Democracy and Accession to GATT/WTO

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Abstract

In this paper we argue that the level of democracy of an applicant country affects the time it takes to gain General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO) accession. An extensive empirical search suggests that the GATT/WTO accession duration is likely to be shorter for an applicant whose political regime is more democratic. Meanwhile, countries that initiated applications before 1995 took longer to accede to GATT than those that initiated applications after 1995 to accede to the WTO. The GATT/WTO accession is shortened if the applicant country's economy is large. Such findings are robust to the choice of different econometric methods, data sets and model specifications.

1. Introduction

This paper investigates the influence of a regime's approach to democracy on its time spent to accede to the General Agreement on Tariffs and Trade/World Trade Organization (GATT/WTO). Relatively little research has explored this topic, despite being one of the most interesting in international trade and international organizations.

During the last half a century, the number of members of GATT increased dramatically. As shown in Figure 1, GATT membership expanded from 23 founding countries in 1947 to 126 countries (and customs regions) by the end of 1994. The WTO, which was established to replace GATT in early 1995, further expanded to 159 countries as in 2014. There remain 24 countries in the process to accede to the WTO.[1]

Coincidently, most of the GATT/WTO members are democratic. More interestingly, democratic regimes seem to spend less time to accede to the GATT/WTO compared with the non-democratic regimes. For example, Hong Kong acceded to GATT in 1986 immediately after its application. In contrast, Congo had spent more than 26 years to accede to the WTO. In addition, democratizing countries also suffer from a long time spent in attempting to accede to this large global trading organization. For instance, it took China 15 years, from 1986 to 2001, to accede to the WTO. This raises the question: "Has the democratic regime spent less time to access to the GATT/WTO?"

This paper addresses the issue using a proportional hazard model. We find that democratic countries (or regimes) are more likely to have a shorter accession process, once standard factors such as size and economic growth rate of applicants, number of GATT/WTO's existing members, and structural change of GATT/WTO itself have
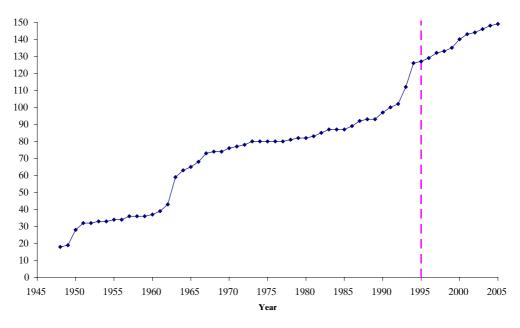
Figure 1. Number of GATT/WTO Members

Notes: The vertical dotted line marks the year of 1995 when the WTO was formed. Data are from the WTO official website.

been taken into account. To be more precise, in this paper we systematically investigate GATT/WTO accession duration over the period 1948–2005.[2] We fully explore how an applicant's level of democracy affects its accession duration to the GATT/WTO. An extensive empirical search suggests that democratic regimes had spent less time to accede to the GATT/WTO, after controlling for many other country-specific factors. On average, democratic regimes have one year shorter accession duration than do non-democratic regimes. This finding is robust to the choice of different econometric methods, data sets and model specifications.

The economic rationale of such a finding, as we shall discuss in section 2, is three-fold. First, democratic regimes are much more eager to accede to the GATT/WTO to signal that their government has no responsibility for the negative exogenous shocks to their economies, if any. So these regimes have a strong demand to accede to this international organization. Second, compared with non-democratic regimes, democratic applicants find it easier to accede because of the "mutual trust" with existing members, who are highly democratic. Last but not least, democratic regimes enjoy a relatively free, fair and competitive market, which make it much easier for them to satisfy the threshold to the GATT/WTO membership.

This work adds to a burgeoning literature on GATT/WTO accession, including works by, among others, Mansfield et al. (2002), Cooper (2003), Pevehouse (2005) and Mansfield and Pevehouse (2006). These works differ in empirical method, country coverage and time span, yet they have a common interest on the nexus between democracy and entry to an international organization such as the GATT/WTO. In particular, Cooper (2003) finds that GATT/WTO members are more likely than nonmembers to be democracies. However, she finds little evidence, if any, that WTO membership in itself promotes democratic transition. Inspired by such an

observation, in this paper we take a step forward to explore whether democracy can shorten the accession time to the GATT/WTO.

It is worthwhile to note that previous works focus on whether or not a country has membership to the GATT/WTO *per se* rather than how long it can accede to the organization. This is due, in large part, to the difficulty of collecting some essential data in the past. It is easy to obtain data on GATT/WTO members' accession dates. In contrast, data on members' application dates became available only after 2005. Most GATT documents were in microfiche format and publicly available only at several GATT depository libraries such as University of California (Berkeley) Library. These documents were only digitized by the Stanford GATT digital library. The digitization of the documents has allowed us to conduct a comprehensive study on the accession experience before 1995.

Thanks to this, some studies extended the analysis on the GATT/WTO accession duration. For instance, Trumm (2005) studied the accession experiences of Cambodia, Mongolia, Ethiopia and Azerbaijan. Evenett (2005) looked at Bulgaria and Ecuador, and Fotsbetg (1998) considered Japan. Some other works such as those by Michalopoulos (1998) and Evenett and Primo Braga (2005) took a step forward to observe that the recently acceded countries took longer to complete the process than did those that acceded earlier in the WTO era. However, all of these studies on accession duration have been descriptive, only concentrating on a specific or a small set of recently acceded countries. None of them provided a comprehensive empirical analysis on the accession duration of countries, particularly for cases before the formation of the WTO. Hence, in this paper, we fill this gap by empirically exploring the fundamental mechanism that has lengthened the accession duration.

The remainder of this paper is organized as follows. Section 2 discusses the related argument concerning the role of democracy on the GATT/WTO accession duration. Section 3 explores the empirical method. Section 4 introduces the data and measurement. We report the empirical results in section 5. Section 6 concludes the paper.

2. Nexus between Democracy and Accession Duration to the GATT/WTO

The accession to GATT/WTO is a complex, challenging and lengthy process (Michalopoulos, 1998). The literature provides mixed understanding about the nexus between democracy and accession duration to the GATT/WTO. On the one hand, some studies argue that democratization for an applicant is helpful in shortening its time spent to accede to the GATT/WTO for at least the following reasons.

First, democratic countries are very enthusiastic about joining to the GATT/WTO. The reason that democratic regimes are more eager than their non-democratic counterparts is the membership of the GATT/WTO can serve as an instrument for their government to avoid the distrust of their voters (Mansfield et al., 2002). Compared with autocratic regimes, democratic regimes have more fair and competitive elections. Voters in democratic regimes have more influence on the fate of a government. They are more likely to remove the incumbent government from office when their economy faces exogenous negative shocks. To convince voters that poor economic performance is not due to the government's policy choice (such as commercial policies), they have a greater incentive to enter the GATT/WTO. Membership of these organizations helps the government to credibly signal to their voters whether

they are abiding by or cheating on the agreements. By this means, the voters are more likely to be convinced that the incumbent government is monitored well and would not be involved in rent seeking.

Not only would democratic countries be able to use GATT/WTO accession as a signal to convince their electorate, but also democratizing regimes have a strong incentive to accede to the GATT/WTO since it could help leaders in those transitional countries credibly commit to sustaining democratic reform (Mansfield and Pevehouse, 2006). The commitment theory of trade liberalization raised by Maggi and Rodriguez-Clare (1998) argues that international trade agreements are particularly welcome for weak governments. The idea is that international trade agreements serve as a mechanism for using the threat of punishment by partner countries in order to discipline various domestic interest groups.

Second, democratic regimes find it easier to accede to the GATT/WTO. In order to accede it is required that the applicant can maintain a free and fair domestic market. Democratization is a potent impetus to help an applicant reach this objective. Democracy and the rule of law are mutually reinforcing (Rigobon and Rodrik, 2004). In general, a highly democratic regime is associated with better maintenance of the rule of law, which in turn helps it create a fair, free and competitive market (Barro, 1996, 1999). The freer is the market, the easier it is for the applicant to satisfy the accession requirements set by the existing members of the GATT/WTO.

Last but not least, a democratic regime enjoys the advantage of a reputation of high "trust" in international trade because of its institutional reliability (Levchenko, 2007). In contrast, the insecurity that is associated with low-quality importers' institutions acts as a hidden tax on imports (Andersons and Marcouiller, 2002).[3] Most existing members of the GATT/WTO are democratic regimes. They find it easier to accept the democratic applicants because of the mutual trust. For instance, Reich (1998) pointed out that it was easier for Taiwan to accede to the WTO than it was for China because Taiwan's political system was more democratic.[4]

Summarizing, the more democratic an applicant is, the higher chance that it will be trusted by existing members, the easier it would satisfy the accession criteria of the GATT/WTO, and hence it will shorten the application duration to the GATT/WTO. Moreover, there is a strong demand in democratic regimes and democratizing countries to to joining the GATT/WTO, which makes them push harder for membership. Therefore, all else being equal, the GATT/WTO accession duration is expected to be shorter for a democratic regime.
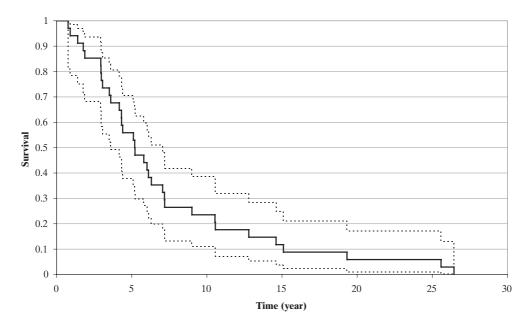
However, there are some arguments against the idea that democracy shortens GATT/WTO accession duration. For example, special interest groups in both democratic countries and non-democratic regimes may lobby against trade liberalization and hence lengthen their GATT/WTO accession duration (see, e.g. Feng, 2003). In addition, since rules of the GATT/WTO are designed for market economies, transition countries such as China and Russia that change from central planned economies to market economies are expected to take a longer time to accede to the WTO. Hence, it is unclear whether democracy or the rule of law itself is responsible for shorter accession duration. Some other underlying factors may exist that are correlated with democracy. Because of the relatively small number of observations of countries, we are not able to perfectly distinguish the effect of democracy from the correlated factors, although we have already controlled for many important factors that affect the nexus between democracy and the accession duration to the GATT/WTO. In any case, previous works do not provide a definite relationship between such a nexus and hence it remains an empirical question that we now turn to explore.

3. Empirical Specifications

We first conduct the Kaplan–Meier non-parametric analysis to investigate the effect of democracy on the GATT/WTO accession duration. Figure 2 plots the Kaplan–Meier estimates of the survival function. It shows that the median survival time (i.e. the accession duration) is 5.76 years. That is, 49% of the sample countries acceded to GATT/WTO after around six years with the 95% confidence interval between 35% and 62%.

To get a sense of how the political regime may affect the accession duration, we also compute the Kaplan–Meier estimates of the survival function by regime type, measured by the Przeworski et al.'s (1996) dichotomous democracy indicator. A regime is labeled as democratic if the government is selected in contested elections (the regime variable is coded as 0) and dictatorial otherwise (coded as 1). Because the indicator is available for years 1950–1990 only, the indicator values for the countries that acceded after 1990 are assumed to be the same as the latest available value, i.e. the value in 1990. This approximation using the latest available value appears reasonable when one takes a closer look at those countries acceding after 1990 since none of these new applicants have changed their democratic status.

Figure 3 plots the survival functions by democratic regime. It shows that countries with democratic regimes (*regime* = 0) seem to have shorter median accession durations (5.2 years) than do countries with non-democratic regimes (6.2 years). There is a statistically significant difference in the survival rates of the democratic and non-democratic regimes after the fifth year. From the third year to the fifth year, however, the survival rates for these two types of countries almost coincide. In the sixth year, about 30% of countries with democratic regimes have to continue negotiations, while 40% of the countries with non-democratic regimes have to do so. In the thirteenth

Figure 2. The Kaplan–Meier Survival Function for GATT/WTO Accession

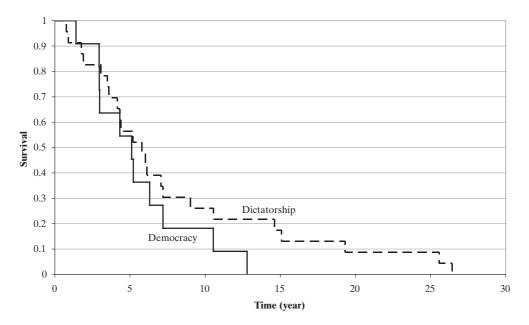*Note*: The dotted lines indicate the 95% confidence band.

Figure 3. The Kaplan–Meier Survival Functions, Stratified by Regime Types

Note: The regime type (dictatorship or democracy) is based on Przeworski et al.'s (1996) index, on the date the applicant acceded to GATT/WTO.

year, all applicants with democratic regimes completed their negotiations and become GATT/WTO members. However, the applicants with non-democratic regimes take up to 26 years to complete the accession negotiation. The standard errors are small for all periods (in the range of 0.01–0.08). Thus, the difference in GATT/WTO accession duration in terms of the level of democracy are statistically and economically significant.

Cox Proportional Hazard Estimates

To capture how democracy affects the GATT/WTO accession duration, it is necessary to control for other determinants. We therefore adopt the proportional hazard estimator introduced by Cox (1972). Aside from an applicant's level of democracy, other domestic and international factors are likely to affect the GATT/WTO's accession duration. To explicitly explore their influence on GATT/WTO accession, we need to control for these factors. The economy size of an applicant, which is usually measured by its gross domestic product (GDP), is one of the most important domestic economic factors for accession. Trade literature recognizes that a trading partner's size matters to trade flow (Feenstra, 2003). A large applicant has a strong demand for foreign goods, which would give it a favored place in world trade with member countries. Therefore, all else being equal, the existing members of the GATT/WTO could more welcome a larger economy to join the "club" to foster global free trade. To address this possibility, we include applicants' GDP in the estimations.

Next, an applicant's trade-openness ratio seems relevant to the GATT/WTO accession duration. States with a higher trade-openness ratio are eager to accede to GATT/

WTO to expand their access to foreign markets (Mansfield et al., 2002). They may experience longer accession duration than small trade-openness regimes because they will have to negotiate agreements on a larger variety of commodities and services with members.

Furthermore, an applicant's economic growth rate, which is measured by percentage change of GDP, may shorten its time spent in acceding to the GATT/WTO. As the engine of global economic growth, countries with high economic growth rate would be popular for the GATT/WTO members. This observation is clearer when countries suffer from global downturns in the business cycles. For example, Mattli (1999) discussed that, during the downturns in the business cycles, countries have more incentive to form and expand their international cooperative agreements.

In the same vein, the exchange rate regime could also affect GATT/WTO accession. The insecurity that is associated with a floating exchange rate regime acts as a hidden tax on imports (Klein and Shambaugh, 2004). By reducing uncertainty, having a fixed exchange rate regime could promote bilateral trade, *ceteris paribus*. We therefore expect that a fixed exchange rate regime may affect the accession duration as well.

In addition to the economic and political conditions within countries, other international factors have an influence on the accession duration to GATT/WTO. The size of GATT/WTO *per se* is most likely to affect the accession duration for an applicant. The larger the size of GATT/WTO, the larger the potential size of the working party. The larger the size of the working party, the more negotiations the applicant has to be involved with in its accession.

The nexus between the size of the GATT/WTO and accession duration for applicants is clearer when we review their accession process. After receiving an accession application letter from an applicant, members were invited to form a working party. The applicant is then requested by the working party to submit a memorandum covering all aspects of its trade and legal regime. Next, the working party begins multilateral negotiations that will determine the terms and conditions of entry for the applicant. These conditions are generally concessions and commitments on market access for goods and services by the applicant. The accession procedure has remained more or less the same after the formation of the WTO.[5]

Moreover, changes in GATT/WTO itself may also influence the accession duration. It is well known that accession to the WTO under Article XII is a much more complicated undertaking than accession to GATT 1947, largely because of the increased scope and coverage of the WTO agreements. Consequently, we expect any application that was initiated after 1995 or that spanned across 1995 would take longer to complete. In contrast, it is also possible that improved technology over time has facilitated communications among applicants and members, and consequently the time to reach a decision could be shorter in more recent years. Thus, the overall effect of application in the GATT era depends on which one dominates. To fully control for these factors, we therefore use a GATT application dummy to denote whether or not the application was filed before 1995. In addition, we also include a GATT accession dummy to identify whether or not the applicant has completed it accession to the GATT/WTO.

Last but not least, low-income countries are usually associated with inefficient domestic market conditions, which are far from the threshold of the GATT/WTO accession. All else being equal, less-developed countries are expected to spend more time to accede to the GATT/WTO. We therefore include the dummy of less-developed countries (LDCs) into estimations.

To summarize, besides applicants' democratization, factors such as their GDP, GDP growth rate, exchange rate regime, trade openness, number of existing members, dummy of application, dummy of accession and dummy for LDCs could affected GATT/WTO accession duration. To precisely identify the influence of democracy on the GATT/WTO accession duration, we therefore control for such factors in estimations.

4. Data and Measurement

Table 1 lists both the application date and the GATT/WTO accession duration of 48 countries that had formal negotiations.[6] The application date is taken as the date when the applicant communicated its accession intention to GATT. As mentioned above, such data are from the Stanford GATT digital library in which we also obtain the accession data on members who originally acceded to GATT before 1995. For countries who were acceded to the WTO after 1995, we instead obtain their accession data from the WTO website.[7] We measure the accession duration as the number of months between the date of application and the date of accession.[8] Table 2 presents summary statistics of the variables used in this paper. The accession duration for members who were engaged in formal negotiations is on average seven years with a standard deviation of 5.5 years. The shortest duration was for Bangladesh (0.77 years) and the longest was for the Republic of the Congo (26 years).

To measure the extent of democracy for an applicant, in the previous section we first used Przeworski et al.'s (1996) dichotomous index to conduct a non-parametric analysis. In addition to this index, the political science literature also suggests another three indices to measure a country's level of democracy (Feng, 2003): (1) the institutionalized democracy index from the *Polity IV* data set constructed by Gurr et al. (1990) and developed by Marshall and Jaggers (2004); (2) the Freedom House indicator, which assesses countries on two seven-point scales that measure their political rights and civil liberties, with *one* representing the highest degree of political rights and civil liberties and *seven* the lowest; and (3) the liberal democracy index created by Bollen (1998) to capture political liberties and democratic rule, ranging from 0 to 100 with a higher score indicating a higher level of political liberalization and democracy.

The *Polity IV* institutionalized democracy index appears to be the most widely accepted measurement of democracy (Eichengreen and Leblang, 2008; Yu, 2010). The index includes annual composite indicators measuring both institutionalized democracy and institutionalized autocracy for just about every independent regime with a population over 500,000. The political liberalization index is thus defined as the difference between the democracy indicator and the authoritarian indicator. Each indicator is an additive eleven-point scale (0–10) based on scale weights on the four factors: (1) competitiveness of political participation; (2) competitiveness of executive recruitment; (3) openness of executive recruitment; and (4) constraints on chief executive. Accordingly, the political liberalization index is scaled between –10 and 10, with –10 representing the lowest level of political liberalization. We therefore use the institutionalized *Polity IV* democracy index to perform both parametric and semi-parametric analysis. Finally, we substitute the Freedom House indicator for the institutionalized *Polity IV* democracy indicator to check the robustness with respect to the choice of democracy indicator. Note that here we do not use Bollen's (1998) political liberalization indicator since it covers only a short time span (1950–1990).

All other variables are standard in the trade literature and can be obtained from the World Development Indicator (WDI) CD-Rom (2007). The size of an applicant's

Table 1. GATT/WTO Accession Duration

Country	Application date	Duration (years)
Bangladesh	10-Oct-1972	0.767
Korea, Republic of	20-Sep-1966	0.900
Poland	22-Dec-1966	0.906
Venezuela	5-Jun-1989	1.406
Morocco	8-Mar-1985	1.775
Portugal	19-May-1960	1.881
Slovenia	9-Jun-1992	1.975
Kyrgyz Republic	13-Feb-1996	2.686
Israel	26-Mar-1959	2.942
Bolivia	24-Sep-1987	2.956
Japan	18-Jul-1952	2.978
Romania	22-Jul-1968	3.061
Ecuador	18-Sep-1992	3.508
Spain	21-May-1960	3.606
Georgia	1-Jun-1996	3.619
Hungary	9-Jul-1969	4.167
Guatemala	14-May-1987	4.322
El Salvador	24-Apr-1987	4.328
Thailand	26-Jun-1978	4.400
Oman	1-Apr-1996	4.439
Estonia	8-Mar-1994	5.097
Iceland	11-Dec-1963	5.111
Mongolia	17-Jun-1991	5.200
Costa Rica	5-Jul-1985	5.219
Latvia	8-Nov-1993	5.756
Panama	16-Aug-1991	5.806
Jordan	6-Jan-1994	6.014
Philippines	14-Feb-1973	6.119
Ireland	1-Nov-1961	6.308
Croatia	22-Sep-1993	6.939
Lithuania	1-Jan-1994	7.000
Argentina	21-Sep-1960	7.056
Mexico	19-Jan-1979	7.181
Honduras	30-Apr-1987	7.194
Yugoslavia	10-Oct-1958	7.708
Moldova	25-Nov-1993	7.919
Albania	12-Nov-1992	8.156
Chinese Taipei	29-Sep-1992	9.006
Former Yugoslav Republic of Macedonia	30-Nov-1994	9.094
Armenia	29-Nov-1993	9.267
Cambodia	1-Oct-1994	10.450
Switzerland	15-Sep-1956	10.544
Bulgaria	8-Sep-1986	10.564
Saudi Arabia	13-Jun-1993	12.744
Colombia	17-Dec-1968	12.794
Nepal	16-May-1989	14.603
China	10-Jul-1986	15.086
Paraguay	11-Nov-1974	19.319
Tunisia	2-Dec-1965	25.575
Democratic Republic of the Congo	21-Jan-1970	26.444

Sources: Data are from the WTO official website. See the detailed discussion in the paper.

Table 2. Summary of Statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
GATT/WTO duration				
Days	2,528.71	2,021	276	9,520
Months	84.29	67.38	9.2	317.33
Years	7.02	5.61	0.77	26.44
Log GDP (Initial Year)	23.63	1.61	20.66	28.90
GDP Growth Rate (Initial Year)	0.15	1.01	−0.02	7.08
No. of Existing Members	87.22	27.54	32	130
Exchange Rate Dummy	0.47	0.50	0	1
Trade Openness Ratio	0.12	0.18	0.01	0.93
Political Democracy	1.88	6.97	−10	10
Dummy of Application	0.51	0.51	0	1
Dummy of Accession	0.31	0.47	0	1
Dummy for LDC	0.82	0.28	0	1

Notes: The data source for each variable is described in the text.

economy is measured by the mean of both the purchasing power parity (PPP) adjusted GDP during the accession duration. The trade-openness ratio is measured by the sum of the applicant's exports and imports relative to the applicant's GDP in its application year. We also construct an exchange rate regime dummy that is coded 1 for countries with floating exchange rate regimes and 0 otherwise (i.e. fixed exchange rate regime).[9]

5. Empirical Results

Columns (1)–(8) of Table 3 report the results of the Cox proportional hazard estimates with different sets of explanatory variables. The results are presented in terms of hazard ratios. If the estimated coefficient of a variable is greater than zero, then a larger number of the variable is associated with shorter accession duration.

Column (1) clearly suggests that the more democratic regimes have higher hazard ratios of successfully completing the accession negotiation. A one-point increase in democracy for an applicant increases the elasticity of its hazard by 1.042 times over the baseline hazard. That is, a more democratic regime is associated with a shorter accession duration. To precisely explore the influence of democracy on the GATT/WTO accession duration, we also control for other domestic and international factors introduced in the previous section in the rest of specifications. The coefficients of the democracy variable are all positive and statistically significant at 5% level in all specifications. In addition, they appear quite stable across specifications. These results confirm our previous finding from the benchmark non-parametric estimation that an applicant with a democratic regime can shorten its GATT/WTO accession duration, *ceteris paribus*.

Aside from the level of democracy, the size of an applicant's economy is also relevant to the accession duration. Estimates in columns (2)–(8) of Table 3 suggest that applicants with larger economies are likely to take less time to accede to GATT/WTO. The economic rationale is that, for these large economy applicants, both the applicant and existing members have a stronger incentive to speed up the accession

Table 3. *Estimated Hazard Rate for the Cox Proportional Hazards Model*

Dependent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Democracy	1.042*	1.050**	1.062**	1.066**	1.069**	1.052*	1.049*	1.047*
	(1.68)	(2.01)	(2.19)	(2.34)	(2.43)	(1.92)	(1.83)	(1.71)
Log GDP		1.180*	1.252*	1.221*	1.206	1.138	1.162	1.147
		(1.78)	(1.95)	(1.71)	(1.60)	(1.09)	(1.22)	(1.08)
No. of Existing		1.003	1.004	1.003	1.001	1.020**	1.023	1.023**
Members		(0.45)	(0.67)	(0.44)	(0.17)	(2.04)	(1.14)	(2.08)
Trade Openness			-0.437	-0.267*	-0.242	-0.576	-0.667	-0.672
			(-0.87)	(-1.77)	(-1.25)	(-0.51)	(-0.37)	(-0.36)
GDP Growth Rate				1.346	1.421	1.325	1.219	1.223
				(1.44)	(1.62)	(1.34)	(0.85)	(0.86)
Exchange Rate Dummy					-0.768	-0.743	-0.739	-0.761
					(-0.82)	(-0.93)	(-0.94)	(-0.82)
Dummy of Application						-0.259**	-0.305**	-0.315**
						(-2.91)	(-2.44)	(-2.32)
Dummy of Accession							-0.651	-0.664
							(-0.83)	(-0.79)
Dummy for LDC								-0.782
								(-0.36)
Prob > χ^2	0.086	0.114	0.148	0.129	0.162	0.014	0.019	0.031

Notes: There are 48 observations in each estimation. **, *, Indicate significance at 1% and 5% levels, respectively. Numbers in parentheses are *t* values. For survival analysis, the *t*-value is negative when the coefficient of the hazard ratio is less than 1.

process so that everyone can share the potential gains from trading with the new member. However, once we include exchange rate regime in the estimations, as shown in columns (5)–(8), the coefficient of the size of an economy is no longer significant at 5% level. The negative, though insignificant, coefficients of the exchange rate dummy suggest that applicants with floating exchange rate regimes experience a longer time to accede to the GATT/WTO. This finding, to some extent, underlines our previous argument that the fixed exchange rate regime could serve as a channel to promote international trade by reducing uncertainty.

Moreover, as shown in all the specifications, the greater the number of existing members, the less time the applicant spends on negotiations. This finding suggests that the improved technology in communication across existing members considerably shortens the GATT/WTO accession duration. Such an effect dominates the opposite lengthy effects from the incremental size of the GATT/WTO. Turning to the role of an applicant's trade openness, estimates in all specifications suggest that countries with a high openness ratio suffered from long negotiations, although this finding was insignificant at the conventional statistical level. Similarly, countries with a fast economic growth rate seem to have a shorter duration to GATT/WTO accession.

We further considered whether the accession duration has lengthened owing to the formation of WTO in 1995. To examine this, we include two additional dummy variables, for applications and for accession before 1995, reported in columns (7) and (8), respectively, of Table 3. The hazard ratio for the application dummy is significantly negative, which suggests that it took countries that applied before 1995 more time to accede to GATT/WTO. Finally, we included a dummy for less-developed countries in specification (8) but found that it is insignificant.

Finally, we checked the robustness of our findings by estimating several alternative popular survival analysis modeling strategies. Table 4 reports additional estimation results from the Weibull proportional hazard model, the piece-wise constant hazard exponential model and the logistic discrete model. For ease of comparison, we also include in Table 4 results from the Cox proportional hazard model presented earlier.

Estimates in Table 4 show little variation of the estimates of applicants' democratization across different models. The estimate of democratization in the Weibull and logistic discrete models is approximately 2% and 1% higher respectively in absolute value than that in the Cox PH model, whereas it is 1% lower in the PCE model. This suggests that the estimation results obtained from the four models are qualitatively similar and quantitatively close. The progress to and level of democracy can shorten the time duration to accede to the GATT/WTO.

We also checked the robustness of our democracy measure by replacing the *Polity IV* indicator with the Freedom House indicator. The level of democracy is measured by taking the average of the ratings for political rights and civil liberties in a range of 0–7, with a higher score indicating less democracy. The democracy indicator from Freedom House is based on two attributes: whether elections are held fairly, freely and competitively, and whether opposition parties exist and play a significant role in balance and checks.

Table 5 shows the estimation results of various parametric and semi-parametric regressions using the Freedom House data set. All estimations suggest that the higher the Freedom House index (i.e. less democratic), the longer it takes to accede to GATT/WTO. In particular, the coefficients of the democracy index are significant at the 5% level in both the Weibull estimation and the discrete logistic estimation.

Table 4. Estimation Results by Different Survival Models

Dependent variables	Cox	Weibull	PCE	Logistic discreet
Democracy	1.047*	1.063**	1.038	1.053**
	(1.71)	(2.32)	(1.45)	(2.13)
Log GDP	1.147	1.238*	1.119	1.172
	(1.08)	(1.74)	(0.90)	(1.23)
No. of Existing Members	1.023**	1.025**	1.020*	1.022**
	(2.08)	(2.20)	(1.88)	(2.10)
Trade Openness Ratio	−0.672	−0.520	−0.733	1.343
	(−0.36)	(−0.60)	(−0.28)	(0.28)
GDP Growth Rate	1.223	1.135	1.116	−0.755
	(0.86)	(0.55)	(0.48)	(−0.75)
Exchange Rate Dummy	−0.761	−0.820	−0.810	1.057
	(−0.82)	(−0.60)	(−0.65)	(0.16)
Dummy of Application	−0.315**	−0.366**	−0.378**	−0.393*
	(−2.32)	(−2.09)	(−0.24)	(−1.82)
Dummy of Accession	−0.664	−0.631	−0.630	−0.630
	(−0.79)	(−0.91)	(−0.92)	(−0.91)
Dummy for LDC	−0.782	−0.887	−0.927	−0.969
	(−0.36)	(−0.19)	(−0.13)	(−0.05)
ln (time) Base Hazard				1.166
				(0.75)
Prob > χ^2	0.031	0.013	0.070	0.144
Number of observations	48	48	94	344

Notes: **,* Indicates significance at 1% and 5% level, respectively. Numbers in parenthesis are *t*-values, respectively. In survival analysis, the *t*-value is negative when the coefficient of the hazard ratio is less than 1.

The estimation results for other variables are also very close to their counterparts in Table 3.

In a nutshell, our results are robust with respect to the choice of different econometric methods, model specifications and measures of democracy. All our estimation results suggest that more democratic applicants spend less time in gaining accession to GATT/WTO, *ceteris paribus*.

6. Concluding Remarks

While accession to GATT/WTO has been a much discussed topic, it is surprising that very few studies, if any, have examined accession duration. Our study reveals that the level of democracy of an applicant can strongly affect its GATT/WTO accession duration. Leaders in democratic states have a greater incentive to join the GATT/WTO than do their non-democratic counterpart. In addition, democratic countries usually have a relatively fair, free and competitive domestic market, which makes it easier for them to be accepted by the existing members in GATT/WTO. We find that, other things being equal, the GATT/WTO accession duration is likely to be shorter for an applicant whose political regime is more democratic. Meanwhile, countries that initiated applications before 1995 took longer to accede to GATT than those that initiated applications after 1995. The GATT/WTO accession time is shorter for large

Table 5. Estimation Results Using Freedom House Data

Dependent variables	Cox	Weibull	PCE	Logistic discreet
Democracy	−0.718	−0.711*	−0.783	−0.797**
	(−1.58)	(−1.64)	(−1.62)	(−2.06)
Log GDP	−0.847	−0.984	−0.977	1.189
	(−0.81)	(−0.09)	(−0.41)	(1.29)
No. of Existing Members	1.047**	1.047**	1.041**	1.021**
	(2.77)	(2.77)	(2.51)	(1.99)
Trade Openness	3.870	18.050	9.581	1.221
	(0.34)	(0.73)	(0.60)	(0.18)
GDP Growth Rate	67942	161.243	32.382	0.743
	(0.51)	(0.23)	(0.17)	(−0.81)
Exchange Rate Dummy	−0.824	1.068	1.024	1.018
	(−0.47)	(0.16)	(0.06)	(0.05)
Dummy of Application	−0.142**	−0.166**	−0.214**	−0.458
	(−2.38)	(−2.40)	(−2.30)	(−1.50)
Dummy of Accession	−0.541	−0.599	−0.515	−0.677
	(−0.86)	(−0.74)	(−1.03)	(−0.76)
Dummy for LDC	−0.227*	−0.324	−0.331	1.101
	(−1.66)	(−1.54)	(−1.60)	(0.15)
Prob > χ^2	0.076	0.026	0.000	0.05

Notes: There are 33 observations in each estimation. **,* Indicate significance at 1% and 5% level, respectively. Numbers in parentheses are *t*-values. In survival analysis, the *t*-value is negative when the coefficient of the hazard ratio is less than 1.

economies. Such findings are robust with respect to the choice of different econometric methods, model specifications and measures of democracy.

Our study sheds light on the role of a GATT/WTO member's institutional quality on its accession duration. It thus enriches our understanding of the international political economy of trade, especially of the GATT/WTO accession. Theoretical works like that by Bagwell and Staiger (1999) show how the WTO's framework of multilateral trade negotiations helps its members realize gains from trade. Yet, empirical evidence has not been conclusive. Most related works focus on whether or not GATT/WTO increases trade flow (Rose, 2004; Subramanian and Wei, 2007). Very few studies, if any, explore the accession duration itself and its intrinsic mechanism and determinants. Our work suggests that democracy is a potent impetus to the probability of being a member of the GATT/WTO, although it is not only determinant.

Previous works have recognized that the WTO accession was helpful to foster China's economic growth (see, e.g. Li and Zhang, 2003; Ching et al., 2011). Our main finding in the present paper particularly helps us understand why it took China, a country with the fastest economy growth rate since 1979, a very long time (i.e. 15 years) to accepted into the WTO. Our results suggest that some common reasons for its long march to join the WTO are, to some extent, misleading. The long accession duration was not because China was a large economy and international negotiations were more complicated, nor was it because the greater number of GATT/WTO members caused longer negotiations. The most likely reason appears to be that China's political regime is different from that of most existing members of the WTO, which makes it more difficult for them to accept China. In this manner, our

finding is consistent with some previous works such as Reich (1998) and Pevehouse (2005). It is possible that democratic countries, which tend to participate more in international organizations, may require the applicant country to democratize before approving its accession.

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Notes

1. These countries are Afghanistan, Algeria, Andorra, Azerbaijan, the Bahamas, Belarus, Bhutan, Bosnia and Herzegovina, Comoros, Equatorial Guinea, Ethiopia, Holy See, Iran, Iraq, Kazakhstan, the Lao People's Democratic Republic, the Lebanese Republic, Libyan Arab Jamahiriya, San Tome and Principe, Serbia, Seychelles, Sudan, Uzbekistan, and Yemen.
2. Note there are 10 countries that acceded to the WTO after 2005 (i.e. Vietnam, Tonga, Ukraine, Cape Verde, Montenegro, Samoa, Russian Federation, Vanuatu, Laos and Tajikistan) which are not included in the estimations since their application dates are unavailable. We thank a referee for pointing this out.
3. In particular, authoritarian regimes tend to be more corrupt, usually resulting in relatively distorted markets and weak regulations (Lin, 2003).
4. Reich (1998, p. 762) emphasized political concerns have played a significant role in the cases of China and Taiwan. The issue of human rights and democratization has also played a role in China–Taiwan's accession debate. Some members of Congress argue that the USA should reward Taiwan's recent democratization by supporting its immediate accession to the WTO.
5. Not all countries/customs regions have to go through this accession procedure. Some countries acceded to GATT without negotiations because they were connected with GATT/WTO member countries and the GATT rules were applied on a *de facto* basis. For example, Hong Kong acceded to GATT in 1986 without negotiation because it was a colony of the UK, a founding member of GATT.
6. Note that around one-third of such countries are transitional economies that have been changing from a centrally planned economy to a free market. The 15 countries are Albania, Armenia, Bulgaria, China, Croatia, Estonia, Georgia, Hungary, Kyrgyz, Latvia, Lithuania, Macedonia, Moldova, Poland, and Slovenia. We thank a referee for pointing this out.
7. See http://www.wto.org/english/thewto_e/acc_e/completeacc_e.htm.
8. We do not include members who did not engage in formal negotiations since our focus is on examining the determinants of accession duration.

9. There are eight types of exchange rate regimes as follows: (1) exchange arrangements with no separate legal tender (e.g. El Salvador); (2) currency board arrangements (e.g. Estonia); (3) other conventional fixed peg arrangements (e.g. Saudi Arabia); (4) pegged exchange rate within horizontal bands (e.g. Hungary); (5) crawling pegs (e.g. Costa Rica); (6) exchange rates within crawling bands (e.g. Romania); (7) managed floating with no predetermined path for the exchange rate (e.g. Croatia); and (8) independent floating (e.g. Colombia). We label the last one as a floating exchange rate regime because governments, to some extent, are likely to control the exchange rate movements under all other exchange rate regimes.