Human Rights Treaty Ratification of Aid Receiving Countries [*]

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Abstract

This paper studies the decision to ratify Human Rights Treaties (HRT) at the United Nations. We present new empirical evidence that sheds light on who ratifies when and why. Controlling for the quality of domestic human rights institutions, high levels of predetermined HRT participation relative to other aid recipients has a significant positive effect on a country's foreign aid receipts, suggesting that aid donors use treaty participation as a criterion to allocate foreign aid. Surprisingly though, we find that high levels of HRT participation precipitates a decline in the quality of domestic human rights institutions. Taken together with the result that donors reward treaty participation with foreign aid, this suggests that using foreign aid as an incentive for treaty participation has indirect negative consequences for real human rights, inconsistent with the traditional view that aid donors have a positive preference for human rights practices in developing countries. We show however that the treaty participation of other aid recipients has a strong and positive effect on domestic human rights institutions that more than offsets the negative effects of a country's own treaty participation, thereby reconciling the decision of donor countries to reward treaty participation with aid with the view that donors have a positive preference for real human rights. Finally, we find evidence that previous participation has a strong negative effect on the country's current ratification decision. Altogether, this evidence is consistent with the hypothesis that aid donors use HRT ratification as a criterion to allocate foreign aid, and that recipient countries are strategic and forward-looking. Based on these empirical findings, we propose a structural dynamic game of HRT ratification. The model is analogous to a dynamic game of quality competition in an oligopoly industry (eg., Pakes and McGuire, 1994) in which countries compete for foreign aid by ratifying costly HRTs in the same way firms compete for demand by investing in costly product quality improvement. We estimate the model using data from a variety of sources, including the United Nations Treaty Collection. Our estimates show that economic factors play an important role in HRT ratification, and that HRTs have significant influence on the distribution of foreign aid among recipient countries. We also find that the ratification costs countries incur vary significantly across treaties and country regime types. We use the estimated model to evaluate the effects of counterfactual policies on HRT ratification decisions, human rights behavior, and on the distribution of foreign aid.

JEL Classification: C35, C73, L10, L13, O19, O2, K33

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1 Introduction

With the horrors of two catastrophic world wars fresh in its collective memory, the United Nations General Assembly adopted the Universal Declaration of Human Rights (UDHR) on December 10, 1948. In the years since, the UDHR has formed the basis of international human rights norms and their formal legal embodiment in the United Nations Human Rights Treaties (HRT). The ratification and in many cases subsequent integration of HRT's into domestic law by countries from all over the political and cultural spectrum is considered one of the great achievements of the international community in the post Second World War era.

At the same time, it is natural to ask why countries ratify HRT's at all. First, formal enforcement mechanisms generally do not exist. Countries party to a treaty can in practice violate its terms without formally specified punishment. This stands in contrast to treaties in trade and the environment, where monitoring is possible and non-compliant parties can be punished. Second, the benefits to ratifying a human rights treaty are not immediately clear. Treaties in trade and the environment solve a collective action problem by clearly stipulating and enforcing the rules of the game, and the mutual benefit associated with treaty participation is clear and tangible. When a country ratifies an HRT, on the other hand, it agrees not to take actions that affect its own citizens. It is not obvious what one country has to gain by agreeing to limit domestic behaviour while receiving unenforceable promises from other parties to do the same.[1]

Despite the seemingly inconsequential nature of HRT's, we observe ratification throughout the history of the UN, and perhaps more importantly, substantial and persistent variation in the timing and frequency of ratification across countries and treaties. Exploiting a panel of 83 foreign aid receiving countries over the years 1973-2001, we investigate who ratifies, when, and why. Specifically, we examine the role of economic, political and strategic incentives in the decision to ratify HRT's at the UN. Acknowledging that global human rights standards are not constant and evolve over time, our measure of a country's treaty participation is always relative to the treaty participation of other countries at that point in time. The treaty participation of other countries determines the standard that a country's participation is judged against.

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[1]To the best of our knowledge this is the first study in the economics literature to address the question of why countries commit to human rights institutions. However a small but growing literature in political science and international law, triggered by Hathaway (2003) and Hathaway (2007), have studied the question of why autocratic countries often participate in HRTs more frequently than democratic countries.

We approach the problem in two stages. In the first stage we utilize dynamic panel data methods to study the relationship between aid, human rights institutions, and human rights treaty participation. In the first set of results we find that, conditional on domestic human rights institutions, high levels of relative treaty participation has a significant and positive effect on foreign aid receipts. This result is robust to the inclusion of many political and economic control variables, and to the presence of unobserved country and time heterogeneity. By contrast, the quality of domestic human rights institutions themselves does not have a significant effect on aid receipts once we control for other political and economic variables. These findings are a contribution to the literature on the determinants of foreign aid, in particular Alesina and Dollar (2000) and Alesina and Weder (2002), as well as the literature on the determinants of HRT participation (i.e., Hathaway (2007)). We rationalize this set of results by arguing that aid donors use HRT participation as a criteria to distribute foreign aid among recipients, and actually prefer to use this "nominal" measure instead of a "real" measure of human rights behavior. [2]

Further, we find that countries with high quality human rights institutions tend to participate more frequently in HRT's relative to other countries, but that the converse is not true; countries with a higher propensity to ratify HRT's actually experience a subsequent decline in their human rights institutions. The first finding is intuitive. The costs of complying with the terms of a treaty will be lower for a country that is already compliant at the time of ratification, than for a non-compliant country. Compliant countries have a higher net benefit to ratifying, and ratify more frequently. The second result, that HRT participation causes a decline in domestic human rights institutions, is somewhat surprising. Previous studies in political science (i.e., Hathaway, 2007) find a similar result, and argue that countries under scrutiny by the international community for their practices may use HRT participation to "take the spotlight" off their real behavior, and thus HRT participation may be followed by a decline in real human rights institutions. However, this result together with the result that donors reward treaty participation with aid implies that donors either have a positive preference for human rights and are irrational in that they don't recognize the

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[2]There are several possible reasons aid donors prefer to use HRT participation as the criteria for making aid allocation decisions. For example, the actual recipient of aid, usually the current government of the receiving country, is often constrained by other domestic political forces (i.e., the military) in affecting immediate change in actual human rights institutions. Ratifying a treaty is a task that is not only simpler, but often under the government's direct control. Additionally, there is often disagreement among outside actors about the quality of a country's human rights institutions, and further, about how to interpret any given measure and compare it across countries. For this reason, when a donor needs to justify to its domestic polity its decision of who to allocate aid to, HRT participation may be a more favorable statistic to point to.

implications of their donation decisions, or that they have a negative preference for human rights. Neither of these possibilities seems particularly likely. As such we explore further the relationship between treaty participation and human rights. In particular, as our measure of a country's treaty participation is relative to the participation of other aid receiving countries, we decompose the effect of relative treaty participation into the effect of a country's own participation and the effect of the participation of other countries' participation on its own human rights institutions. We find that the positive effect of the latter outweighs the negative effect of the former several fold. Thus the net effect on human rights of rewarding treaty participation with foreign aid is positive.

Finally, we show that high rates of relative participation in previous years has a strong negative effect on the country's current ratification decision. Or, viewed in another light, the probability a country ratifies a treaty increases as countries in the rest of the world increase their relative treaty participation. This finding is consistent with the hypothesis that countries are strategic and forward-looking in their decision to ratify an HRT. Countries are strategic in the sense that other countries' treaty participation decisions affect their own decision, and countries are forward looking in the sense that their own past decisions influence current decisions.

These empirical results, while providing new insight regarding the determinants of foreign aid and the relationship between international human rights institutions, domestic human rights behavior and foreign aid, raise three interesting questions that we study here. First, motivated by the relationship between relative treaty participation and aid receipts, we investigate how much of the patterns of behavior we observe are explained by the economic benefits to ratification. In other words, is increased foreign aid receipts the motivation behind ratification? Second, finding that treaty participation is rewarded by aid raises the question, why don't all countries ratify all available treaties immediately? Treaty ratification must be costly in some dimension. We explore the sources of the costs of treaty ratification, as understanding where these costs come from and the role they play in the participation decisions of countries is of interest from a policy perspective. Third, it is clear also that there is significant heterogeneity in participation rates across countries, suggesting that there is heterogeneity in the net benefit to participation across countries. One other question of interest is, what specifically is driving this heterogeneity in net benefit?

Absent a theoretical model of treaty ratification, these issues are difficult to investigate. As such, to further understand how economic and strategic factors drive country behavior, in the

second part of the paper we develop and estimate a structural dynamic game of treaty ratification. The model we consider is analogous to a model of quality competition in an oligopolistic industry (eg., Pakes and McGuire (1994)). In our model countries compete for foreign aid by ratifying costly HRTs in the same way firms compete for consumer demand by investing in costly product quality improvement. Donor countries make resource allocation decisions based on the relative treaty participation of recipient countries. Recipient countries "invest" in the quality they offer donor countries by ratifying treaties at a cost. These investment costs are allowed to vary both by treaty and by the type of ratifier. We estimate the investment costs as well as the structural parameters of the ratification benefit function. Our first finding is that the ratification costs countries incur vary across country regime types. Specifically, countries with good human rights institutions and democratic institutions in place find it less costly to participate, all else equal. Second, we find significant variation in costs across treaties. We relate this cost variation to variation in institutional characteristics of the treaties, in particular the verifiability of the treaty terms, and discuss the implications of this finding for institutional design.

We then use the estimated model to consider several counterfactual experiments. In the first set of experiments we quantify the relative importance of foreign aid receipts and human rights as motives in the treaty ratification decision. We find that the average rate of participation drops by 33% when we decrease the aid motive by 10%, confirming that the economic returns to ratification we find evidence of in the first part of the paper are a significant part of the reason countries ratify in the first place. In the second experiment we investigate the importance of regime heterogeneity in explaining the observed heterogeneity in country ratification behaviour. Existing studies on HRT ratification emphasize variation across regimes in the "cost of commitment" (Hathaway, 2007) to treaty terms as the primary source of heterogeneity in ratification decisions. As we allow for heterogeneity in both the economic benefits and cost of treaty ratification, estimating a structural model lets us compare the relative importance of these two sources of heterogeneity in explaining ratification behavior. While both sources of heterogeneity are important, we find that heterogeneity in the benefits to ratification explain a significant proportion of the variation in behavior. Finally, we use counterfactual analysis to examine the role that aid plays in improving human rights institutions through the channel of treaty participation. That is, we are able to quantify the benefits of using treaty participation as a criteria for allocating foreign aid on real domestic human rights institutions,

by considering a counterfactual world where aid is much less sensitive to treaty participation.

As well as contributing to the literatures on the determinants of foreign aid and human rights treaty participation, this paper contributes to the nascent literature on the estimation of structural models in political economy. Several recent key developments in the estimation of dynamic games, in particular Aguirregabiria and Mira (2007), Bajari, Benkard and Levin (2007) and Pakes, Ostrovsky and Berry (2007), have allowed applied researchers to address questions that, for mainly computational reasons, were previously unanswerable. But with the exception of the pioneering work of Merlo (1997) and Diermeier et al (2003) who develop and structurally estimate a dynamic bargaining model of government formation, and, more relevant to the present study, Wagner (2008), who estimates a dynamic game of environmental treaty ratification, and Buera, Monge and Primiceri who study the interdependencies across countries in the decision to liberalize markets, the tools of estimation of structural dynamic models, and especially the most recent developments, have yet to be applied to questions in political economy. We contribute in this study by helping to bridge the gap between the most recent methodological developments in empirical industrial organization and questions of interest in the field of political economy.

2 Data

The country-years that comprise the working sample we use are found in table A2 of the appendix. As our study is targeted at the developing world, we restrict ourselves to the countries of Latin America, Africa, Asia and the Middle East. We consider every country that existed on these continents at any point during the period 1973-2006, was a member of the United Nations, and has a population of at least 500,000.[3] We exclude countries that are major oil exporters throughout the time horizon of the sample, as these countries are non-aid recipients. Altogether this sample contains 83 countries and 2676 country-year observations.

Treaty ratification dates come from the United Nations Treaty Collection.[4] We restrict consideration to treaties that opened after the founding of the United Nations in 1945 (See table A1 in the data appendix for the full list of treaties). [5] From these data we construct all variables

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[3]Much of the data we use does not provide values for countries with a population below 500,000.

[4]Available at http://treaties.un.org/Pages/Home.aspx?lang=en

[5]While treaties dealing with substantive human rights issues did exist in the pre-world war II era, the concept of international human rights law is widely considered to have been a product of the founding of the UN .

related to ratification. There are dozens of treaties in the collection, many pertaining to human rights related issues. While chapter IV of the treaty collection is titled "Human Rights," many other treaties in other chapters have an important (often predominantly) human rights dimension, and we thus do not restrict our attention only to treaties from this chapter. The set of treaties we select is broad enough that basic human rights (torture, political killings etc.), property rights, civil rights (religious and political freedoms), and emancipatory rights (worker rights, discrimination) are each considered explicitly by at least one of the treaties in the data set. We consider seven of the eight "core" human rights treaties,[6] as well as eight other treaties considered human rights treaties by the Encyclopedia of Human Rights (1996).

The data on country level democracy over time comes from the Polity IV data set (Marshall and Jaggers, 2010). Each of the democracy and autocracy indexes in the Polity data set, which range from 0-10 (0 being the lowest level of democracy (autocracy) and 10 being the highest level of democracy (autocracy)) are composites of other political variables. First, democracy is conceived as the composite of three things: the degree to which citizens can freely express preferences over political leaders and policies, the constraints on the exercise of power by the executive, and the guarantee of civil liberties to citizens. Autocracy on the other hand is determined by how sharply political participation and competition is restricted, and how freely the executive, once selected, exercises power. We follow the literature and use the difference between these two scores (the Polity Composite Index) as our measure of a country's level of democracy, and transform the score so that it lies between 0 and 1. Our measure of political stability comes from the "durable" variable in the Polity IV data set. This variable simply measures the number of years since a major political regime change in the country, and is also normalized to lie between 0 and 1. Any missing data from the polity data set is imputed using the suggestions of the authors. The measure of trade openness we use is the Sachs and Warner (1996) trade openness indicator (updated by Wacziarg and Welch (2003)). This is a binary variable which designates a country as "closed" if one of five policy criteria are met: the country has an average tariff rate greater than 40%, non-tariff barriers cover more than 40% of imports, there is a state monopoly over major exports, the country has a socialist economic system, or there is a black market exchange rate premium greater than 20%. As the rest of our data extends to 2006, wherever openness is used in the analysis we assume that the

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[6]We are unable to consider the last of these treaties, the Convention on the Rights of Persons with Disabilities (in force 3 May 2008), because it opened too late with respect to the scope of our data set.

openness status of a country after 2003 is equal to it's status in 2003. It is rare that a country that opens its markets closes again at some point in the future. Moreover, openness only plays the role of control in the most elaborate specifications we consider, so our main results are not sensitive to this choice.

The data on geographical distance between countries comes from CEPII distance measures (Mayer and Zignago, 2006). Country GDP data is measured in thousands of international Geary-Khamis dollars, and is taken from Maddison (2003). Population data is also taken from Maddison (2003). The data on foreign aid comes from the OECD Overseas Development Assistance (net ODA). The DAC members (aid donors) change over time, but the countries that are members at some point during the time horizon of our sample are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States, and the Commission of the European Communities.

Lastly, the human rights data comes from Freedom House's Comparative Survey of Freedom. We specifically consider the Civil freedoms variable, which rates countries on a scale from 1-7 according to a checklist (see above) of civil freedoms and rights. The measure is essentially a grade given to each country each year based on the number of positive answers to a checklist of fourteen questions. These include (Gastil, 1990): Free media, Open Public Discussion, Freedom of Assembly and Demonstration, Freedom of Political Organization, Nondiscriminatory Rule of Law in Politically Relevant Cases, Freedom from Political Terror and Imprisonment, Free Trade Unions and Peasant Organizations, Free Businesses/cooperatives, Free Professional/Private Organizations, Free Religious Institutions, Personal Social Rights, Socioeconomic Rights, Freedom From Gross Socioeconomic Inequality, Freedom From Gross Government Indifference or Corruption. Crucially, there is significant overlap between the realms of human rights behavior measured by the civil liberties variable we use, and the subjects covered by the human rights treaties that comprise the treaty capital variable.

Summary statistics are provided in table 1.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Measurement Units
Aid per capita	2676	34.66	39.92	-45.05	464.87	2008 US dollars
Human Rights	2676	3.46	1.50	1	7	Discrete Index Ranging from 1 to 7
Treaty Capital	2676	0.01	2.34	-7.64	8.79	Continuous Index
GDP per capita	2676	2.58	2.25	0.207	12.26	Thousands of "Geary-Khamis" International Dollars
Political Stability	2676	13.49	113.74	0	87	Number of Years
Democracy	2676	-0.08	6.67	-10	10	Discrete Index Ranging from -10 to 10
Openness	2676	.38	.48	0	1	Binary Indicator
ln(Population)	2676	16.28	1.42	13.16	20.99	Natural Log of Number of People

3 Aid, Treaty Ratification and Human Rights

In this section we use dynamic panel data techniques to examine the relationship between foreign aid receipts, human rights treaty ratification and human rights institutions. We first establish that aid donors reward countries that participate more frequently in HRTs: countries that ratify HRTs more frequently than other aid recipients experience an increase in foreign aid receipts. However, the quality of human rights institutions themselves are inconsequential for aid receipts. We then discuss these findings in the context of the foreign aid literature. Second, we find that countries with relatively good human rights institutions in place participate in HRT's more frequently but that the converse is not true. Countries with high levels of predetermined treaty participation experience a decline in human rights institutions. Given that donors reward HRT participation with aid, this would suggest that donors either have distaste for human rights in aid receiving countries, or that donors are irrational, neither of which seems especially likely. We show that while a country's own HRT participation has a negative effect on domestic human rights institutions, the HRT participation of other aid receiving countries has a much larger positive effect on domestic human rights institutions. Thus the decision to donate aid to HRT participants is consistent with rational

donors having positive preferences for human rights in recipient countries. Finally we provide some evidence that countries are strategic and forward looking in their decisions to participate in HRT's, and in tying all of these results together, motivate the structural model of treaty participation that we develop in the following section.

It is useful to conceptualize human rights treaty ratification as a lumpy investment decision. At any point in time there are several treaties open for ratification by a country, as new treaties appear throughout the history of our sample (see data section below). Countries rarely ratify many treaties at once, and instead decisions are spaced over time. As with any other investment decision, there is a "capital stock" associated with ratification, and we imagine that as countries ratify treaties they accumulate capital. We now describe the measure of treaty capital that we use in our analysis.

Indexing countries by i, the year by t, and treaties (in chronological order) by r, the "stock" of treaties ratified by country i before year t is given by:

$$T_{it} = \sum_r x_{irt} \tag{1}$$

where x_{irt} is a binary variable taking the value 1 if country i has ratified treaty r at any year before t and 0 otherwise. While T_{it} by definition measures a country's treaty participation, it does not suit our purposes for one important reason. A "high level" of participation is a moving target. New treaties appear regularly, and more importantly, global human rights standards change over time, and what may have passed as a high level of treaty participation in 1970 is not likely to be regarded as such in 1995. We prefer a measure where countries' HRT participation is judged relative to the standard set by other countries in the world. To this end, let ω_{jt}^i represent the weight or importance of j's HRT participation in determining the standard that country i is judged against at time t. We then define:

$$W_{it} = \sum_{j \neq i} \omega_{jt}^i T_{jt} \tag{2}$$

and

$$K_{it} = T_{it} - W_{it} \tag{3}$$

Equation 2 describes the human rights standard that country i is measured against at year t. K_{it} then represents the cumulative number of human rights treaties ratified by country i relative to a weighted average of the cumulative number of ratified treaties by other aid recipient countries. The weight we consider here is determined by geographical distance between country i and j. Here we follow Buera, Monge and Primiceri (2011), who study the decision to pursue market-oriented policies as a weighted function of other countries' decisions. In their framework countries update their beliefs about the value of pursuing market-oriented policies learn through decisions made by others, and the weight placed on the decisions of others in the updating is determined by geographic proximity. In particular, letting $d(i,j)$ represent the *inverse geographical distance* between countries i and j, and C_t be the set of countries in existence at time t we define:

$$\omega_{jt}^i \quad = \quad \frac{\exp(-\frac{d(i,j)}{\delta})}{\sum_{k \neq i \in C_t} \exp(-\frac{d(i,k)}{\delta})} \tag{4}$$

where δ is a parameter that determines the influence of distance between countries i and j on the role of country j in determining the standard against which country i is compared.[7] In this set-up, as a country remains idle and the rest of the world ratifies, the country's stock depreciates. The influence of country j's HRT participation in the depreciation of country i's capital depends on how geographically close country j is to country i. While the measure K_{it} is useful by allowing for depreciation on the one hand, this measure also makes transparent how recipient countries compete with one another for economic attention from the more developed world in the context of our model.

It is useful to illustrate some ways in which the path of treaty capital can differ across countries, and the consequent issues for estimation. Figure 1 displays the capital paths over the duration of the sample for Argentina and Chile, figure 2 displays the paths for Kenya and Chad, and figure 3 displays the paths for Uganda and chad. We purposefully select countries that are within close geographical proximity to one another to "control" for regional differences. In figure 1 it is clear that each country has a period of heavy investment (Argentina in the mid 1980's, Chile in the Early 1970's), and each has long periods characterized by stagnation and decline. But most interesting is that each country's heavy investment comes at a time when the other's treaty capital is well

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[7] In much of the analysis below we set $\delta = 3000$, but the main results are robust to the choice of δ. We discuss this in more detail in the next section.

into a period of decline. The striking feature in figure 2 is that, while both country's investment dynamics are similar, the treaty capital stock of Kenya is persistently higher than the stock of Chad up until the last few years of our sample. This suggests there is important permanent country level heterogeneity in ratification patterns as well. Finally in figure 3 we see that the investment dynamics of Uganda and Chad track one another fairly closely for many years, but most importantly, in 1995 both countries experience a significant upward spike in investment. This suggests the possibility of region and time specific heterogeneity in behavior. As we discuss below, these pictures are very useful both in terms of understanding what is required for identification of the effects of interest, as well as for interpreting results.

Regression Analysis

In this section we establish and analyze the empirical relationships between foreign aid, human rights practices and HRT participation. Our two equations of primary interest are given by:

$$a_{it} = \gamma_a^a a_{it-1} + \gamma_h^a h_{it-1} + \gamma_k^a K_{it} + \beta^a \mathbf{z}_{it-1} + u_{it}^a \qquad (5)$$

$$h_{it} = \gamma_a^h a_{it-1} + \gamma_h^h h_{it-1} + \gamma_k^h K_{it} + \beta^h \mathbf{z}_{it-1} + u_{it}^h \qquad (6)$$

where: a_{it} is foreign aid receipts per capita[8] for country i at time t, h_{it} is the quality of human rights institutions in country i at time t, and K_{it} is the treaty capital of country i at period t. $\mathbf{z}_{it}$ is a vector of covariates and u_{it}^j is the unobserved error term. We assume the following structure for u_{it}^j, $j \in \{a, h\}$:

$$u_{it}^j = \omega_i^j + \delta_t^j + \nu_{r(i),t}^j + \tilde{u}_{it}^j \qquad (7)$$

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[8]While in principle one could consider total foreign aid receipts instead of foreign aid receipts per capita as the explained variable in equation 5, we prefer per-capita aid receipts for two reasons. First, we are interested in discussing our results in the context of the existing literature on the determinants of foreign aid, in particular the landmark work of Alesina and Dollar (2000). As the literature has almost exclusively considered per capita foreign aid (or the log of per capita foreign aid), to facilitate comparison we do so as well. Second, as there are several country-year observations where foreign aid receipts are zero or negative (aid receipts are measured as negative if the amount of principal a recipient repaid on earlier loans exceeded the amount of aid it received during the year, or if there was a recovery on grants or other unused funds previously reported as disbursed) the distribution of total aid receipts is much less "well-behaved" (from an econometric point of view) than the distribution of per-capita foreign aid receipts. Total aid receipts are typically either zero or a very large number, where as per-capita foreign aid has a more smooth distribution. In principle we could use a log to compress the total foreign aid receipts variable, but will involve some form of artificial transformation of the data. For example, we would have to add some constant positive number (greater than 1, since aid can be negative) to each observation before a log transformation to avoid having to take the log of a number less than or equal to zero.

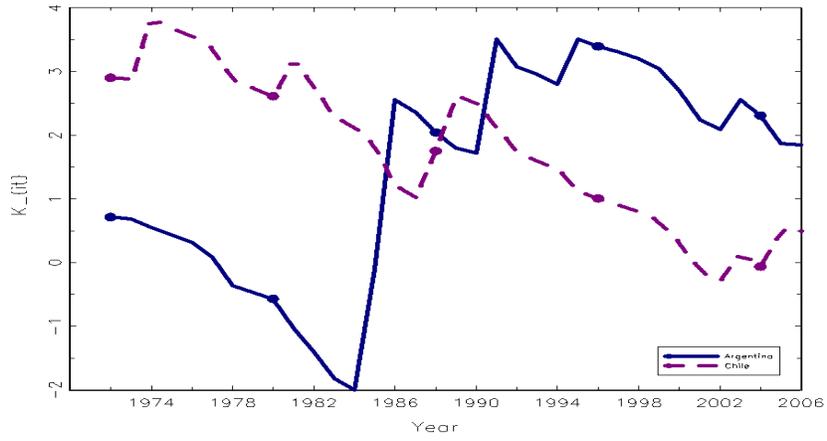Figure 1: Argentina and Chile Treaty Capital
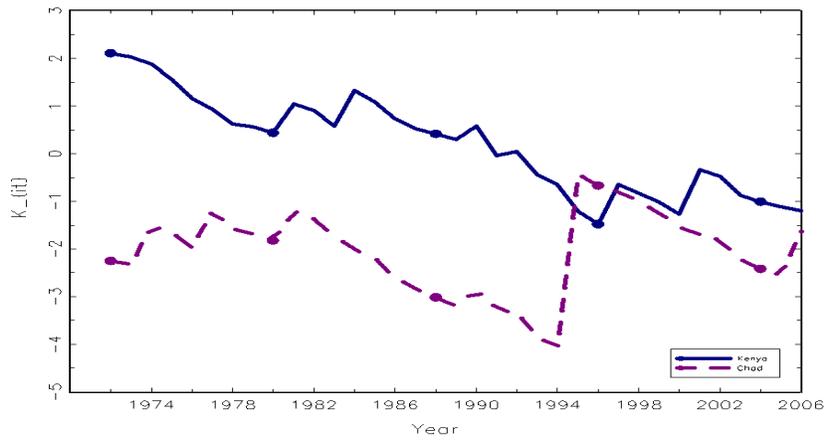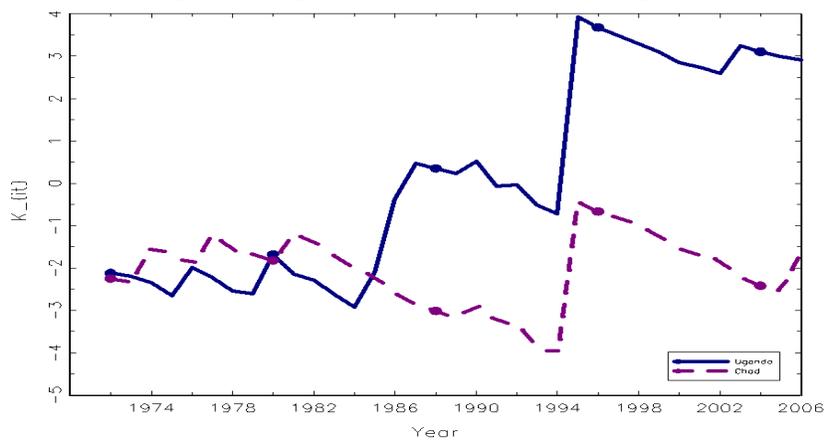

Figure 2: Kenya and Chad Treaty Capital

Figure 3: Uganda and Chad Treaty Capital

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where ω_i^j and δ_t^j are country and time fixed effects respectively, and $\nu_{r(i),t}^j$ is a region-time fixed effect (the function $r(i)$ simply selects the region of country i). We thus explicitly allow u_{it}^j to be correlated across time and across countries but maintain the usual assumption

$$E\big[\tilde{u}_{it}^j|a_{it-1}, h_{it-1}, K_{it}, z_{it-1}\big] = 0. \tag{8}$$

We consider the hypothesis that treaty capital K_{it} *Granger causes* foreign aid receipts a_{it} and human rights practices h_{it}. Formally, HRT *Granger causes* aid receipts and human rights practices if:

$$E(a_{it}|K_{it}, J_{t-1}) \neq E(a_{it}|J_{t-1}) \tag{9}$$

$$E(h_{it}|K_{it}, J_{t-1}) \neq E(h_{it}|J_{t-1}) \tag{10}$$

where J_{t-1} contains information on past aid, human rights institutions and all other explanatory variables except K (Wooldridge, 2008). In words, these equations say that past treaty behavior of a country is still informative for current foreign aid and human rights institutions even after conditioning on past aid, human rights institutions and the other explanatory variables. While we readily admit that establishing Granger causality is a less ambitious task than establishing strict causality, we favor identifying the effect of past HRT participation for two reasons. First, identifying a strict causal relationship between variables with complicated contemporaneous feedback effects in the absence of a valid instrument is not a realistic objective. Second, the timing of political events, particularly with respect to foreign aid giving, is possibly better captured through a model with lagged explanatory variables rather than contemporaneous ones. The OECD aid data that we consider here measures actual *disbursements* of aid. Seeing as how most OECD countries make donation decisions in the fiscal year prior to the year of actual disbursement, aid donation decisions themselves are lagged by one year (Kuziemko and Werker, 2006). Then if we are trying to determine how treaty capital investment influences donor aid decisions, it is more correct to consider current aid disbursement as a function of the previous year's treaty capital stock.

For completeness, in the regression analysis we also consider the equation:

$$d_{irt} = \gamma_a^d a_{it-1} + \gamma_h^d h_{it-1} + \gamma_k^d k_{it-1}^* + \beta^d \mathbf{z}_{it-1} + \kappa_r^d + u_{it}^d \tag{11}$$

Table 2: Sample Quartiles

	Aid Receipts/Capita	Human Rights Institutions	HRT Capital
Minimum	-45.05 (Gabon - 2003)	1.0 (Angola - 1978)	-7.63 (South Africa - 1994)
25%	9.59 (Bangladesh - 1994)	2.0 (Albania - 1995)	-1.55 (Malawi - 1975)
50%	22.88 (Mali - 1972)	3.0 (Guinea- 1992)	0.21 (Pakistan - 1977)
75%	44.91 (Burkina Faso - 1992)	5.0 (El Salvador -1993)	1.53 (Turkey - 2004)
Maximum	464.87 (D.R. Congo - 2005)	7.0 (Uruguay - 2001)	8.78 (Philippines - 1996)

where d_{irt} is country i's ratification decision (binary) in treaty r at time t, and κ_r^d is a treaty specific fixed effect. As we discussed above, we view treaty participation as a dynamic capital investment decision, and estimating an equation of this form allows us to understand how the decision to participate in a treaty depends on the existing treaty capital stock.

To aid in the interpretation of the results below, we include in table 2 the quartiles of three endogenous variables in our model, aid per capita, quality of human rights institutions, and treaty capital. In parentheses we include the country-year identity corresponding to each quartile.

Foreign Aid Receipts

We interpret equation 5 as an aid supply function that describes the decision process of aid donor countries. Our primary interest here is in uncovering how the supply of aid responds to human rights treaty participation and human rights behavior in recipient countries, holding fixed other variables that may effect HRT participation, human rights institutions and aid receipts. We are not the first to try to disentangle the effects of different economic and political variables on aid receipts. The studies by Alesina and Dollar (2000) and Alesina and Weder (2002) are particularly relevant to ours, and we use their findings to guide our analysis. Alesina and Dollar (2000) find that aid flows are as much dictated by strategic and political interest as they are by the economic conditions and performance in recipient countries. While we do not *directly* control for strategic importance and political importance of the recipient to the donor(s), the inclusion of country specific fixed effects is useful in this regard. If strategic importance is relatively time invariant, at least over

the time horizon of our sample, country specific fixed effects allow us to control for the average strategic value of the recipient across the donors (OECD members). Alesina and Dollar also find that aid donors reward democratization. As many episodes of democratization are accompanied by increased participation in HRTs as well as improvements in human rights institutions, democracy is an important control variable in our analysis. Alesina and Weder (2002) examine the relationship between foreign aid and domestic corruption. They find no evidence that less corrupt governments receive more aid (per capita) than more corrupt governments. Similar to Alesina and Weder (2002) and in contrast to Alesina and Dollar (2000), we focus specifically on a relatively narrow set of institutions, and try to discern whether, after controlling for other determinants of aid flows, countries with one type of institutions are more likely to receive aid than countries without them. Table 3 displays the parameter estimates of equation 5.

Table 3: Foreign Aid Receipts: Parameter Estimates

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
a_{it-1}	0.83**	0.63**	0.59**	0.59**	0.58**	0.57**	0.76**
	(0.04)	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.05)
h_{it-1}	-0.19	-0.75	0.41	0.54	-1.13*	- 0.96	-0.02
	(0.24)	(0.43)	(0.45)	(0.48)	(0.60)	(0.63)	(0.43)
K_{it}	0.04	1.10**	1.18**	1.14**	1.07**	1.01**	0.38**
	(0.12)	(0.31)	(0.31)	(0.31)	(0.30)	(0.30)	(0.14)
$democ_{it-1}$	-	-	-	-	0.66**	0.61**	0.11
	-	-	-	-	(0.30)	(0.30)	(0.09)
$Stability_{it-1}$	-	-	-	-		-1.44	5.37*
	-	-	-	-	(0.15)	(5.64)	(3.09)
gdp_{it-1}	-	-	-	-	-	-1.54*	-0.76**
	-	-	-	-	-	(0.88)	(0.26)
$open_{it-1}$	-	-	-	-	-	-2.47	-2.18**
	-	-	-	-	-	(1.54)	(0.90)
pop_{it-1}	-	-	-	-	-	-7.79	-3.53**
	-	-	-	-	-	(9.28)	(0.77)
Country FE	NO	YES	YES	YES	YES	YES	NO
Time FE	NO	NO	YES	YES	YES	YES	NO
Region*Time FE	NO	NO	NO	YES	YES	YES	NO
$FStatistic$	147.17	161.71	96.43	78.65	75.50	74.88	550.36
N	2593	2593	2593	2593	2593	2593	2593

Notes: Standard errors estimated using Newey-West (robust to autocorrelation and heteroskedasticity).

We include estimates of the regression model with and without fixed effects for illustrative purposes. The importance of accounting for permanent and unobserved country level heterogeneity in cross country studies is made clear by Acemoglu et al's (2008) study of the effect of income on democracy. Permanent and unobserved country level factors simultaneously cause many country level outcomes of interest, and since pooled OLS only yields consistent estimates of the parameters of interest if there is no correlation between time invariant country characteristics and the explanatory variables, not accounting for permanent unobserved heterogeneity can result in significantly biased estimates. As an example in our context, Argentina is one of the few countries to have ratified every treaty in our sample, and throughout the history of our sample has a larger stock of treaty capital than Somalia (see figure 8 in appendix). However, Somalia annually receives more aid per capita than nearly every country in our sample, and certainly much more than Argentina at any point in time (figure 9 in the appendix). By comparing across the two countries we may conclude that past human rights treaty ratification results in a *decrease* in foreign aid. But few would dispute that there is something intrinsically different and time-invariant (at least over the duration of our sample) between these countries that potentially explain both aid receipts and human rights treaty participation. One should look at the relationship between aid and human rights *within* a country over time to get a clear picture of how aid responds to treaty participation and human rights behavior (figures 10 and 11 in the appendix). Controlling for country specific heterogeneity in the regression model allows us to do precisely this.

For the purposes of this paper, the key result from this section is that, once we control for country-specific unobserved heterogeneity HRT participation has an economically and statistically significant positive effect on per capita foreign aid receipts. Looking at the first two columns of table 3, the estimates confirm the message of figures 8 - 11. In column 1 we regress current aid receipts on lagged aid, human rights institutions and treaty capital, and in the second column we add only country level fixed effects to the regression in column 1. In column 1, the only statistically significant variable is lagged foreign aid receipts. In particular, treaty capital has an economically and statistically negligible effect on aid receipts. Once we allow for the presence of permanent country level heterogeneity however, we see that the estimated effect of treaty capital becomes positive and statistically significant. To quantify the economic significance of the effect, the estimate in column 2 suggests that if country i were to ratify one more treaty, holding the

behavior of all other countries in the world constant, in the short-run country i would receive 1.10 dollars more of aid per person. As the model is dynamic, it makes sense to also consider the long run effect of ratifying an additional treaty. By recursive substitution of equation 5, it is straightforward to see that entering year t having ratified one additional treaty in the previous year implies an additional total stream of $\gamma_k^a \sum_{s=1}^T (\gamma_a^a)^s$ dollars of aid T years in the future. Thus, far enough into the future, one additional treaty implies an additional $\frac{\gamma_k^a}{1-\gamma_a^a} \sim 3$ dollars of aid per-capita. By similar calculations, a one-standard deviation increase in treaty participation implies a short-run increase of about 2.57 dollars and a long-run increase of 7 dollars of aid per person. At first glance the effect of HRT participation on aid seems small given the mean (34.66) and standard deviation (39.92) of aid per capita, but we note that the most important determinant of differences in aid receipts across countries is actually permanent unobserved country specific heterogeneity, and not any of the covariates we consider in the analysis. This is actually in line with Alesina and Dollar (2000) who find that the colonial heritage and (permanent) strategic political importance of a country are the most important determinants of aid receipts. Among time-varying covariates, HRT participation is a relatively important determinant of aid receipts, as we discuss in more detail below.

The difference in the estimates between columns 1 and 2 suggests that unobserved permanent country heterogeneity is negatively correlated with treaty participation and positively correlated with foreign aid receipts. One potential hypothesis is that there are certain countries, such as Somalia, with permanent, poor social, political and economic institutions. These countries tend to be economically poor and rely on foreign aid and moreover, their poor institutions are also inimical to participation in international human rights initiatives. On the other hand, relatively wealthy countries like Argentina do not rely on foreign aid, and possess more sound domestic institutions which are conducive to participation in international institutions. We discuss this possibility in more detail below.

The results in columns 1 - 4 suggest that the quality of real human rights institutions has no statistically significant effect on aid receipts. The measure of human rights institutions we use here is the "civil freedoms" variable from the Freedom House Comparative Survey of Freedom (see Gastil(1990) for details).[9] The specifications in columns 3 and 4 are identical to those in columns

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[9]The Comparative Survey of Freedom contains two variables, a "political freedoms" variable, generally interpreted as a measure of how democratic a country is, and the civil freedoms variable, which has been generally interpreted in

1 and 2 except that we add time and region-time fixed effects. While the reasons for including time fixed effects here may be obvious, the choice to add region-time interactions is motivated by what we observed in figure 3 above: regional political/economic initiatives which simultaneously cause aid and participation in international treaties are potentially important. Moving across to column 5, where we include democracy as a control variable, we see that the effect of human rights institutions on aid is negative and statistically significant at the 10% level. The logic behind including democracy as a control here is that the quality of domestic human rights institutions is potentially correlated with other factors that explain foreign aid receipts, such as political institutions. It has been established in the foreign aid literature (Alesina and Dollar, 2000) that countries with more democratic political institutions are rewarded with more aid. It is also well known that democratization episodes are often accompanied by improvements in human rights institutions (Hafner-Burton et al. (2008)). Though it seems surprising that a decline in real human rights practices would have a negative effect on aid receipts, moving to column 6 we see that once we control for other potentially important covariates, the effect drops in magnitude and is no longer statistically significant at the 10% level. Not surprisingly, countries with higher GDP per capita receive less aid. Political stability has no significant effect on foreign aid receipts. "Openness" of a country, a general measure of economic policy created by Sachs and Werner (1995) is associated with less foreign aid. This is possibly explained by the fact that countries closed to economic activity are more reliant on foreign aid than are more open countries. This finding is also generally consistent with the findings of Alesina and Dollar (2000). In the final column of table 3, we consider the same model as in column 6, but without allowing for controlling for unobserved heterogeneity of any form. We see that the coefficient on treaty capital is much smaller in magnitude, but is still statistically significant. Comparing the estimates in column 7 with those of columns 1 and 2, we see yet more evidence for our hypothesis that the omitted variable in column 1 is quality of domestic economic and political institutions. In column 2 we control for time-invariant domestic institutions, and in column 7 we control for only time varying domestic institutions. In column 2 and column 7 the estimate of the effect of treaty participation on foreign aid receipts is statistically significant at the 5% level, while in column 1 when we don't control for the quality of political

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the political science literature as a measure of human rights (i.e., Hathaway, 2007). The political freedoms variable has been used extensively in the economics literature, but the civil freedoms variable has not, perhaps owing to the fact that there are relatively few studies on human rights in economics. One important exception is Alesina and Dollar (2000), who use both variables.

and economic institutions, time varying or otherwise, the estimated effect is not significant at any conventional level.

The question then is, why do aid receipts respond to treaty participation? In particular, why do aid receipts respond to treaty participation but not real human rights? On possible explanation is that treaty participation is a costly signal of a country's preferences and intentions, and it is easier to compare treaty participation across countries than it is to measure real human rights. As an example:

> In Estonia, 28 treaties...were ratified in one session, a month after independence, without even having been translated into Estonian. Estonia "wanted to send a strong signal that it would respect human rights and was not a part of the Soviet Union anymore." (Heyns and Viloen, 2002)

That a government of a country would agree to abide by the terms of 28 complicated documents potentially not even knowing the language they were written in lends credence to the possibility that countries with a dark history signal to the Western world that they are now "open for business." [10] Moreover, treaty participation is a decision that is most often made by the government of a country, the same agent that receives aid from donors. Changes in real human rights however, especially with respect to the way our measure of human rights is defined, requires fundamental changes in several other dimensions of society, which the government may not have direct control over.

(b) Human Rights Behavior

To the best of our knowledge this is the first study to consider the economic and political determinants of human rights behavior in the economics literature. In table 4 we present estimates of equation 6.

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[10] The link between treaty participation and aid receipts may be even more direct: the EU's Generalised System of Preferences Plus (GSP Plus) offers large tariff reductions as well as other benefits to developing countries in exchange for the ratification of key international treaties, 8 of which are UN human rights treaties that we consider here. See: www.ec.europa.eu/trade/wider-agenda/development/generalised-system-of-preferences/ and http://trade.ec.europa.eu/doclib/docs/2005/june/$tradoc_1$23861.pdf

Table 4: Human Rights: Parameter Estimates

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
a_{it-1}	0.00036	0.00036	0.0008**	0.0009**	0.0007**	0.0006**	0.0005*
	(0.00025)	(0.00033)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
h_{it-1}	0.94**	0.83**	0.80**	0.80	0.76**	0.76**	0.88**
	(0.006)	(0.01)	(0.014)	(0.015)	(0.02)	(0.02)	(0.01)
K_{it}	0.0025	-0.013	-0.0136*	-0.013*	-0.014**	-0.015**	0.004
	(0.004)	(0.008)	0.0071	(0.007)	(0.007)	(0.007)	(0.004)
$democ_{it-1}$	-	-	-	-	0.15**	0.013**	0.01**
					(0.004)	(0.004)	(0.003)
$Stability_{it-1}$	-	-	-	-	-	-0.23	0.07
						(0.17)	(0.07)
gdp_{it-1}	-	-	-	-	-	-0.005	0.012**
						(0.015)	(0.005)
$open_{it-1}$	-	-	-	-	-	0.09**	0.07**
						(0.04)	(0.02)
pop_{it-1}	-	-	-	-	-	-0.18	-0.00
						(0.17)	(0.01)
Country FE	NO	YES	YES	YES	YES	YES	NO
Time FE	NO	NO	YES	YES	YES	YES	NO
Region*Time FE	NO	NO	NO	YES	YES	YES	NO
F-Statistic	7136.93	960.60	392.10	322.57	324.90	310.96	2777.67
N	2593	2593	2593	2593	2593	2593	2593

Notes: Standard errors estimated using Newey-West (robust to autocorrelation and heteroskedasticity).

We consider the same set of specifications as in the case of foreign aid. In table 4 we see that in columns 1-2 only lagged human rights institutions is statistically significant, though in column 2 once we control for country-level unobserved heterogeneity we see that the coefficient on treaty capital becomes negative and approaches statistical significance. Once we control for all three types on unobserved heterogeneity and democracy as well in column 4, we see that the estimates on lagged aid, human rights, treaty capital and democracy are all statistically significant at the 5% level. Not surprisingly the democracy score has a positive estimated effect and is very statistically significant. Once we add other covariates in column 6 we also see that openness has a positive and statistically significant estimated effect on human rights behavior, but none of the estimates from column 5 are affected very much.

The most surprising result here is that HRT participation has a *negative* effect on human rights behavior. This would suggest that the institutions designed with the intention of preventing governments from violating the fundamental rights of their own citizenry actually have the opposite effect. HRT participation makes governments *more* likely to commit human rights abuses. We are not the first to find results suggestive of a negative relationship between HRT participation and human rights behavior. Hathaway (2007) also finds a relative decline in human rights practices among countries with a higher rate of treaty participation. In rationalizing this result she argues that HRT participation often relieves "pressure for real change in (human rights) performance in countries that ratify the treaty." In other words, aid recipients may take the international spotlight off their real practices by ratifying unenforceable human rights treaties. While this "smokescreen" argument does have some intuitive appeal, we have reason to be cautious. Goodman and Jinks (2003) point out an alternative interpretation of Hathaway's result, in that "greater compliance with one obligation... can show up as lower compliance with another." Countries may ratify and comply with the terms of a treaty concerned with one human right, and "substitute" into abuse of another human right. Thus HRT ratification may be associated with future declines in human rights behavior. In the case of our study this is not as much of a concern. Our ratification variable K_{it} and our human rights institution variable are summary measures of treaty participation and quality of domestic human rights institutions respectively, and so what we are capturing in equation 6 is the effect of an increase in relative treaty participation on human rights institutions in general. The other concern Goodman and Jinks have with Hathaway's study which is relevant in our case

is the potential "measurement error" in the human rights behavior variable. They argue that the measurement error is not exogenous, and is instead highly correlated with treaty ratification in the sense that ratification is associated with improvements in the reporting of abuses. However the Freedom House "civil liberties" variable is not a violation count variable, and we should be confident that our study is not subject to this criticism (see Gastil (1990) for details on the civil liberties measure).

The other result of interest in this regression is the positive and economically and statistically significant effect of trade openness on human rights behavior. This result is not terribly surprising considering that many trade deals between developed and less-developed countries have human rights related strings attached, including the EU's GSP plus program discussed above. Countries that are open to trade are then more likely to have better human rights practices, because the return to good human rights practices in the form of trade benefits are higher for these countries.

The estimates of equations 5 and 6 are somewhat unsettling, in that they imply that donor countries exchanging foreign aid for treaty participation has negative consequences for real human rights institutions. Aid responds positively to treaty participation, which provides an incentive for aid recipients to ratify HRTs, but HRT participation precipitates a decline in real human rights institutions. Taking these results at face value, there are one of two possibilities: either donors are fooled by the "smokescreen" aid recipients put up with their treaty participation, or donors genuinely have a negative preference for human rights. Neither of these possibilities are particularly likely.

We posit a third possible explanation. Consider again our specification for human rights institutions:

$$h_{it} = \gamma_a^h a_{it-1} + \gamma_h^h h_{it-1} + \gamma_k^h K_{it} + \beta^h \mathbf{z}_{it-1} + u_{it}^h \tag{12}$$

Recall that as treaty capital K_{it} is the difference between the ratifications of country i and the weighted average of other countries in the world, the standard against which country i is judged. Implicit in this specification is the assumption that the effect of one additional ratification by the rest of the world on country i's human rights institutions is the exact opposite of the effect of one additional ratification by country i on its own human rights institutions. In other words, if every single country in the world ratifies one more treaty, the quality of human rights institutions in

every country in the world stays the same. This may be reasonable when the outcome variable is foreign aid if donors judge countries relative to one another, but it may not be reasonable in the case of human rights institutions. To relax this assumption we consider the following alternative specification:

$$h_{it} \;\; = \;\; \gamma_a^h a_{it-1} + \gamma_h^h h_{it-1} + \gamma_T^h T_{it} + \gamma_W^h W_{it} + \beta^h \mathbf{z}_{it-1} + u_{it}^h \tag{13}$$

We present estimates of this equation, allowing for all forms of unobserved heterogeneity and controlling for the key variables of our analysis, in table 5. We consider five different values of δ, to be sure that our results are not sensitive to this choice; this is more of a concern now that we are trying to separately identify the effect of the treaty participation of the rest of the world. From an estimation perspective, our choice of δ partly determines the variation we are relying on to estimate the effect of W_{it} on h_{it}. By our definition of W_{it} above, when δ is small, geographical distance between country i and j is very important in determining the weight on j's treaty participation relative to other countries in the standard W_{it}, and as δ gets large, all countries are weighted equally [11] Then intuitively, for small δ there will be significant cross sectional variation at each given time (only a country's nearest neighbors matter), but possibly less variation across time for a given country, as neighbors may be stagnant for a number of years. When δ is large it is the opposite, there is less cross sectional variation because all countries are weighted more or less equally by every country.

The key result here is, regardless of the value of δ, the positive effect of the treaty ratification of other countries of the world is much larger than the negative effect of a country's own treaty participation. For an intermediate value of $\delta = 3000$ (the same value we use in the estimation of equation **??** and 6) we have that the positive effect of a ratification by the rest of the world on country i's human rights institutions is more than six times larger than the negative effect of a ratification by country i itself.

What explains the significant positive effect of the treaty participation of other countries on domestic human rights institutions? Heyns and Viljoen (2001), in a study of the impact of the treaty system on domestic human rights, suggest that the international HRT system "has had an

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[11]Specifically: $\frac{\partial \omega_{jt}}{\partial \delta} = \omega_{jt} \sum_{k \neq i} (d(i,j) - d(i,k)) \exp(-\frac{d(i,k)}{\delta})$ so that as we increase δ, the weight placed on country j increases only if it is far from country i relative to other countries.

Table 5: Human Rights: Parameter Estimates

	Column 1	Column 2	Column 3	Column 4	Column 5		
a_{it-1}	0.0006*	0.0006*	0.00056*	0.00055	0.00055		
	(0.00033)	(0.00034)	(0.0003)	(0.00034)	(0.00034)		
h_{it-1}	0.76**	0.76**	0.76**	0.76**	0.76**		
	(0.017)	(0.017)	(0.017)	(0.02)	(0.02)		
T_{it}	-0.014**	-0.137*	-0.013*	-0.013*	-0.013*		
	(0.007)	(0.007)	(0.07)	(0.0073)	(0.073)		
W_{it}	0.025*	0.042*	0.08**	0.12**	0.13**		
	(0.013)	(0.023)	(0.04)	(0.055)	(0.06)		
$democ_{it-1}$	0.015**	0.015**	0.015**	0.015**	0.015**		
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)		
δ	500	1500	3000	4500	5000		
Country FE	YES	YES	YES	YES	YES		
Time FE	YES	YES	YES	YES	YES		
Region*Time FE	YES	YES	YES	YES	YES		
F-Statistic	326.58	326.79	325.75	325.55	325.59		
N	2593	2593	2593	2593	2593	2593	2593

Notes: Standard errors estimated using Newey-West (robust to autocorrelation and heteroskedasticity).

enormous influence in shaping the present understanding throughout the world of what are to be regarded as basic human rights and the limits of these." In particular, Heyns and Viljoen note that the HRT system has greatly informed and empowered lawyers, government officials and human rights activists around the world, and helped facilitate the formation of strong international NGOs, all of which contribute to improving human rights practices in any given country, irrespective of the country's ratification record. This can be understood as the formation of a global civil society.

Finally, to understand how a country's ratification decision depends on its existing treaty "stock," we present estimates of equation 11 in table 3. We control for the key variables in our analysis and allow for all forms of unobserved heterogeneity, including unobserved permanent heterogeneity across treaties. Following the study of Hathaway (2007) on the determinants of treaty participation, we allow for an interaction between human rights institutions and democracy as well.

First, countries with a large stock of treaty capital are less likely to ratify a treaty than a country with a low stock, suggesting dynamic strategic effects are important, as countries are more compelled to ratify a given treaty if the number of treaties they have already ratified is low relative to the number of treaties that other countries in the world have ratified. Second, we find some evidence in favour of the hypothesis of Hathaway (2007), who argues that the reason that autocratic regimes are often observed to participate in HRTs more frequently than democracies is that democracies with poor human rights records find it more costly to ratify than autocracies with poor human

Table 6: Treaty Decision: Parameter Estimates

a_{it-1}	0.00013**
	(0.00005)
h_{it-1}	0.0068**
	(0.0019)
K_{it}	-0.01**
	(0.001)
$democ_{it-1}$	-0.0012
	(0.0009)
$democ_{it-1}h_{it-1}$	0.00036*
	(0.00021)
R^2	.054
N	21780

Notes: Estimated using OLS (linear probability model).

rights records, because democracies actually realize the cost of ratification through their domestic institutions while autocracies do not. In table 3 we see that countries with good human rights practices are more likely to participate. This seems intuitive; the cost of participation is lower for countries who are ex-ante compliant with the terms of the treaty. Further, democracy itself has a negative effect (though it is not statistically significant at the 10% level), but the interaction between democracy and human rights is positive and significant, providing some evidence for Hathaway's hypothesis.

4 Model

4.1 Discussion

The structural model we propose here has as an analogue in the empirical IO literature to a dynamic game of oligopoly competition where firms invest in quality (eg.,Pakes and McGuire (1994)). Before formally laying out the model it is worthwhile to make explicit the relation between a dynamic game of quality competition and the problem we study here. In a model of quality competition, each firm in an industry composed of several firms produces a product which is indexed by quality. Consumers derive utility only from the quality (net of price) of the good they choose to purchase, and so demand for a given product in the industry is determined fully by its quality relative to

the quality on offer from the other firms. Firms also have the option to increase the demand for their products by making a costly investment in quality. Firm profits thus depend on quality through both the revenue and cost channel: a higher quality means more demand and the ability to command a higher price, but comes at an economic cost. Firms who do not invest in quality may see their demand decrease if other firms in the market continue to invest.

In the model we consider here, poorer countries in the world compete with each other to increase aid receipts from OECD countries. Donor countries have a finite amount of aid to distribute among recipient countries, and rely on K to make allocation decisions. Recipient countries have the option to increase the aid they receive by making a costly ratification of a human rights treaty. This is a costly investment because ratifying a treaty commits a country to the terms of the treaty, at least in principle. Different treaties are allowed to have different ratification costs for a given country, and different countries can have different costs of ratification of a given treaty. For example, countries with different human rights institutions or different political institutions may have different costs of participation. As in the quality investment model country payoffs depends on quality through both the benefit and cost channel: a larger treaty capital stock means more aid and economic growth, but comes at a cost. Further, countries that do not invest in quality may see the economic resources they receive decline if other countries continue to increase their participation in human rights treaties. Based on the results above, we also allow a country's domestic human rights institutions to be endogenously determined by the treaty participation decisions of both the country itself, and other countries in the world.

4.2 Formal Model

At year t, the international community is configured by C_t recipient countries and N_t treaties. Countries and treaties are given exogenously in our model. Let $x_{irt} \in \{0, 1\}$ indicate country i's status in treaty r at year t. If $x_{irt} = 1$, we say country i has ratified treaty r at some time $\tau < t$. We can represent country i's membership status in the set of R_t treaties at time t by the vector $\mathbf{x_{it}} = \{x_{irt} : r = 1, 2, ..., N_t\}$, and we can represent the ratification status of the entire international community as the vector $\mathbf{x_t} = \{\mathbf{x_{it}} : i = 1, 2, ..., C_t\}$. Ratification is *irreversible*: once a country has ratified a treaty it may not exit (erase its name) from the treaty, an assumption clearly validated by the data. We represent the ratification decisions at period t as $\mathbf{d_{it}} \equiv \{d_{irt} : r = 1, 2, ..., N_t\}$.

Country payoffs in year t are the difference between per-period economic payoff R_i and a ratification "investment" cost EC_i:

$$\Pi_i(\mathbf{x_t}, \mathbf{z_t}, \mathbf{d_t}, \varepsilon_{it}) = R_i(\mathbf{x_t}, \mathbf{z_t}) - EC_i(\mathbf{x_t}, \mathbf{z_t}, \mathbf{d_{it}}, \varepsilon_{it}) \tag{14}$$

$\mathbf{z_t}$ is a vector of exogenous political and economic variables and ε_{it} is a vector of private information shocks of country i. We specify the benefit and ratification cost functions in turn.

Economic Payoffs

We make the following assumption on the economic payoff function $R_i(\mathbf{x_t}, \mathbf{z_t})$:

- Assumption **(E1)** The function $R_i(\mathbf{x_t}, \mathbf{z_t})$ depends on the vector $\mathbf{x_t}, \mathbf{z_t}$ only through its effect on foreign aid receipts and human rights. Specifically, let $a_{it} = a_i(\mathbf{x_t}, \mathbf{z_t})$ and $h_{it} = h_i(\mathbf{x_t}, \mathbf{z_t})$ represent country i's foreign aid received and human rights score respectively at year t. Then:

$$R_i(\mathbf{x_t}, \mathbf{z_t}) = \alpha_a a_i(\mathbf{x_t}, \mathbf{z_t}) + \alpha_h h_i(\mathbf{x_t}, \mathbf{z_t})$$

$a_i(\mathbf{x_t}, \mathbf{z_t})$ and $h_i(\mathbf{x_t}, \mathbf{z_t})$ are functions that make explicit the fact that these variables depend on treaty status $\mathbf{x_t}$ as well as other political and economic variables $\mathbf{z_t}$. α_a and α_h are parameters to be estimated, representing the relative weights of aid and human rights in country payoffs. What remains then is to specify the functions $a_{it} = a_i(\mathbf{x_t}, \mathbf{z_t})$ and $h_{it} = h_i(\mathbf{x_t}, \mathbf{z_t})$. While it is natural here to use the results of the first stage estimation, we considered several versions of the aid and human rights equations 5 and 6, and we must settle on a specification. The trade-off here is that a richer specification provides a more accurate depiction of the true relationship among the variables, but comes at the conceptual cost of clarity and computational cost of a larger state space. We would like a specification rich enough so as not to sacrifice reality but concise enough so that we can focus on answering our primary questions of interest. Note that in the empirical results above, once we condition on the three forms of unobserved heterogeneity - country specific, time specific and region-time specific - as well as democracy, adding other covariates does not significantly alter the results. With this in mind, the specification for the aid function that we consider is given by:

$$a_{it} = \gamma_a^a a_{it-1} + \gamma_h^a h_{it-1} + \gamma_k^a K_{it} + \beta^a dem_{it-1} + \tilde{u}_{it}^a \qquad (15)$$

In the case of human rights institutions, we make one modification based on our findings above, and allow for own treaty participation and world treaty participation to enter separately in the equation:

$$h_{it} = \gamma_a^h a_{it-1} + \gamma_h^h h_{it-1} + \gamma_T^h T_{it} + \gamma_W^h W_{it} + \beta^h dem_{it-1} + \tilde{u}_{it}^h \qquad (16)$$

The unobservable component of the equations is given by:

$$u_{it}^j = \omega_i^j + \delta_t^j + \nu_{r(i),t}^j + \tilde{u}_{it}^j \qquad (17)$$

Implicit in this specification of $R_i(\mathbf{x_t}, \mathbf{z_t})$ is the following assumption:

- Assumption **(E2)** The vector of ratification statuses $\mathbf{x_t}$ of the international community enter the payoff of country i in the dynamic game only through the treaty capital variables T_{it}, W_{it}.

Treaties are interconnected in the sense that we allow ratification decisions in one treaty to affect the payoff to ratifying any other treaty. Country $i's$ status, and the status of all other countries in all other treaties, influences country i's decision in any given treaty. This is a departure from the traditional "isolated markets" assumption typically made in the literature in empirical industrial organization. As we discuss below in the estimation of the dynamic model, this specification of the payoff function plays an important practical role in alleviating the computational burden associated with the solution and estimation of the dynamic game.

Investment Costs

The ratification cost function $EC_i(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it})$ is directly analogous to the concept of irreversible investment cost in the IO literature. It should be interpreted as the sum of a one time cost paid

upon ratification of (investment in) the treaty plus the discounted present value of a sequence of fixed costs of remaining in the treaty. We specify the following investment cost function for ratifying treaty r in country i at time t:

$$EC_{irt} = \gamma^i + \xi_r + \gamma^{de}dem_{it} + \gamma^h hr_{it} + \gamma^{dh}dem_{it}hr_{it} + \varepsilon_{irt}$$

where γ^i is the country specific component of the entry cost, ξ^r is a treaty specific cost, and dem_{it} and hr_{it} are the levels of democracy and human rights institutions in country i at time t. γ^{de} and γ^{hr} represent the affect on entry cost to having democratic institutions and to having good human rights institutions respectively. ε_{irt} is a random shock with distribution G, which is private information of country i. We discuss the private information shock in more detail below.

It is important to note here that we can not estimate a fixed cost of being a party to a treaty. To separately identify fixed costs from our investment costs we would need to observe both entry and exit into treaties. Since ratification decisions are irreversible, we do not observe exit. The choice to include democracy and human rights in the cost function is not arbitrary. Hathaway (2007) finds that for a given level of democracy, countries with worse human rights practices have lower probability of ratifying HRT's, while for a given level of human rights, more democratic countries have a lower rate of ratification. Hathaway theoretically links state decisions to ratify a human rights treaty to the domestic enforceability of the treaty by arguing that ratification is only costly for those countries that a) are not compliant with the treaty's terms ex-ante of ratification and b) are to the terms of the treaty by some domestic enforcement mechanism post-ratification. While the cost of abiding by the terms of a treaty is in principle the same for any ratifier, only countries that need to change their behavior post ratification actually pay the cost. Our specification of ratification cost allows us to test Hathaway's hypothesis in the context of our model. We also allow for treaty and country specific heterogeneity in ratification cost. There is substantial and persistent variation in the rate of ratification across countries and treaties. As an example nearly every country in the world has ratified the Convention on the Rights of the Child, but a comparatively small fraction have ratified the Convention on the Protection of the Rights of all Migrant Workers, even though the latter opened 5 years prior. The country specific differences are often stark as well. Armenia and Kazakhstan, two countries with similar recent political histories follow very different HRT ratification paths post independence in 1991. Of the treaties in our data set that both countries

have ratified, Armenia ratified all but one well before Kazakhstan. These suggest that ignoring the potentially permanent differences across countries and treaties in the estimation of the model may lead to spurious results. Further, by allowing costs to vary across treaty type for a given regime we are also able to study the possible relationships between observable institutional features of the treaties and the cost of ratification.

Implicit in our definition of the payoff function Π_i is a *time to build* assumption:

- Assumption **(E3):** Ratification costs are paid at the time period of ratification, but the ratification decision is not effective until the following time period.

As we discussed above, countries do not see the benefits of a ratification made in period t until period $t+1$. This is especially justified in the case of aid, as we are considering aid disbursement data. This means that the aid received in period $t+1$ was decided by donors in period t. A treaty ratification in period t does not affect aid receipts in period t.

Country Strategies and Equilibrium

We assume that countries are forward looking and maximize intertemporal payoffs, and take into account the direct effect of their actions on their own future payoffs as well as the indirect effect through the expected reaction of other countries. Further, we assume that strategies depend only on payoff relevant variables. That is, we restrict players to use Markov strategies. Given the above discussion, country i's payoffs at time t depends on the vector of state variables $\{a_{it}, hr_{it}, T_{it}, W_{it}, dem_{it}, \varepsilon_{it}\}$. The endogenous state variables are $a_{it}, hr_{it}, T_{it}, W_{it}$, while the exogenous state variables are $dem_{it}, \varepsilon_{it}$. The model constitutes a dynamic game because the evolution of the variable W_{it} depends on the actions of all the players.

Keeping in mind that the payoff-relevant variables for player i at time t are $\{a_{it}, hr_{it}, T_{it}, W_{it}, dem_{it}, \varepsilon_{it}\}$, for notational simplicity, we continue to represent the full state of the game at time t for player i by the vector $\{\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it}\}$. Let $\sigma_i(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it})$ be a strategy function for country i. Given this strategy function we can define a conditional choice probability (CCP) function as

$$P_i\big(d_{it}|\mathbf{x_t}, \mathbf{z_t}\big) \equiv \int I\big\{\sigma_i(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it}) = d_{it}\big\} dG(\varepsilon)$$

In words, this is the probability with which country i takes action d_{it} at time period t given the ratification status $\mathbf{x_t}$ and state $\mathbf{z_t}$.

We define country i's value function given equilibrium entry probabilities $\mathbf{P}_i\big(d_{-i}|\mathbf{x_t}, \mathbf{z_t}\big)$ as $V^{\mathbf{P}_i}(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it})$, and we say that a strategy function σ is a Markov Perfect Equilibrium if for any possible state $(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it})$:

$$\sigma_i(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it}) = \arg\max_{d_{it}} \left\{ \Pi_i(\mathbf{x_t}, \mathbf{z_t}, \varepsilon_{it}) + \delta E\big[V^{\mathbf{P}_i}(\mathbf{x_{t+1}}, \mathbf{z_{t+1}}, \varepsilon_{it+1})|\mathbf{x_t}, \mathbf{z_t}\big] \right\}$$

We discuss the dynamic model and further assumptions in more detail in the estimation section below.

5   Estimation of the Dynamic Model

The dynamic model we have described above leads to three interrelated dimensionality problems that render estimation of the model in its current form impossible:

1. **(P1)** In the model section above we have formally defined the Markov states of our game to be $\mathbf{x_t}, \mathbf{z_t}$, and thus player strategies depend on the full vector $(\mathbf{x_t}, \mathbf{z_t})$ of treaty statuses and exogenous variables. Ignoring z_t, the dimension of $\mathbf{x_t}$ alone is $2^{N_t * C_t}$, which, given the data we consider, can be as large as 2^{1245}. Solving the value functions associated with a game defined on this space is computationally infeasible.

2. **(P2)** Player i's action space at time t, $\mathcal{D}_{it}$, is the set of treaties yet to be ratified by player i. This can be as large as 2^{15}.

3. **(P3)** Player payoffs depend on the behaviour of the other players in the game. Thus the expectation of future payoffs depend on expected behaviour of all countries in the world, and the transition of the state variables has a very high dimension.

We describe in detail how we deal with each of these dimensionality problems so as to facilitate estimation of the model. As described above, a key benefit of the modeling approach we have taken is that the economic payoffs of players in the game depends on the vector $(\mathbf{x_t})$ only through the functions $a_i(\mathbf{x_t}, \mathbf{z_t})$ and $h_i(\mathbf{x_t}, \mathbf{z_t})$. This effectively solves problem **(P1)** above. Since potentially

many values of $\mathbf{x_t}, \mathbf{z_t}$ yield the same value of a_{it}, h_{it}, [12] the space over which player strategies are defined is considerably reduced.

To deal with problem **(P2)** we adopt the method proposed by Aguirregabiria and Ho (2009). We assume first that at each period t, each country appoints a committee to each treaty it has not ratified yet. This committee observes some private information about the treaty that neither any other country, nor any other committee in its own country observes. Based on this information, the state of the game, and beliefs about the strategies of other committees within the country and committees in other countries, the committee makes a recommendation to the government to either ratify or not. The government then takes the decision that was recommended. We imagine that the government finds it too costly to research the implications of ratification of all the treaties open to it and delegates this task to the committee. Committees within a country can not share *all* their private information with each other, and thus do not fully co-ordinate. In this sense we are moving away from the "state as monolithic decision maker" assumption that has been used in similar problems (i.e., Wagner (2008)). What does this assumption buy us? It allows us to treat each country as a "different player" in each treaty, while still relaxing the "isolated markets" assumption. The country payoff to ratifying each treaty is still affected by the decisions made in other treaties through the W_{it} variable. [13] More formally, we make the following assumptions:

- **(D1)** Committee r in country i at time t makes recommendation $d_{irt} \in \{0,1\}$ to maximize the expected discounted value of the stream of country-treaty (committee) payoffs: $E_t\big(\sum_{s=1}^{\infty} \beta^s \Pi_{ir,t+s}\big)$, where:

$$\Pi_{irt} \equiv x_{irt} R_i(1, x_{-irt}, z_t) + (1 - x_{irt}) R_i(0, x_{-irt}, z_t) - d_{irt}(1 - x_{irt}) EC_{irt}(x_t, z_t, \varepsilon_{irt})$$

- **(D2)** The shocks $\{\varepsilon_{irt}\}$ are private information of committee r in country i at time t. These shocks are unknown to the other committees in country i and unknown to all other countries.

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[12]This of course depends on the coarseness of the grid a_{it} and h_{it} are discretized on, which we discuss later.

[13]This assumption is motivated partly by the literature on "formal" and "real" authority in organizations, spawned by Aghion and Tirole (1997). In this literature "formal" authority is defined as the right to decide, while "real" authority is defined as effective control over a decision. The difference between the two types of authority is generated by private information. Aghion and Tirole derive conditions under which a principal (here the leader of a country) may allocate authority over a decision to an agent (here the treaty committees) who possesses private information. Importantly, they show that when a principal can "trust" an agent (i.e., aligned incentives), authority will be delegated. Here our agents' payoffs are closely aligned with those of the country.

Assumption **D1** explicitly says that committees that enter period t having ratified the treaty for which they are responsible ($x_{irt} = 1$) obtain $R_i(1, x_{-irt}, z_t)$, and committees that have yet to ratify earn $R_i(0, x_{-irt}, z_t)$. Further, committees that have yet to ratify and recommend ratification in year t, i.e., ($d_{irt} = 1, x_{irt} = 0$), pay the cost $EC_{irt}(x_t, z_t, \varepsilon_{irt})$. Assumption **D2** says that there is statistical independence across treaties within a country. Note that committees within a country have the same general objective, as the variables that enter the committee economic payoff are country level aid and human rights. While committees in the same country are playing "against" one another in the treaty ratification game, the decisions of committees within the same country and the decisions of committees in other countries enter the payoffs of a committee differently. Technically speaking, the portfolio of treaties chosen by the country (the set selected by the committees) will be the optimal portfolio for the country up to a deviation in *one treaty* holding decisions in all other treaties fixed. [14]

While he have solved the computational issues associated with **P1** and **P2**, we are still left with **P3**, the problems associated with each player conditioning his strategy on the state variables of all players in the game.

Note now that for any treaty committee r in country i, current payoff is fully determined by it's own status x_{irt}, the treaty capital variables T_{it}, W_{it} and the payoff variables a_{it}, h_{it} and the exogenous variable dem_{it} Then define the reduced vector of variables w_{irt}:

$$\mathbf{w}_{irt} \equiv \{x_{irt}, T_{it}, W_{it}, a_{it}, h_{it}, dem_{it}\}. \tag{18}$$

To alleviate the computational burden associated with **P3**, we make the following further assumption:

Assumption (D3): *The strategy function of treaty office (i,r) is given by $\sigma_{ir}(\mathbf{w}_{irt}, \varepsilon_{irt})$ that maps from $W \times \mathbb{R}$ into $\{0, 1\}$*

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[14]The inability of committees within a country to perfectly co-ordinate and select the best overall portfolio of treaties for the country to hold at a given time can be alternatively viewed as a bounded rationality assumption. Information about treaties is costly to aggregate and process for countries, and so each decision is made in some isolation.

As we did above for the full state space, we can now define the vector of *conditional choice probabilities* (CCPs) associated with the strategy functions σ as:

$$P_{ir}(\mathbf{w}_{irt}) \equiv \int I\{\sigma_{ir}(\mathbf{w}_{irt}, \varepsilon_{irt}) = 1\} dG_\varepsilon(\varepsilon_{irt}). \tag{19}$$

With these assumptions in hand we now write the value function of committee r in country i at time t:

$$V_{ir}^P(1, \mathbf{w}_{irt}) = R_i(1, \mathbf{w}_{irt}) + \delta E\left[V_{ir}^P(1, w_{irt+1}) | 1, \mathbf{w}_{irt}\right]$$
$$V_{ir}^P(0, \mathbf{w}_{irt}) = R_i(0, \mathbf{w}_{irt}) + \max\left\{ -EC_{ir}(\mathbf{w}_{irt}, \varepsilon_{irt}) + \delta E\left[V_{ir}^P(1, w_{irt+1}) | 1, \mathbf{w}_{irt}\right], \delta E\left[V_{ir}^P(0, w_{irt+1}) | 0, \mathbf{w}_{irt}\right]\right\}$$

While the payoffs (and thus strategies) of each player still depend on the treaty statuses of all other players through W_{it}, an issue we deal with in the following subsection, the assumption **D3** has considerably reduced the dimension of the vector of variables that each player conditions his behavior on.

Markov Perfect Equilibrium under Assumptions D1 - D3

We now define a Markov Perfect equilibrium of the treaty ratification game given assumptions $D1 - D3$. Note that by the time to build assumption, we can write the flow economic payoff to choosing action d for treaty office r in country i at time t as $\Pi_{irt}(d) = \alpha_a a_{ir} + \alpha_h h_{ir} - d * EC_{irt}$. Formally, let $\sigma \equiv \{\sigma_{ir}(\mathbf{w}_{irt}, \varepsilon_{irt}) : i = 1, 2, ..., C; r = 1, 2, ..., R;\}$ be a set of strategy functions, one for each treaty office in each country, such that σ_{ir} maps from the space $W \times \mathbb{R}$ into $\{0, 1\}$. Then σ is an MPE if for every treaty office in every country (i, r) that has *yet to ratify treaty* r (i.e., $x_{irt} = 0$) and every possible state $(\mathbf{w_{irt}}, \varepsilon_{irt})$:

$$\{\sigma_{ir}(\mathbf{w}_{irt}, \varepsilon_{irt}) = 1\} \iff \{\varepsilon_{irt} \leq -EC_{irt} + \delta E\left[V_{ir}^P(1, \mathbf{w}_{irt+1}) | 1, \mathbf{w}_{irt}\right] - \delta E\left[V_{ir}^P(0, \mathbf{w}_{irt+1}) | 0, \mathbf{w}_{irt}\right]\},$$

and $\{\sigma_{ir}(\mathbf{x}_{irt}, \varepsilon_{irt}) = 1\}$ for every treaty office in every country (i, r) that has ratified treaty r $(x_{irt} = 1)$. In words, each treaty office that has yet to ratify ratifies the treaty if and only if doing so maximizes the value of the country given the state and the decisions of all other treaty offices in all countries. By the assumption of irreversibility treaty offices that have already ratified in a past period do not make a decision in the current period.

Then, a Markov Perfect Equilibrium of our dynamic game can be expressed as a vector $\mathbf{P} = \{P_{ir}(\mathbf{w})\}$ of conditional choice probabilities (CCPs) such that for every $(i, r, \mathbf{w}_{irt})$ such that $x_{irt} = 0$:

$$P_{ir}(\mathbf{w}_{irt}) = G_\varepsilon\big(-EC_{irt} + \delta E\big[V_{ir}^P(1, \mathbf{w}_{irt+1})|1, \mathbf{w}_{irt}\big] - \delta E\big[V_{ir}^P(0, \mathbf{w}_{irt+1})|0, \mathbf{w}_{irt}\big]\big) \qquad (20)$$

and $P_{ir}(w_{irt}) = 1$ otherwise. More explicitly:

$$P_{ir}(\mathbf{w}_{irt}) = G_\varepsilon\big(-EC_{irt} + \delta \sum_{w'} V_{ir}^P(\mathbf{w}')\big[f_{ir}^{\mathbf{w},P}(\mathbf{w}'|1, \mathbf{w}_{irt}) - f_{ir}^{\mathbf{w},P}(\mathbf{w}'|0, \mathbf{w}_{irt})\big]\big) \qquad (21)$$

where $f_{ir}^{\mathbf{w},P}(\mathbf{w}_{irt+1}|d_{irt}, \mathbf{w}_{irt})$ is the transition probability of the vector of payoff relevant state variables $\mathbf{w}$ given equilibrium probabilities $\mathbf{P}$.

Finally, before moving to the estimation of the structural parameters, we need to address further the computational burden caused by the number of players in the game. Here the issue is estimation of the transition probabilities $f_{ir}^{\mathbf{w},P}(\mathbf{w}_{irt+1}|d_{irt}, \mathbf{w}_{irt})$ of the state vector $\mathbf{w_{it}}$. In more standard applications the transition of the exogenous payoff relevant state variables is estimated separately from the conditional choice probabilities using simple maximum likelihood methods, while the transition of the endogenous payoff relevant state variables which depend on the choices made by the players in the game is estimated jointly with the parameters of the model. In the current application, the large number of players in the game renders the standard method computationally infeasible. The transition probability of the payoff variables $a_{it} = a_i(\mathbf{x_t}, \mathbf{z_t})$ and $h_{it} = h_i(\mathbf{x_t}, \mathbf{z_t})$ depends on the actions of all players in the game. To minimize the computational burden, we estimate the transition of $\mathbf{w_{it}}$ separately from the choice probabilities $\mathbf{P}$, in a manner analogous to Hendel and Nevo (2006). Specifically, we consider a VAR process for the vector $\mathbf{w}_i$, allowing for country-specific transitions. Then using the estimated parameters of the VAR model, the transition probability vectors $f_{ir}^{\mathbf{w},P}(\mathbf{w}_{irt+1}|d_{irt}, \mathbf{w}_{irt})$ are simple to calculate for a given discretization of the state variables.

Now we have the elements we need to estimate the full dynamic model. Given the model we have described above, the vector of structural parameters θ of interest is given by:

$$\theta = \{\alpha_a, \alpha_h, \{\gamma_i\}_{i=1}^N, \{\xi_r\}_{r=1}^{R-1}, \gamma^{de}, \gamma^h, \gamma^{dh}\}$$

that is, the weights on foreign aid and human rights in the countries per-period payoff, the country specific entry cost parameter, the treaty specific entry cost parameters, and institutional cost parameters.

We assume that the country-treaty private information ε_{irt} is normally distributed with variance σ_ε^2. Following Aguirregabiria and Mira (2007), we can express the entry thresholds and conditional choice probabilities in a form that is more convenient for the purposes of estimation:

$$P_{ir}(\mathbf{w}_{irt}) = \Phi\left(\tilde{z}_{irt}^{\mathbf{P}}\frac{\theta}{\sigma_\varepsilon} + \tilde{e}_{irt}^{\mathbf{P}}\right)$$

Estimator

For notational simplicity, let us redefine $\theta = \frac{\theta}{\sigma_\varepsilon}$. For some arbitrary value of the parameters and entry probabilities $\theta, \mathbf{P}$, define the log likelihood function:

$$\mathcal{L}(\theta, \mathbf{P}) = \sum_{t=1}^{T}\sum_{r=1}^{N_t}\sum_{i=1}^{C_t} d_{irt}\ln\Phi\left(\tilde{z}_{irt}^{\mathbf{P}}\theta + \tilde{e}_{irt}^{\mathbf{P}}\right) + (1 - d_{irt})\ln\left(1 - \Phi\left(\tilde{z}_{irt}^{\mathbf{P}}\theta + \tilde{e}_{irt}^{\mathbf{P}}\right)\right) \qquad (22)$$

We estimate the model using the Nested Pseudo-Likelihood Estimator (NPL) (See Aguirregabiria and Mira (2007) for details. As a way of providing a simple description of the estimator and explaining our reasons for choosing it, consider first the two-step Pseudo-Maximum Likelihood (PML) Estimator. Specifically, let $(\theta_0, \mathbf{P}_0)$ represent the true parameter vector and CCP vector in the population. The two-step PML Estimator of the above likelihood function is a pair $(\hat{\theta}, \hat{\mathbf{P}})$ such that $\hat{\mathbf{P}}$ is a consistent non-parametric estimator of $\mathbf{P}_0$, and $\hat{\theta}$ maximizes the Pseudo-Likelihood function $\mathcal{L}(\theta, \hat{\mathbf{P}})$. In many applications, in particular those involving permanent unobserved heterogeneity, the implementation of this estimator is problematic, because obtaining an unbiased estimator of the choice probabilities $\hat{\mathbf{P}}$ is not feasible, and thus the PML estimator is not an attractive option. Given the very likely importance of country and treaty specific permanent unobserved heterogeneity (the rough analogue of firm and market level permanent unobserved heterogeneity in more standard IO applications), we face such a problem in our model. The NPL estimator has a clear advantage in such cases, as a consistent estimator of choice probabilities is not required. One can obtain the NPL estimator in the following way. Given any (consistent or not) initial estimate of the true choice probabilities $\mathbf{P}_0$, say $\mathbf{P}^1$, one may obtain the vector θ^1 that maximizes the

pseudo-likelihood $\mathcal{L}(\theta, \mathbf{P}^1)$. This estimate allows us to obtain an updated estimate of the choice probabilities $\mathbf{P}^2$ using the mapping described above:

$$\mathbf{P}^2 = \Phi\big(\tilde{z}_{irt}^{\mathbf{P^1}}\theta^1 + \tilde{e}_{irt}^{\mathbf{P^1}}\big)$$

With these estimates of the choice probabilities in hand, we now find the parameters θ that maximize $\mathcal{L}(\theta, \mathbf{P}^2)$, and again obtain a new estimate of the choice probabilities using these parameter estimates. We continue iterating in this fashion until the sequence of probability estimates converges to the limit $\mathbf{P}^*$. The vector θ^* that maximizes $\mathcal{L}(\theta, \mathbf{P}^*)$ is the NPL estimator.[15][16]

Estimation Results

For expositional purposes, we divide the presentation and discussion of the structural parameter estimates into three subsections, key payoff parameters, treaty specific costs, and country specific costs.

(a) *Payoff Parameters*

The estimates of the weights α_a, α_h in the revenue function and the γ vector of cost parameters are presented in table 7

We find that countries have a positive preference both for aid and for human rights institutions. That countries have a positive preference for foreign aid in our game confirms that foreign aid benefits are not only associated with HRT participation, but they *motivate* a country's decision to participate in an HRT. To quantify the relative importance of foreign aid and human rights

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[15]See Aguirregabiria and Mira (2002,2007) for details.

[16]One alternative method for estimating the model we have presented here is that of Benkhard, Bajari and Levin (BBL) (2007). There are two potential reasons a practitioner may prefer to use BBL over NPL. First, when using BBL one never has to invert a large matrix to solve value functions, whereas in using NPL we must solve the value functions once for each NPL iteration. Second, BBL allows for continuous variables in the state space, while NPL does not. Since many applications are naturally modeled with continuous state variables, this is an important consideration. However, we prefer the NPL estimator for several reasons. First, implementation of BBL requires a consistent estimate of the conditional choice probabilities, which as we argued above, is typically not available for applications with permanent unobserved heterogeneity. Second, NPL generally delivers more efficient estimates of the structural parameters. Finally, while it is true that not having to incur the computational cost of solving value functions is an important virtue, we will be using the estimated parameters to perform counterfactuals. In order to perform counterfactuals, regardless of the estimation procedure, one must solve the value functions. Given that we must endure this cost at the counterfactual stage in any case, the benefit of avoiding it at the estimation stage is not as large.

Table 7: Structural Parameter Estimates

$\bar{\gamma}^i$	5.097	Mean Country Specific Ratification Cost
γ^{de}	0.0610	Contribution to Cost from Democracy Status
	(0.1611)	
γ^h	0.0509	Contribution to Cost from Human Rights Status
	(0.0394)	
γ^{dh}	-0.1032	Democracy-Human Rights Interaction
	(0.0380)	
α_a	0.0945	Weight on Aid in Payoff Function
	(0.0167)	
α_h	1.4390	Weight on Human Rights in Payoff Function
	(0.6355)	
Pseudo-R^2	0.1268	
N	14077	

Notes: Standard errors should be interpreted with caution. We are not accounting for the variability of the first stage estimates in our calculation of the standard errors.

in a country's flow payoff, we can use the estimated parameters to calculate how much foreign aid a country at the 25th percentile of human rights institutions would be willing to forego in order to jump to the 75th percentile, and vice versa. We find that a country would be willing to pay \$45.71 per capita in foreign aid to improve human rights institutions form the 25th to the 75th percentile (an increase of 3 on the human rights institutions score), and that a country would be willing to accept a drop of 3.55 on the human rights institutions score to jump from the 25th to 75th percentile in foreign aid (an increase of \$54 per capita of aid). While these numbers are informative in that they help interpret the estimated weights in the payoff function, we should note that these calculations do not take into account the fact that changing domestic human rights institutions changes the cost of treaty participation and thus the cost of obtaining aid in the future, and moreover that this effect is heterogeneous across countries depending on political institutions. Further, the calculations do not take into account that changing human rights institutions, by changing a country's payoff to ratification directly through cost, also effects the decisions of other countries which enter into country payoffs through foreign aid. Generally speaking, the calculations ignore the dynamic and strategic effects. Below we use counterfactual analysis to more fully quantify the relative importance of foreign aid and human rights institutions in explaining the ratification decision. We also find that countries that are both democratic and have good human rights institutions have the lowest cost of participation.

(b) *Treaty Specific Costs*

Table 8: Structural Parameter Estimates : Treaty Specific Costs

ξ_1	-	Economic, Social and Cultural Rights
ξ_2	-0.0213	Civil and Political Rights
	(0.1322)	
ξ_3	-0.1811	Elimination of All Forms of Racial Discrimination
	(0.1638)	
ξ_4	0.3811	Prevention and Punishment of the Crime of Genocide
	(0.1607)	
ξ_5	-1.5183	Rights of Child
	(0.4390)	
ξ_6	0.8208	Protection of the Rights of All Migrant Workers and Members of their Families
	(0.2079)	
ξ_7	1.2245	Non-applicability of statutory limitations to war crimes and crimes against Humanity
	(0.2416)	
ξ_8	0.0385	Suppression and Punishment of the Crime of Apartheid
	(0.1373)	
ξ_9	-0.5286	Elimination of All Forms of Discrimination against Women
	(0.1787)	
ξ_{10}	0.4105	Against the Taking of Hostages
	(0.1469)	
ξ_{11}	0.5587	Prohibitions or Restrictions on the Use of Certain Conventional Weapons
	(0.1605)	
ξ_{12}	0.7794	Protection of Performers, Producers of Phonograms and Broadcasting Organisations
	(0.1809)	
ξ_{13}	0.3923	Political Rights of Women
	(0.1630)	
ξ_{14}	0.1282	Status of Refugees
	(0.1648)	
ξ_{15}	-0.0039	Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment
	(0.1362)	
N	14077	

Notes: Standard errors should be interpreted with caution. We are not accounting for the variability of the first stage estimates in our calculation of the standard errors.

The estimates of the treaty specific costs are in table 8.

The most striking pattern in the treaty specific cost estimates is the substantial variance in the costs across treaties. For example, the cost of ratifying the Convention on the Rights of the Child is nearly half the cost of ratifying the treaty on The Non-Applicability of Statutory Limitations to War Crimes and Crimes Against Humanity. To understand this result, let us consider closely two treaties, the Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) (1979) , and the Convention on the Political Rights of Women (CPRW) (1952). We choose these treaties to illustrate our point because they address a similar issue, but have very different estimated costs of ratification: CPRW is much more costly to ratify than CEDAW is.

This is somewhat puzzling. Ex-ante, if one treaty was more costly than another, we would naturally expect CEDAW to be more costly. Discrimination against women in the political sphere

is merely one form of discrimination against women. If a country is willing to ratify a treaty concerned with *all* forms of discrimination against women (CEDAW), it should be willing to ratify a treaty concerned with just one type of discrimination against women (CPRW). Consider articles 1-2 of CPRW:

Article 1 : *Women shall be entitled to vote in all elections on equal terms with men, without any discrimination.*

Article 2 : *Women shall be eligible for election to all publicly elected bodies, established by national law, on equal terms with men, without any discrimination.*

By contrast, consider now articles 2 and 3 of CEDAW (article 1 simply defines "discrimination against women"):

Article 2 : *States Parties condemn discrimination against women in all its forms, agree to pursue by all appropriate means and without delay a policy of eliminating discrimination against women, and to this end undertake:*

– To embody the principle of the equality of men and women in their national constitutions or other appropriate legislation...

– To adopt appropriate legislative and other measures, including sanctions where appropriate, prohibiting all discrimination against women...

Article 3 : *States Parties shall take in all fields, in particular in the political, social, economic and cultural fields, all appropriate measures, including legislation, to ensure the full development and advancement of women... on a basis of equality with men.*

In particular, note the ease with which articles 1-3 of CPRW can be verified. Election monitoring by reputable organizations deployed by the OECD and the EU occur regularly in countries all over the world.[17] Further, the monitoring is generally done over a long period prior to the election itself. Any failure to comply with any of articles 1-2 of CPRW would not go unnoticed, and at the very minimum would be brought to the attention of the international community. On the other hand, what is demanded by CEDAW is to a great extent open to interpretation. Verification

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[17]See for example the Handbook for European Union Election Observation (2008)

Table 9: Structural Parameter Estimates

Mauritania	0.4173
	(1.227)
El Salvador	4.260
	(0.6075)
Chile	4.2903
	(0.6023)
Argentina	4.3504
	(0.6041)
Uganda	4.7963
	(0.7281)
Kenya	5.383
	(0.8005)
Somalia	5.5389
	(0.745)
Chad	6.1012
	(1.003)
Turkey	7.3958
	(1.0141)
Malaysia	11.9950
	(1.729)
Variance	3.0414
Coefficient of Variation	0.3422

Notes: Standard errors should be interpreted with caution. We are not accounting for the variability of the first stage estimates in our calculation of the standard errors.

of compliance ex-post of ratification would require consensus in the international community on whether a violation has occurred. In a world where strategic alliances are important but fluid, the set of countries who agree that another's actions violate the terms of a treaty can be small and uncertain. One hypothesis then is that the more open to interpretation, or more difficult a violation is to verify, the cheaper the ratification cost should be. We discuss this hypothesis and its possible implications in more detail in the appendix.

(c) *Country Specific Costs*

There are significant permanent differences across countries in the cost of ratification. To illustrate this variation, in table 9 we display the country-specific cost estimates for ten of the eighty-three countries in our sample, and the variance and coefficient of variation of the costs. In figure 4 we plot a histogram of country specific costs.

Nearly all the country-specific costs are statistically significant. The range over which country specific costs vary is larger and more economically significant that the range over which treaty specific costs vary. Mauritania has the smallest estimated cost, and Malaysia has the largest. We purposely include in the table cost estimates for countries that were discussed above. In particular,

Figure 4: Frequency Distribution of Country Specific Treaty Costs
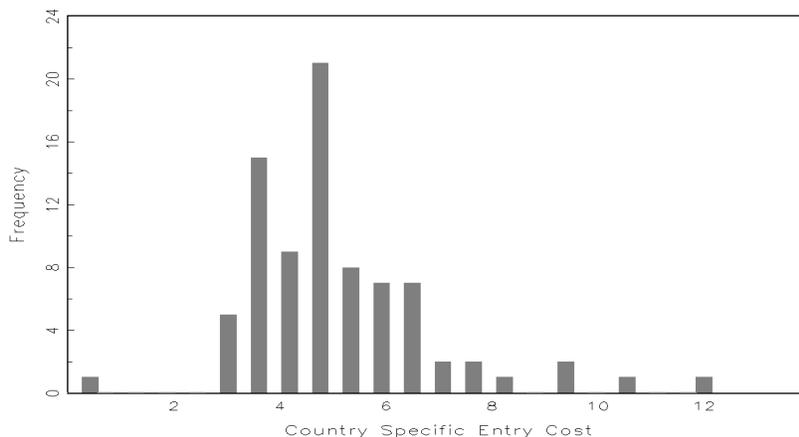
figures 1, 2, and 3 comparing the HRT participation of Argentina and Chile, Kenya and Chad and Uganda and Chad respectively as well as figure 8 in the appendix comparing Argentina and Somalia all are consistent with these cost estimates.

6 Counterfactual Experiments

In this section we use the estimated model to consider counterfactual policy experiments. The two goals of counterfactual analysis here are first to evaluate the relative importance of potential competing theories of HRT participation, and second to evaluate equilibrium effects of alternative policies. Performing counterfactual analysis in dynamic games is often complicated by the potential multiplicity of equilibria. How behaviour responds to a change in the structural parameters of interest directly depends on the equilibrium played under the counterfactual parameters. If the model has multiple equilibria, we can not know *which* equilibrium is played in the counterfactual scenario, and thus we can not make counterfactual predictions.[18] Many applications in the dynamic game literature simply get around this problem by assuming a unique equilibrium, or assuming that the counterfactual equilibrium is the same as the equilibrium in the data. These assumptions are strong and in many cases not realistic. Here we adopt the approach of Aguirregabiria (2009). Let $(\hat{\theta}, \hat{\mathbf{P}}_0)$ represent the estimated parameters and equilibrium choice probabilities (i.e., $\mathbf{P}_0 =$

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[18]If we had a method to solve for *every* equilibrium in the model we could at least say what all the potential counterfactual scenarios would be. Note however that if the number of equilibria is very large model has little ability to predict behaviour under counterfactual scenarios.

$\Phi(\hat{\theta}, \mathbf{P}_0)$). Then under the assumption that the equilibrium selection mechanism is a smooth function of the structural parameters, by taking a Taylor expansion around the estimated structural parameters $\hat{\theta}$ one can obtain an approximation to the counterfactual equilibrium associated with the counterfactual parameters θ^*, say $\mathbf{P}^*_{app}$. [19]

As we discussed above, it is difficult to assess the relative importance of purported key variables such as foreign aid receipts in the treaty ratification decision simply by looking at the estimated parameters. One of the key benefits of estimating a structural model which allows for several competing theories is that we can "shut down" one theory while allowing for the other(s) and observe how much the original patterns in the behavioral responses we were interested in changed. This is precisely what we do in the first set of counterfactual experiments. To get a sense of the importance of foreign aid receipts in the treaty participation decision, we consider a counterfactual world where the weight on foreign aid receipts in the payoff function is 10% lower than in the factual world. In the terms discussed above, in this counterfactual world a country would be willing to forego $50.79 in foreign aid (as opposed to $45.71) for a jump from a 2.0 score on human rights institutions to 5.0. In figure 5 we present a plot of the number of treaties ratified for each country in the factual and counterfactual equilibrium scenarios. To obtain the number of treaties ratified we create a dynamic sequence of decisions using the equilibrium choice probabilities in both the factual and counterfactual scenarios, starting from the same state in each case. The average number of treaties ratified across countries drops from 6.78 under the factual equilibrium to 4.5 in the counterfactual scenario, a drop of about 33%. The standard deviation of the number of treaties ratified increases from 2.56 in the factual scenario to 2.89 in the counterfactual scenario. We also plot treaty capital K in the two scenarios in figure 6. While we can not learn anything by comparing the means across the two scenarios (the mean across countries of K is always 0 by definition), it is worthwhile to note the difference in standard deviations across the two equilibria. In the factual case the standard deviation is 2.52 while in the counterfactual case it is 3.42.

Though aid receipts are an important factor in explaining HRT ratification behavior, the same is not true for human rights. We consider a counterfactual analogous to the one we considered above, and reduce the weight on human rights in the payoff function by 10%. In this counterfactual

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[19]The approximation error can be quite large if the counterfactual is large (i.e., if θ^* is very different from $\hat{\theta}$). Supposing the error is small enough so that $\mathbf{P}^*_{app}$ lies in the dominion of attraction of the counterfactual equilibrium $\mathbf{P}^*$, by starting from $\mathbf{P}^*_{app}$ and iterating in the mapping $\mathbf{P}_{k+1} = \Phi\big(\tilde{z}^{\mathbf{P_k}}_{irt}\theta + \tilde{e}^{\mathbf{P_k}}_{irt}\big)$ we will reach the counterfactual equilibrium $\mathbf{P}^*$.

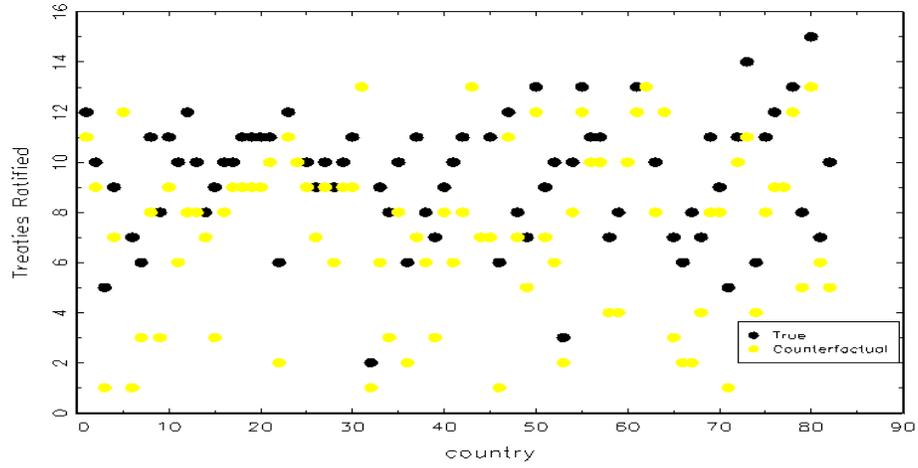Figure 5: Number of Ratified Treaties Under Factual and Counterfactual Equilibria

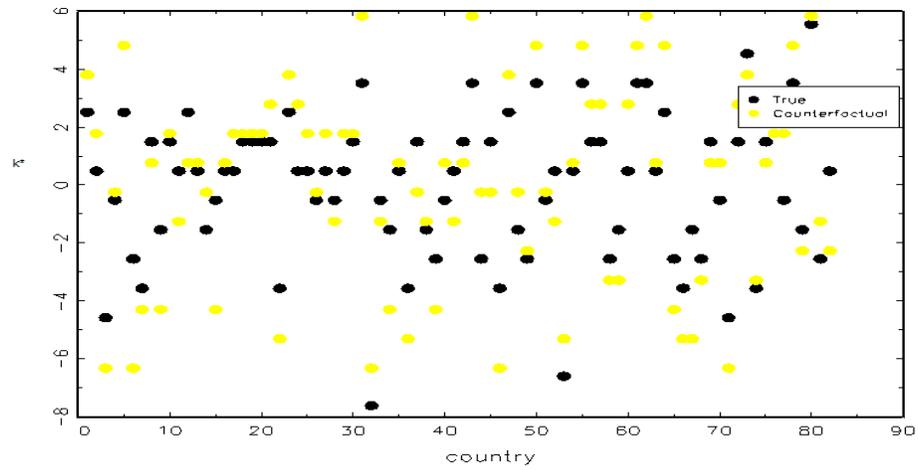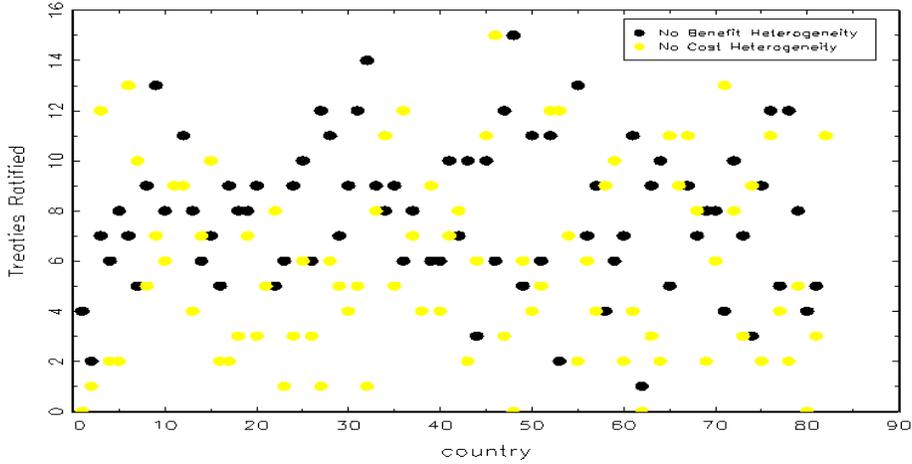Figure 6: K Under Factual and Counterfactual Equilibria

Figure 7: Number of Ratified Treaties Under Counterfactual Equilibria with No Heterogeneity

world a country is now willing to drop almost 4 points in human rights institutional quality for an increase from the 25th to 75th percentile in aid receipts. In this case, the mean number of treaties ratified in the factual case is 6.78, and in the counterfactual case 6.80. In the context of our model, aid is by far the most significant factor in the treaty ratification decision, at least on the benefit side.

In the second set of counterfactuals, we try to determine whether country-specific benefit heterogeneity or cost heterogeneity is more important in explaining the heterogeneity we observe in ratification decisions. Recall that in the structural model we allow for both permanent differences in the flow of foreign aid into a country (equation 15), and permanent differences in the ratification costs across countries. The experiment we consider here then is to shut down each source of heterogeneity in turn, and compare ratification behavior in each counterfactual scenario. By comparing the variances in treaty participation across these two counterfactual cases we get an idea of whether heterogeneity on the cost side or benefit side explains more of the participation decision; if the variance across countries is larger in the case where there is no cost side heterogeneity we can conclude that more of the heterogeneity in behaviour is explained by benefit side heterogeneity. Similarly, if the variance is larger in the case where there is no benefit side heterogeneity, we would conclude the cost side differences are more important. In figure 7 we plot the number of treaties ratified in each case. The key result is that the standard deviation of the number of treaties ratified in the counterfactual case of no benefit heterogeneity (2.89) is smaller than the standard deviation

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of the number of treaties ratified in the case of no cost heterogeneity (3.74). This tells us that benefit heterogeneity is more significant in explaining heterogeneity in behavior. This is result is particularly important because benefit heterogeneity has been overlooked as a factor in explaining heterogeneity in behavior in past studies of HRT participation.

7   Conclusion

We model the decision of aid receiving countries to participate in human rights treaties at the United Nations. Using dynamic panel data techniques, we first establish that there are significant economic returns to treaty ratification. Countries that participate in HRT's receive more foreign aid than those that do not. We further establish that countries with good human rights practices are more likely to participate than countries with bad practices, but that the converse is not true. Countries with relatively large levels of predetermined treaty participation experience a decline in human rights practices. Motivated by these findings, we develop and estimate a dynamic game of treaty ratification. The dynamic model we consider is analogous to a dynamic game of oligopoly competition where firms invest in quality (eg.,Pakes and McGuire (1994)). Here, aid receiving countries compete to attract economic resources from the developed world by ratifying costly human rights treaties. We estimate the costs and benefits of ratification, allowing for heterogeneity across treaties and regimes. We find that the attendant economic returns to ratification induce countries to ratify. This is a contribution of the paper, as the literature on treaty ratification has generally focused on the cost of ratification as opposed to the possible benefits in rationalizing observed behaviour. We also find that ratification costs vary significantly across regimes and across treaties. Specifically, autocracies with poor human rights behavior have a larger cost of ratification than democracies with poor human rights behavior, but this difference shrinks as human rights behavior improves.

We are the first to examine how costs may vary across treaties. We find significant variance in the cost of ratification, and discuss how this variance may be explained by observable institutional details of the treaties, in particular the verifiability of treaty terms. In future work we hope to address this issue in more detail, as this result can have interesting policy implications for the design of international treaties from a welfare perspective.

We then use the estimated model to consider several counterfactual experiments. We evaluate

the relative importance of aid and domestic human rights as factors for explaining ratification behavior, and we find that aid is by far the more significant factor. Decreasing the aid motive by 10% decreases ratification by 33% while a 10% decrease in the human rights motive hardly changes ratification behavior at all. We also evaluate the relative importance of benefit side and cost side heterogeneity in explaining heterogeneity in behavior and find that benefit heterogeneity is more important.

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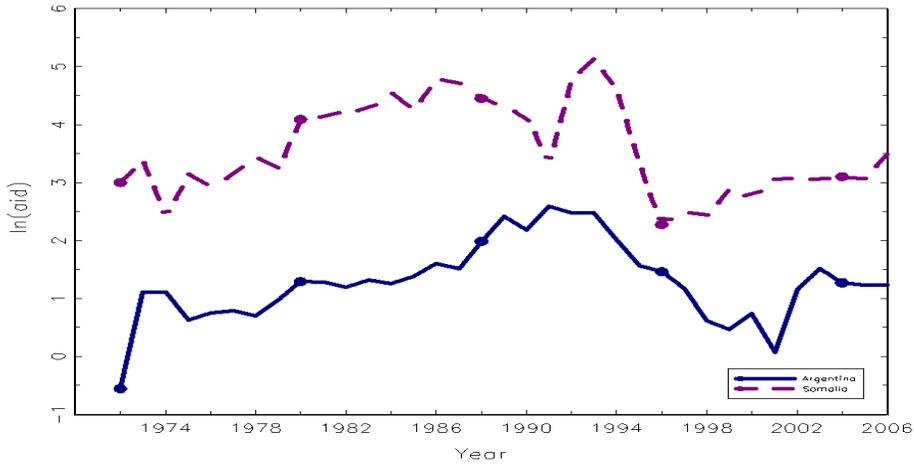Figure 8: Argentina and Somalia Treaty Capital
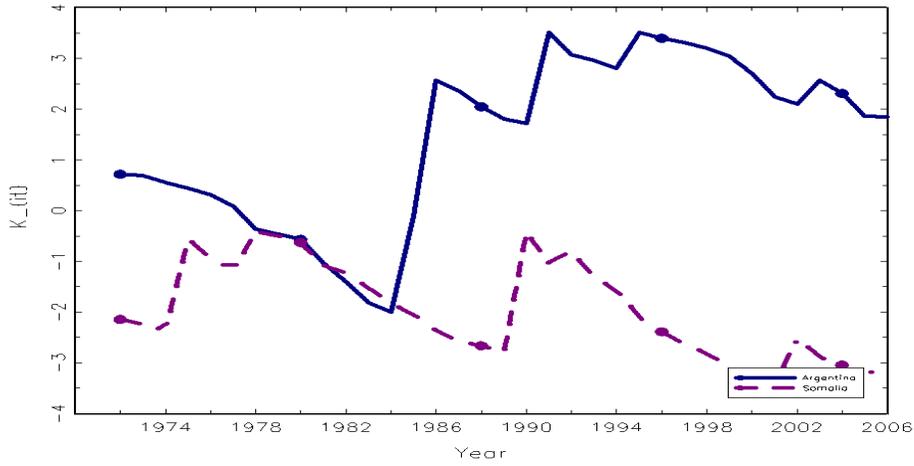
Figure 9: Argentina and Somalia ln(Aid) Receipts

9 Appendix

9.1 Treaty-Specific Cost Heterogeneity and Observable Treaty Characteristics

There are several candidate characteristics that vary across treaties that measure how "open to interpretation" a treaty is. For example each treaty contains a section on reservations ratifiers may have with respect to the contents of the treaty, and objections existing parties may have to the reservations. Objections and reservations are easier to make (and perhaps more necessary) when the treaty is less interpretable. Interpreting the treaty specific cost as the choice of the treaty designer (x-axis) and the rate of reservation/objection as the outcome (y-axis), in figure 12 we plot

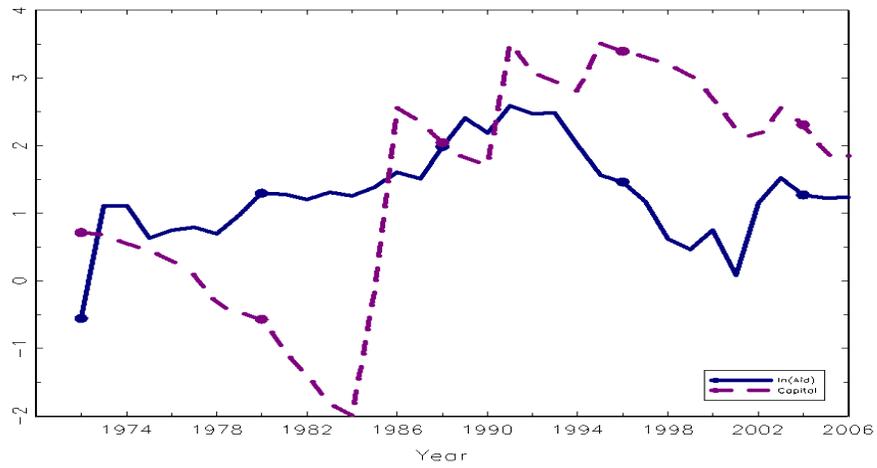Figure 10: Argentina Treaty Capital and ln(Aid) Receipts

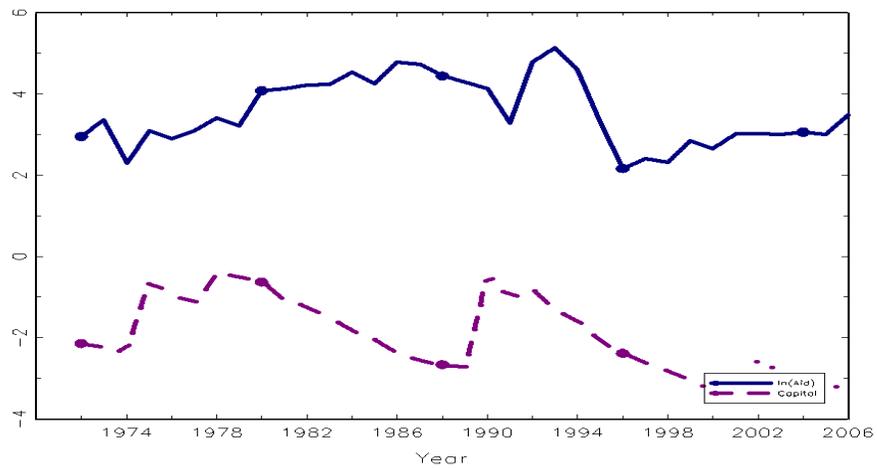Figure 11: Somalia Treaty Capital and ln(Aid) Receipts

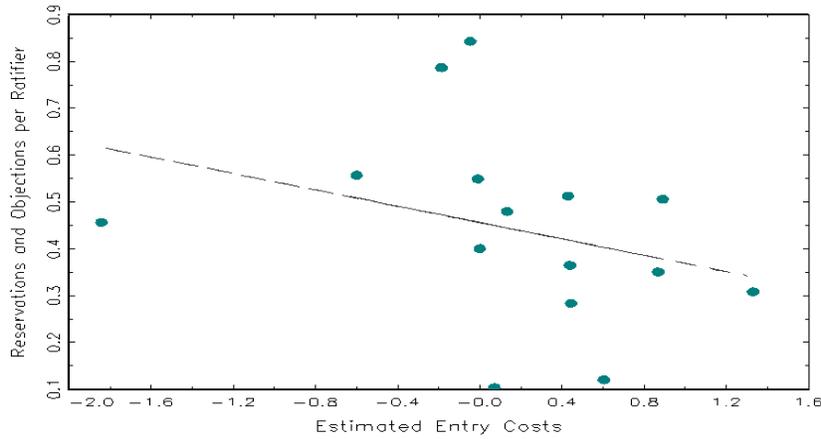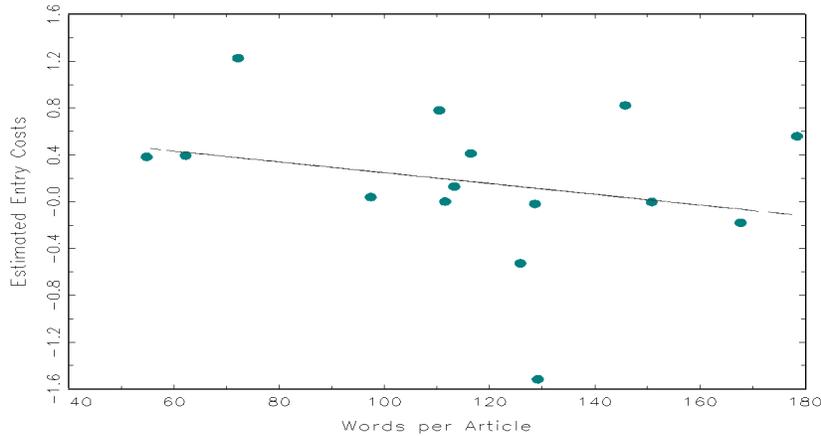Figure 12: Reservations/Objections per Ratifier and Treaty Costs

Figure 13: Treaty Costs and Words per Article

the rate of reservation/objection per treaty participant against the estimated treaty specific entry costs.

There appears to be a negative relationship here; the larger the treaty specific cost, the fewer reservations and objections made per treaty ratifier. This then begs the question, what *exogenous* characteristic of HRT's determines the costliness of ratification? In light of our example above, in figure 13 we plot the estimated treaty specific entry costs against the number of words per article for each treaty. Consistent with the example in the text, treaties with more words per article are cheaper to ratify. This raises potentially interesting optimal institutional design questions. An optimal treaty design balances verifiability and enforceability of the treaty's terms with the number

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of participants to the treaty. While some of these questions could be addressed in the context of our structural model, we leave this for future work.

Table A1: Treaties

Treaty	Date Opened
International Covenant on Economic, Social and Cultural Rights	19/12/1966
International Covenant on Civil and Political Rights	19/12/1966
International Convention on the Elimination of All Forms of Racial Discrimination	7/3/1966
Convention on the Prevention and Punishment of the Crime of Genocide	9/12/1948
Convention on the Rights of child	20/11/1989
International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families	18/12/1990
Convention on the non-applicability of statutory limitations to war crimes and crimes against humanity	26/11/1968
International Convention on the Suppression and Punishment of the Crime of Apartheid	30/11/1973
Convention on the Elimination of All Forms of Discrimination against Women	1/3/1980
International Convention Against the Taking of Hostages	18/12/1979
Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects	10/4/1981
International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations	26/10/1961
Convention on the Political Rights of Women	20/12/1952
Convention relating to the Status of Refugees	28/7/1951
Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment	10/12/1984