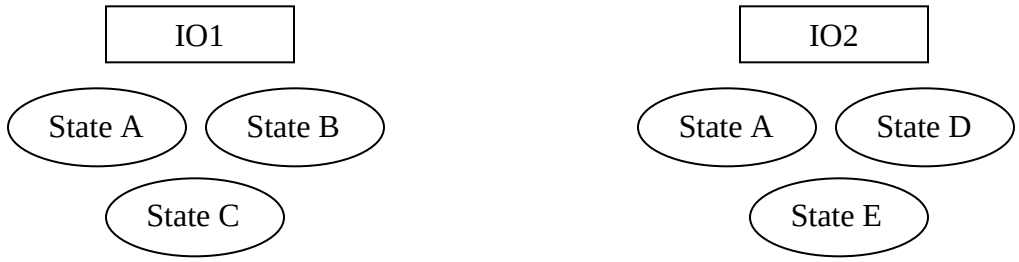


Figure 2. Substantive Effects: The Short-Term Effects of Shocking Russia's Democracy Score from 5 to 10 in 1992.

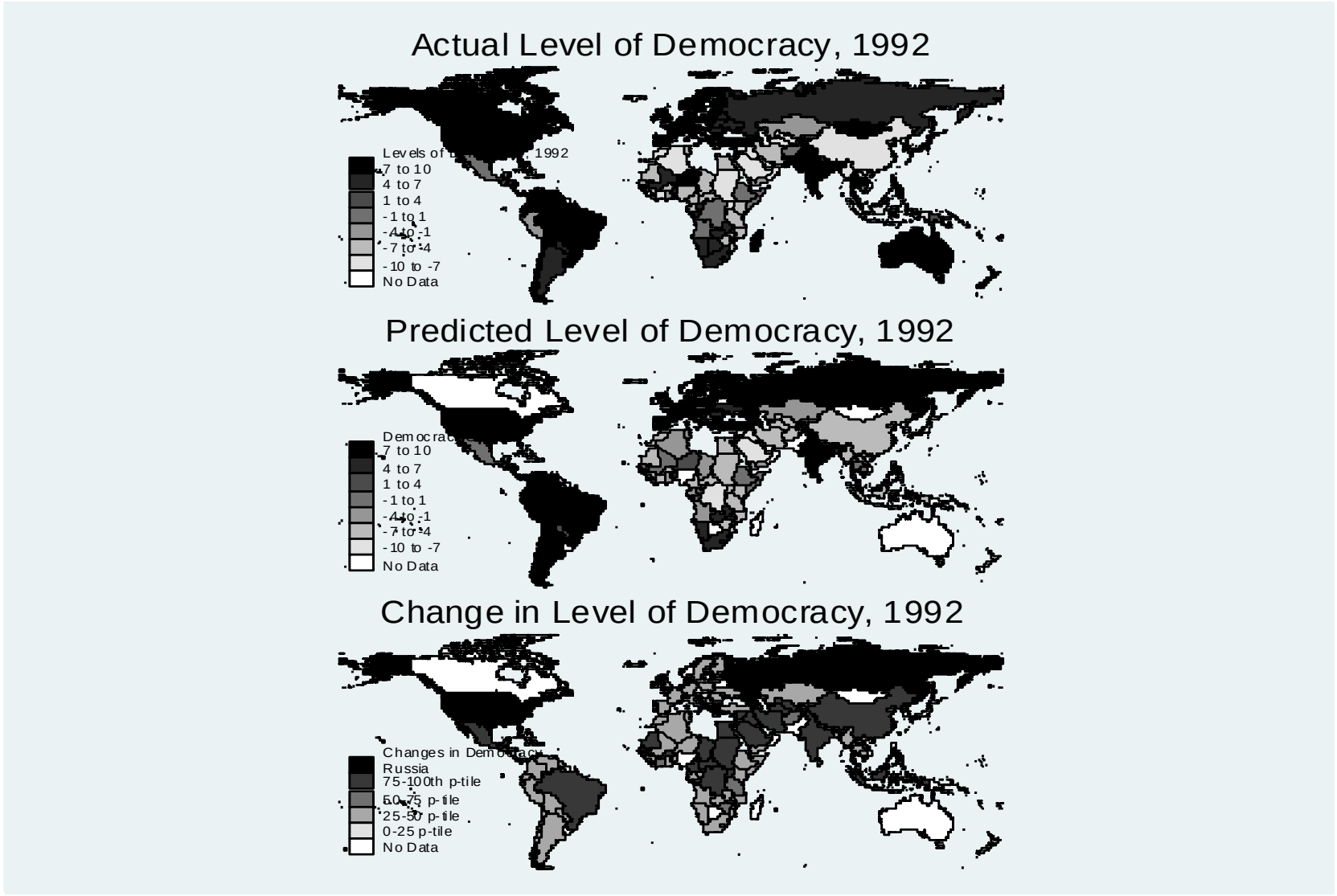


Figure 3. Substantive Effects: Long-Term Effects of Shocking Russia's Democracy from 5 to 10 in 1992.

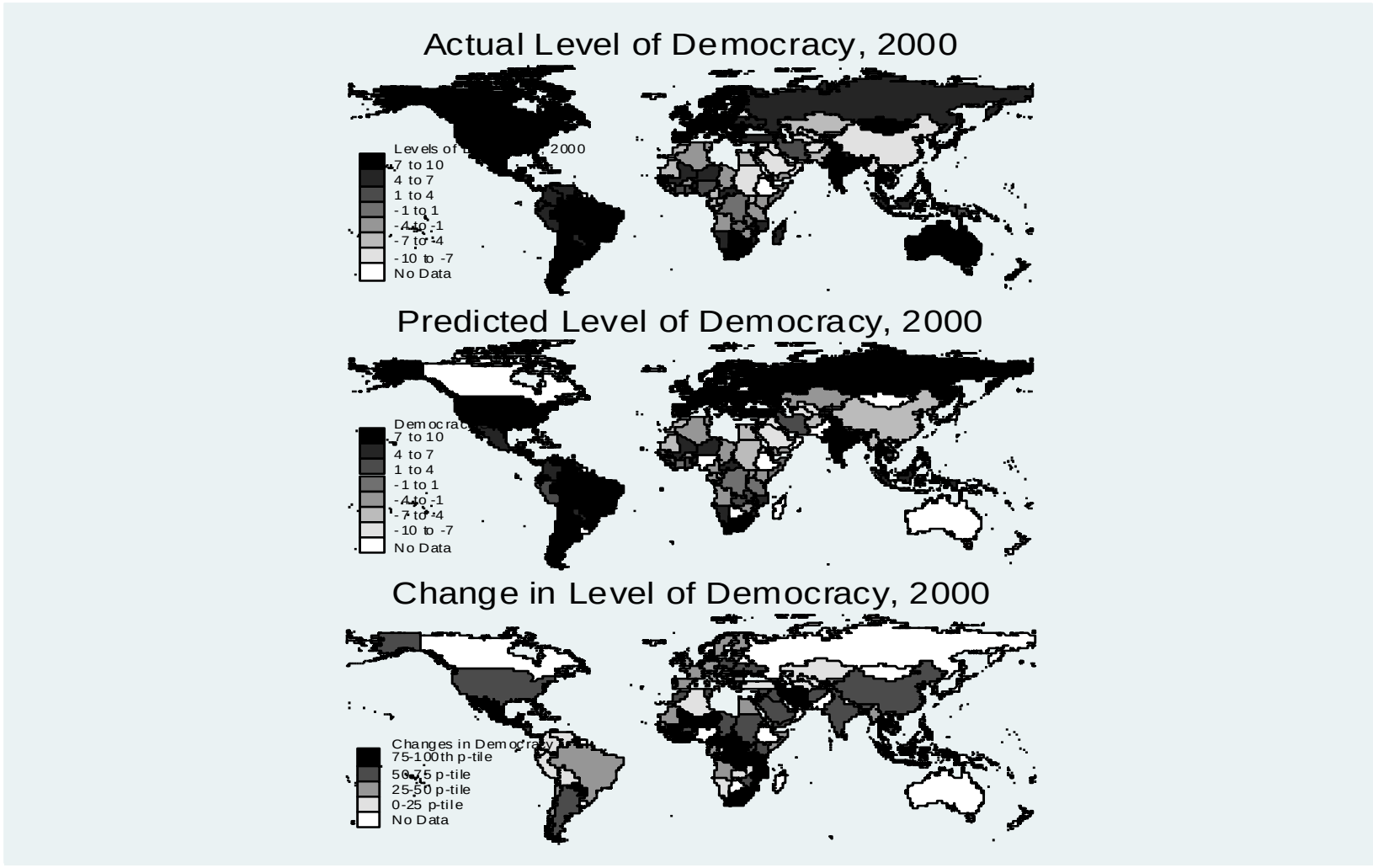
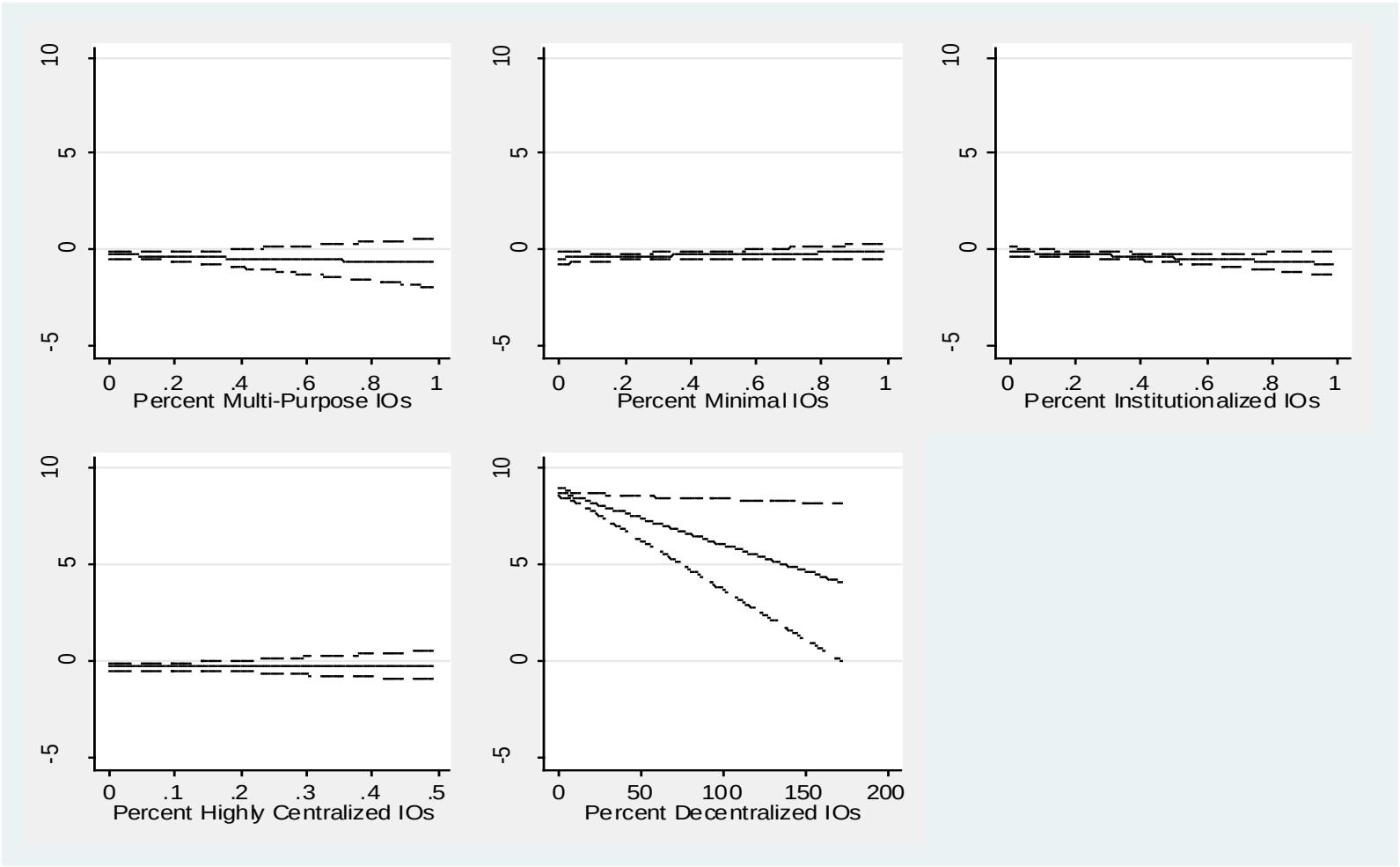


Figure 3. Substantive Effects of IO Memberships on Democracy Level.



Note: All substantive effects are produced by setting all the control variables to their means and model values and using Monte Carlo simulations to predict the values of democracy level at different values of the variables of interest.

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