

The Political Economy of Compliance in WTO Disputes

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Abstract

This paper analyzes the World Trade Organization's (WTO) success at bringing about compliance with the international rules of trade through its Dispute Settlement Understanding. Focusing on what happens after a WTO dispute has been arbitrated, we try to explain whether, when, and why respondents modify their trade practices once dispute panel or Appellate Body reports find in favor of complainants. We advance the argument that delays in policy change toward WTO-consistent trade practices depends on the relative political weight of domestic special interests benefiting from the trade policy status quo. Delays in the implementation of WTO-recommended policies are a consequence of opportunistic governments trying to maximize their political support function by providing influential economic sectors with continued non-compliance. Using binary response and duration models, we analyze decisions to comply in due time and the time-to-compliance with almost 100 adopted dispute panel and Appellate Body reports adopted between 1995 and 2008 and requiring respondents to modify their trade practices. The results provide strong empirical support for our theoretical argument.

Keywords: World Trade Organization, Dispute Settlement Understanding, compliance, domestic politics

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In May 2009, the European Commission and the United States signed a provisional agreement that provides a temporary reprieve in their long-standing WTO dispute (DS26, DS48) over the European Union's ban on imports of hormone-treated meat and meat products. Although this case was initiated back in 1996, a dispute panel found against the European Union in 1997, and the Appellate Body upheld the bulk of the original panel findings in 1998, the European Union still has not implemented the recommendations outlined in the dispute panel and Appellate Body reports after all these years. The provisional agreement, which provides duty-free imports of hormone-free beef into the European Union in return for the U.S. not imposing retaliatory duties on French cheese, Spanish ham, Italian mineral water, and other European imports, only avoids the further escalation of the dispute for the time being. After all, the European Union has remained non-compliant with the terms of the panel and Appellate Body report adopted by the WTO's Dispute Settlement Body (DSB) for over a decade. But what explains the persistent non-compliance of the European Union, or for that matter, the non-compliance of any WTO member, who 'lost' its cases in the regime's dispute settlement process?

The *Understanding on Rules and Procedures Governing the Settlement of Disputes*, known as the Dispute Settlement Understanding (DSU) of the World Trade Organization, is arguably one of the signal achievements of the Uruguay Round. It created a highly legalized institutional mechanism for the settling of trade disputes between members of the new global trade regime that succeeded the General Agreement on Tariffs and Trade (GATT) (Guzman and Simmons 2002; Jackson 2001; Cameron and Campbell 1998). Various scholars have argued that the DSU

has redressed many of the GATT's weaknesses in resolving trade disputes, most notably by providing for "the guaranteed right to a panel" (Grinols and Perrelli 2002: 338). While any of the disputing parties could veto the formation of a dispute panel or the adoption of a panel report following arbitration under the GATT system, disputing parties now have the right to request a panel following the failure of consultations (Young 1995; Jackson 2000, 1998; Bello and Holmer 1998). As well as providing institutional arrangements for the arbitration of disputes, the DSU also includes provisions for the monitoring of respondent parties' progress towards compliance with the terms of panel or Appellate Body report adopted by the WTO's Dispute Settlement Body, which consists of all WTO members.

Scholarship on the WTO's distinctive dispute settlement process has devoted much attention to its legal aspects, the (dis)advantages of developing countries in utilizing the mechanism, and a growing body of literature has identified political and economic factors associated with the initiation, escalation, and the outcomes of WTO disputes. Studies on the initiation of WTO disputes, for example, have found strong support for prior experience in trade adjudication, whether as a complainant or respondent, as a determining factor (Davis and Bermeo 2009). At the same time, these studies have yielded divergent findings for the impact of power and capacity, centered on the effect of gross domestic product (GDP) per capita as the key indicator (Horn, Mavroidis and Nordström 1999; Reinhardt 2000; Guzman and Simmons 2005).¹ Other studies focused on the factors affecting the 'early settlement' or escalation of disputes from initial consultations to the formal panel stage (Busch and Reinhardt 2001, 2002, 2003). More recently, Busch and Reinhardt (2006) found, for example, that the participation of third-parties increases the likelihood that WTO disputes will escalate to the formal panel stage.

While insights from this literature have informed more recent studies on the factors determining the duration (Grinols and Perrelli 2006) as well as the economic outcomes of disputes (Brown 2004),² surprisingly little attention has been directed to the compliance stage of the dispute settlement process (Iida 2008). A recent case study by Wilson (2007) of compliance records for the U.S. and the European Union and an earlier study by Busch and Reinhardt (2002) on the level of concessions by the respondent in U.S.-European Union WTO disputes have been the exceptions that prove the rule. While Wilson (2007) findings point to generally high rates of compliance, Busch and Reinhardt (2002) find that higher concessions are associated with the ‘new’ issues of the WTO, such as intellectual property and services, but little difference between the WTO and the GATT in successfully resolving other types of disputes. Beyond these studies on the U.S. and the European Union, little is known about what happens following the arbitration of disputes, i.e., once panel or Appellate Body reports are adopted and cases move on to the implementation of panel recommendations. While we know that countries found in violation of WTO agreements must report to the DSB about the actions they have taken to comply with panel recommendations, there are no systematic studies of why these countries sometimes fail to comply in due time and of the substantial variation in the time it takes these countries to successfully implement panel recommendations.

The scant scholarly attention devoted to compliance in WTO disputes is puzzling. Not only are prominent cases, like the one on beef hormones mentioned above, under intense public scrutiny, but they also challenge the WTO’s enforcement function, institutional effectiveness, and even legitimacy and reputation. The lack of attention in existing scholarship and the evident importance of the compliance stage as part of the WTO’s dispute settlement process motivate our interest in this topic and this paper’s major research question: what are the causal factors

determining compliance on the part of respondent countries that lost its case? We address the question of why respondents comply with WTO dispute settlements and, in doing so, redress the gap in the current literature and attend to the broader implications for the success of the WTO in enforcing its rules in the face of identified transgressions. We do so by analyzing WTO disputes in the years 1995-2008, in which the panel or Appellate Body reports adopted by the WTO's DSB find against the respondent. The paper advances the argument that the relative political importance of the domestic economic sectors at the center of and affected by particular WTO disputes is key to understanding why opportunistic governments provide extended periods of non-compliance, or protection, to some of these sectors. Survival-maximizing governments take the relative political importance of these economic sectors into consideration when deciding on whether and when to comply. We test this claim by estimating the effects of relative employment in and the GDP share of the economic sectors that are relevant to a WTO dispute on the respondent's decision to comply and the 'survival' of non-compliance. Using duration and binary response models, we analyze the length of time it takes for the required policy and regulatory changes to be implemented in respondent countries and whether this change takes place within the deadline set out in the dispute settlement process.

Immediately below, we briefly discuss the compliance proceedings that are specified in the DSU before presenting our main theoretical argument against the background of the prevailing theoretical approaches to compliance in the international relations literature. In the empirical section of our manuscript, we describe our data, operationalize the response variables and covariates, briefly discuss our estimation approaches, and present empirical findings that strongly support our theoretical claim about the domestic politics of compliance in WTO disputes even when controlling for other political and economic factors and WTO-dispute

attributes. We conclude with an outlook on avenues for future research on compliance in the context of the WTO and other international institutions.

Restoring Compliance in WTO Disputes

The compliance proceedings under the DSU, which follow the circulation and adoption of a dispute panel or Appellate Body report, can involve multiple steps.³ It starts out with a statement to the DSB by the respondent that lost the case, in which the country expresses its intention to implement the recommendations of the adopted report within 30 days. If immediate compliance is not practicable, a ‘reasonable period of time’ can be designated, at the end of which the respondent must demonstrate that it has implemented the required changes so that the trade measures at issue in the dispute are now WTO-consistent. According to DSU Articles 21.4, this reasonable period of time for implementation shall not exceed 15 months beyond the adoption of the dispute panel or Appellate Body report and may be determined through a proposal by the respondent and agreement by the DSB, mutual agreement between the disputing parties, or arbitration. The report that the respondent submits to the DSB at the end of the reasonable period of time contains detailed information on the changes to the particular policies, which had to be brought (back) into compliance with WTO provisions, and the dates, on which these changes were implemented.

Compliance is considered to be restored if the respondent’s report is accepted by the complainant country.⁴ However, if the respondent fails to report compliance or if the report is contested, the compliance proceedings move on. The next step of the proceedings consists of negotiations for the compensation of the complainant. If the respondent fails to report compliance at the end of the reasonable period of time, DSU Article 22.2 provides for the

respondent to enter into negotiations with the complainant to determine a mutually acceptable compensation, such as tariff reductions in a particular sector that is of interest to the complainant country. In cases where the complainant contests the respondent's report, DSU Article 21.5 provides the complainant with the right to request that a compliance panel be formed. More specifically, the case may be referred to the original panel for the evaluation of the reported implementation of the recommendations by the adopted report dispute panel or Appellate Body report, i.e., for an assessment of the respondent's changes to the trade policy measures in question.

At this point, if compliance still fails to be established or if the disputing countries cannot mutually agree on the level of compensation for the complainant within 20 days, the complainant may request the DSB to authorize retaliatory measures. Under DSU Article 22, the DSB is required to authorize the complainant to suspend concessions or obligations equivalent to the amount of trade that is affected by the respondent's trade measures at issue within 30 days following the expiration of the reasonable period of time, unless opposed by consensus.

As in earlier stages of the WTO's dispute settlement process, compliance may be brought about during any part of the compliance stage through mutually agreed solutions among the dispute participants. That is, the disputing parties can agree at any step during the compliance proceedings to extend the reasonable period of time for the implementation of dispute panel or Appellate Body report recommendations or to lower the degree of change that satisfies the complainant that compliance is indeed established or restored. The recent developments in the U.S.-EU beef hormone dispute is an example of such a, though provisional, mutually agreed solution. While it does not ultimately resolve the issue, it bypasses a more formal compliance

ruling for the time being. Though inactive, the case remains on the DSB's agenda for further monitoring of the European Union's implementation activities.

Why Comply?

In the compliance stage of the WTO's dispute settlement process, what explains whether WTO member states implement the recommendations of a dispute panel or Appellate Body report in due time and how long it takes from the adoption of a report to compliance? To answer these questions, we bring to bear insights of the prevalent International Relations approaches to compliance and develop our own argument about the impact of domestic politics on the decision to comply and the duration of non-compliance with WTO dispute panel and Appellate Body findings. Drawing on theoretical work on the political economy of regulation and protection (Stigler 1971; Grossman and Helpman 1994), we pay particular attention to the relative political importance of specific economic sectors to the compliance calculus of opportunistic governments. However, before presenting our own argument, we take a brief look at the four theoretical camps that dominate the international relations literature on compliance.

The enforcement approach assumes that countries intentionally choose to violate international norms and rules because of the net costs of compliance. Therefore, supporters of the enforcement approach argue that non-compliance can only be prevented or overcome by increasing its material and reputational costs (Martin 1992; Downs et al. 1996; Dorn and Fulton 1997). Increasing external constraints by establishing and strengthening the institutionalized monitoring, sanctioning, and adjudication mechanisms of international regimes and organizations can help with altering the cost-benefit calculations of states. While the likelihood of being detected and punished increases the anticipated costs of non-compliance (Martin 1992;

Fearon 1998), political and economic power can significantly mitigate the extent to which countries are affected by and sensitive to such costs (Garrett et al. 1998; Horne and Cutlip 2002). Following the argument of Keohane and Nye (1977) on power and interdependence, countries are most sensitive if they lack political or economic power and are dependent on future goodwill and cooperation of others. Hence, less powerful WTO member states are more likely to comply swiftly with dispute panel and Appellate Body findings as they are more sensitive to the material and immaterial sanctions such as the loss of reputation or the retaliatory suspension of concessions or obligations by complainants.

Unlike the enforcement approach, the management school of thought assumes that non-compliance is not intentional and the consequence of cost-benefit calculations, but happens inadvertently or is caused by a lack of capacity and domestic institutional constraints. Even countries that are willing to comply may be prevented from doing so if the capacity to comply is absent (Chayes and Chayes 1993; Young 1994; Weiss Brown and Jacobsen 1998). However, what constitutes capacity is somewhat contested. The literature does not uniformly specify it and its operationalizations differ substantially. Resource-centered approaches define capacity as a state's ability to act, i.e., the sum of its financial, military, and human resources, but also the ability to pool and coordinate these resources and to mobilize and channel them into the compliance process (cf. Przeworski 1990; Simmons 1998; Guzman and Simmons 2005). Neo-institutionalist approaches, in contrast, argue that the domestic institutional structure influences the degree of a state's capacity to act and its autonomy to make decisions. For instance, veto players can block the implementation of international rules and reduce the capacity of a state to make the necessary changes to the status quo (Alesina and Rosenthal 1995; Tsebelis 2002; Putnam 1988). In addition to lacking capacity, (continued) non-compliance can also be a

consequence of imprecisely defined obligations and implementation timetables that do not provide enough time for the necessary policy changes. Hence, less developed WTO member states and those with elaborate systems of checks and balances cannot be expected to swiftly comply with dispute panel and Appellate Body recommendations. However, a longer time-to-compliance can also be due to dispute panel and Appellate Body reports lacking precise instructions about which policies and how policies need to be changed in order to establish compliance. Last, but not least, if the reasonable periods of time given to respondents for the implementation of dispute panel or Appellate Body report recommendations are only reasonable by name, it cannot come as a surprise if compliance deadlines are missed.

Sociological and constructivist authors form a third theoretical camp. This camp stresses legitimacy, socialization, and norm internalization through processes of social learning and persuasion as the major explanatory factors of non-compliance with international rules and regulations such as the provisions of the different GATT and WTO agreements (Finnemore and Sikkink 1998, 2001; Checkel 2001). WTO member states comply with dispute panel and Appellate Body recommendations because it is the appropriate thing to do and because they want to be perceived as cooperative actors with a reputation for compliance.

Finally, the legalization approach focuses on obligation, delegation, and precision as the core explanatory variables of compliance with international law (Keohane et al. 2000). However, how exactly these variables affect compliance is somewhat controversial as most authors of the legalization approach agree on the “contingency of legalization’s effect on compliance” (Kahler 2000: 673). On the one hand, empirical studies on international monetary affairs point to a positive effect of legalized commitments on compliance (Simmons 2000). On the other, research on compliance with international human rights suggests that more legalization can bring about

lower levels of compliance (Lutz and Sikkink 2000). Hence, no clear predictions can be made about the effects of obligation, delegation, and precision on compliance with international trade rules by WTO members. In addition, while the WTO's DSU features a higher degree of legalization than its predecessor, i.e., the GATT's dispute settlement system, obligation, delegation, and precision do not systematically vary across disputes and, therefore, cannot explain the observed variation in member states' decisions to comply with the recommendations of dispute panel and Appellate Body reports and the time it takes them to comply.

The Political Economy of Compliance

While we do not dispute that enforcement has an effect on countries' behavior and that lacking capacity can constrain the efforts of WTO members to comply with dispute panel and Appellate Body recommendations, we draw on domestic actors to explain countries' decisions to comply and the variation in time-to-compliance across WTO disputes. More specifically, we argue that decisions about compliance are centralized in the hands of a reelection-minded government. In line with the standard political economy literature (Persson and Tabellini 2002; Drazen 2000), we assume that politicians are primarily interested in winning the next election and less worried about later repercussions (Alesina and Tabellini 2004) and, therefore, open to influence by organized interest groups that can provide campaign contributions and votes, which politicians need to succeed in upcoming elections (Stigler 1971; Olson 1965; Grossman and Helpman 1994). In exchange for votes and contributions, governments act as the suppliers of such protectionist policies as prolonged violations of WTO obligations.

When it comes to deciding on whether or not to change WTO-inconsistent trade practices, governments weight the costs and benefits of such actions. In their effort to maximize total votes

and contributions, they have to decide on when to provide which group with what policy. After all, not all domestic interest groups are interested in protectionism and violations of WTO provisions. Based on a simple model of sectoral trade policy preferences, it is safe to assume that governments face both import-competing and export-oriented sectors (Hiscox 2002). In fact, the GATT and WTO has succeeded at creating an upward spiral towards ever freer trade exactly by mobilizing pro-free trade groups. The principle of reciprocity, which links tariff reductions in one country to reductions in others, provides export-oriented sectors with incentives to organize and to counter-balance the rent-seeking activities of their import-competing counterparts. In addition, this principle now forms part of the WTO's DSU. By allowing complainants to retaliate against intractable respondents with countervailing measures, the threat of suspension and the actual suspension of concessions or obligations equivalent to the amount of trade that is affected by the respondent's trade measures can turn export-oriented sectors into 'agents of change' or 'compliance constituencies' (Kahler 2000) for the implementation of dispute panel or Appellate Body report recommendations.

In essence, governments find themselves on the other side of a common agency problem where the different groups as principals simultaneously and independently attempt to influence the government as their common agent (Bernheim and Whinston 1986). While the equilibrium of such a situation is "a set of contribution schedules such that each lobby's schedule maximizes the aggregate utility of the lobby's members, taking as given the schedules of the other lobby groups" (Grossman and Helpman 1994: 836), how much each group actually gets depends on its relative political importance to the government. As politicians ultimately set policies according to their own welfare concerns, the economic sectors benefitting from violations of WTO provisions must carry enough relative political weight vis-à-vis the sectors that oppose non-

compliance. Otherwise, opportunistic governments have, in their efforts to maximize their political support function, no incentives to let the reasonable period of time provided under DSU Article 22.2 to expire without implementing the policy changes required by dispute panel and Appellate Body report and making the trade measures at issue in the dispute WTO-consistent.

From this discussion we can derive the hypothesis that the survival-maximizing governments of WTO members will only be responsive to the domestic interest groups that benefit from non-compliance if these groups wield enough relative political strength. Governments only privilege economic sectors and translate their policy preferences for protection into persistent non-compliance and resistance against the compliance pressures resulting from unfavorable dispute panel and Appellate Body rulings, if these sectors can provide them with relatively more votes and contributions than other groups (Marvel and Ray 1983). As we operationalize an economic sector's ability to provide opportunistic politicians with votes and contributions, i.e., its political influence or weight, by its employment as a percentage of total employment and its share of total GDP in the following empirical section of our paper, we expect to find the following: *the larger the relative employment and GDP of the sector at the center of and affected by a particular dispute in the respondent WTO member, the less likely it is that the respondent implements the recommendations of a dispute panel or Appellate Body report in due time and the longer it take from the adoption of a report to compliance.*

Research Design

After a general description of our data and data collection effort and the operationalization of our response variables and covariates,⁵ we test our hypothesis on the effects of domestic

politics on compliance in WTO disputes. For that, we estimate several binary response and duration models. These models analyze, on the one hand, the decisions of respondents to implement dispute panel and Appellate Body recommendations in due time and, on the other hand, the duration of non-compliance. The duration models look at how many days violations survive until they finally die, i.e., how long it takes from the adoption of a dispute panel or Appellate Body report to compliance by the respondent. In essence, we estimate with our duration models whether the included covariates make an early ‘death’ or ‘failure’ of non-compliance more probable or not.

Data

In order to address our main research question on the determinants of compliance in WTO disputes, we compiled a dataset of WTO dispute cases, in which the DSB adopted a panel report or, in cases where participants appealed the report’s findings, an Appellate Body report that upholds the findings of the earlier dispute panel. In contrast to several existing studies (Horn, Mavroidis and Nordström 1999; Busch and Reinhardt 2003; Guzman and Simmons 2005), we opted for the dispute as our unit of analysis rather than the multiple dyads that comprise an individual dispute. Though disputes are initiated by different parties at different times, once a dispute moves on to the compliance stage, the timeline applies uniformly to all disputing parties. That is, the date of the adoption of a dispute panel or Appellate Body report is the same for all parties involved, as is the deadline for reporting compliance. Thus, rather than artificially inflating our data by counting all disputing dyads with the same timeline individually, we opted for the disputes themselves as our unit of analysis. Our dataset consists of 91 disputes, in which the dispute panel or Appellate Body found against the respondent and the DSB adopted a report

between 1995 and 2008.⁶ That is, the dataset only included disputes, in which the respondent country lost the case.

Response Variables

In our analyses, we use two different response variables. Our primary response variable *Time-to-Compliance* measures the length of time in days that elapsed between the date, on which the panel or Appellate Body report is adopted by the DSB, and the date, at which compliance is restored. The secondary response variable *In-Time-Compliance* is a binary variable that only measures whether or not the respondent complied within the reasonable period of time provided to it under DSU Article 22.2, i.e., whether the country implemented the recommendations of a dispute panel or Appellate Body report in due time (0) or not (1).

The compliance date is typically based on the date provided by the respondent in its compliance report. However, a respondent's claims that trade measures were withdrawn or modified in accordance with panel or Appellate Body reports can be contested. Where this is the case, the complainant has recourse to a compliance panel and additional arbitration procedures under DSU provisions. In particularly intractable cases, the complainant may also request authorization for retaliatory countervailing measures. Variation in the time-to-compliance, therefore, is marked by complainants' requests for compliance panels, by disputing parties' requests for arbitration regarding the determination of the reasonable period of time for the implementation of dispute panel or Appellate Body recommendations, and requests for the suspension of concessions as well as appeals at every step of the compliance process. In cases, where compliance is contested and the compliance panel, often composed of members of the panel that delivered the original findings in the dispute, finds once again against the respondent,

the date of compliance is recorded as that of the subsequent additional report from the respondent on its actions regarding the trade measure in question. These proceedings are considered to have ended and compliance restored when this additional report is uncontested by the complainant.

If no subsequent compliance date exists, our time-to-compliance variable is right-censored. That is, if compliance was not established by December 31, 2008, non-compliance is considered to be ongoing and the respective disputes are coded accordingly for our empirical analyses. Overall, 17 disputes fall into the censored category. As of December 31, 2008, non-compliance has been ongoing for almost 2000 days or more than five years on average in these cases. By contrast, the mean time-to-compliance in cases where non-compliance fails is only about 400 days or little more than one year. With respect to our secondary response variable, it is interesting to note that in 63.2% of the cases respondents implement the dispute panel or Appellate Body recommendations in due time and their compliance reports remain uncontested.

Some of the most prominent WTO disputes are also the cases where the respondents held out the longest before ceding defeat or are still refusing to comply. For instance, it took the United States almost four years to comply in the *Softwood Lumber from Canada* (DS236) and *Hot-Rolled Steel Products from Japan* (DS184) cases. However, non-compliance finally came to an end in those two cases. The same cannot be said about the famous *Regime for the Importation, Sale and Distribution of Bananas* (DS27) case or the repeatedly mentioned beef hormone case, in both of which the European Union have infringed on its WTO commitments for more than a decade to date. Positive examples for cases with particularly short times-to-compliance are the disputes on U.S. *Restrictions on Imports of Cotton and Man-made Fiber Underwear* (DS24), *Measures Affecting Imports of Woven Wool Shirts and Blouses from India*

(DS33), *Transitional Safeguard Measure on Combed Cotton Yarn from Pakistan* (DS192), and Guatemala's *Anti-Dumping Measures on Grey Portland Cement from Mexico* (DS156). In all these cases, uncontested compliance reports were filed by the complainants within less than a month after dispute panel reports had been adopted by the DSB and well within the reasonable period of time.

Covariates

To test our theoretical argument on the political economy of compliance in WTO disputes, we include *Sector Employment* as our main covariate of interest. It measures the employment in the economic sector at the center of the WTO dispute as a percentage of the respondent country's total employment. A sector's relative employment is a proxy measure for political importance as we assume that survival maximizing governments care more about the special interests of economic sectors with relatively many employees and potential voters than the interests of marginal sectors. Hence, higher employment in a sector should go hand in hand with intractable behavior by WTO dispute respondents, i.e., no *In-Time-Compliance* and longer *Time-to-Compliance*. As an alternative measure of political importance, we use *Sector GDP*, which is the value added by a sector as a percent of a country's GDP. While we do not expect *Sector GDP* to be as good an indicator of political importance as *Sector Employment*, we should still find a significant and negative relation between a sector's relative economic size and compliance.

All other covariates fall into the control variable category. We assume that violations last longer and are not resolved in due time when *Left Governments* are in power and many *Veto Players* increase policy stability (Tsebelis 2002). The partisanship variable is a dummy variable, which is one for left leaning parties in power and zero in all other cases. For veto players, we use

the ‘checks’ variable from the *Database of Political Institutions* by Beck et al. (2001). The number of veto players varies between 2 and 18 (India in the late 1990s). We also include measures for power and capacity as operationalized by Guzman and Simmons (2005) and many others. To control for the power to resist compliance pressures, we include the respondent’s *GDP* in billion and *GDP per Capita* in thousand constant U.S. \$ in our regression models. Large WTO member states should be in a better position to defy dispute panel and Appellate Body findings. The same could hold true for developed/wealthy respondents. However, respondents with high economic capacities should also be able (to afford) a quick and in time implementation of changes to their trade policies.⁷ Therefore, depending on the direction of the effects for these variables, we can assess whether there is more support for the power or capacity hypotheses or, more generally, the enforcement or management arguments about compliance. Finally, trade dependence should make respondents more interested in swift dispute settlement and compliance in due time. We use *Openness*, i.e., a county’s imports and exports divided by GDP, as a proxy for trade dependence.

When it comes to explaining variation in compliance with the rules of trade, the identity and number of complainants should matter as well. Therefore, we control for the number of *Complainants* and the major complainant’s *GDP* and *GDP per Capita*.⁸ All of these covariates are expected to lead to shorter *Time-to-Compliance* and a higher propensity on the part of the respondents to comply in due time as they increase the pressure on respondents to change their trade practices. The *GDP*, *GDP per Capita*, *Sectoral GDP*, *Sectoral Employment*, and *Openness* variables for both respondents and complainants all come from the World Bank’s *World Development Indicators* (2009).

Last, but not least, we include covariates in our regression models that characterize the dispute at hand. Both, in the case of *Agricultural* disputes and disputes between the U.S. and the European Union, we expect persistent non-compliance beyond the reasonable period of time provided to the respondent under DSU Article 22.2. Also, changing trade policies that infringe on multiple *GATT Agreements* and/or *WTO Agreements* should be harder and more time consuming. Especially, when (several of) the new WTO agreements on measures against anti-dumping, subsidies, and trade in intellectual property rights, investments, agricultural products, and services are at the center of a dispute, we expect to see violations to survive longer and well past the compliance deadline at the end of the reasonable period of time. The dummy variable *Retaliation* indicates whether the complainant requests the DSB to authorize retaliatory measures, which should reduce the *Time-to-Compliance*. We use this final covariate only for a preliminary analysis of a subset of our data, i.e., those 32 cases where the respondent allowed the reasonable period of time to expire without implementing the recommendations of the panel or Appellate Body report. While the complainant has the right to request the suspension of concessions or obligations equivalent to the amount of trade that is affected by the respondent's trade measures in these cases, complainants have exercised this right in less than 20% of them.

Findings

What do we find when analyzing our WTO compliance data using probit and accelerated failure time Weibull⁹ models? Especially the more appropriate Weibull models in table 1 strongly support our domestic politics argument. The results of the analysis support the hypothesis of major interest in this paper: survival maximizing governments provide politically important sectors of the economy with longer periods of non-compliance beyond the expiration

of the reasonable period of time. *Time-to-Compliance* is particularly long when high employment sectors are at the center of WTO disputes. All estimated coefficients for our two central covariates have the correct algebraic signs in tables 1 and 2 and the *Sector Employment* coefficients are statistically significant in both the survival (table 1, models 1-5) and binary choice models (table 2, model 8). Especially these coefficients, but also the *Sector GDP* coefficient in the Weibull model with controls (table 2, model 7), clearly indicate that the higher a sector's relative political importance in a WTO member state, the more likely it is that the government of the member state protracts the implementation of the necessary changes that would make trade measures affecting trade in these sectors WTO-consistent. If sectors are relatively irrelevant because employment in these sectors is negligible, governments are happy to quickly comply with dispute panel and Appellate Body findings. Conversely, if infringements on the rules of trade benefit politically important sectors, governments drag their feet as long as possible before they change WTO-inconsistent, but politically opportune trade policies.

-- Tables 1 and 2 about here --

Otherwise, we find in tables 1 and 2 that in disputes involving large parties, compliance tends to be restored more swiftly and in time. While this supports the idea that economically powerful complainants can pressure weak respondents to change their WTO-inconsistent trade policies, it is not obvious why large WTO member states themselves would rectify their own violations of the international rules of trade faster than their lesser colleagues. While higher *GDP* reduces the *Time-to-Compliance* and increases the probability of *In-Time-Compliance*, higher *GDP per Capita* has the opposite effect. At least with respect to the economic development of

the (major) complainant, this seems counterintuitive. After all, one would expect that wealthy WTO member states could use their economic resources to exert pressure on reluctant respondents (or even 'buy' compliance) and, thereby, make speedy dispute resolution a reality. The respondent's trade dependence, number of *Veto Players*, and government partisanship neither influence the survival time of infringements on the international rules of trade nor do they lower the probability that panel or Appellate Body recommendations are implemented in time.

A larger number of complainants makes dispute resolution and compliance more difficult to achieve. The more complainants, the longer it takes respondents to establish compliance and the more probable it is that they miss the deadline set by the reasonable period of time. This finding is just as robust as the findings for disputes about agriculture-related issues and disputes with the U.S. and the European Union on opposing sides. For both, agricultural cases and EU-U.S. cases, the estimated coefficients are positive and highly significant. On the one hand, this highlights that WTO member states tend to ignore their commitments when it comes to agriculture. On the other hand, it also means that neither the U.S. nor the European Union is willing to immediately concede defeat to the other side, even in the face of unequivocal panel or Appellate Body reports.

In table 1, there is some indication that respondents are less likely to rectify violations of WTO commitments swiftly and in time, when violations of several *WTO Agreements* or *GATT Agreements* are at the center of the dispute. Last, but not least, *Retaliation* does not seem to have the expected effect as we find a positive relation between the request for the suspension of concessions or obligations and *Time-to-Compliance*. However, this finding should not be taken at face value, not only due to the limited number of observations, but also the problem of endogeneity. Complainants do not request authorizations of retaliation at random, but only in the

most difficult cases. This induces selection bias, which leads to the overestimation of the positive effect of retaliations on the *Time-to-Compliance*.

Going beyond the coefficients of the covariates, we can take a look at the shape parameter ρ or its natural logarithm $\ln \rho$. Even though the null hypothesis that $\rho = 1$ (or $\ln \rho = 0$) is only rejected in one of the models with controls (table 2, model 7), the positive algebraic sign of the shape parameter suggests that the underlying hazard rate is not flat, but increases over time at a decreasing rate. While the probability that there is non-compliance at time t does not significantly depend on whether there was non-compliance at time $t-1$, compliance tends to be established rather sooner than later. However, once non-compliance manages to stay alive for a while, the chances for even longer non-compliance are reasonably high – even though respondents change their WTO-inconsistent trade policies eventually. Most of the survivor functions depicted in figures 1 and 2 emphasize the idea of an increasing hazard rate at a decreasing rate. Especially non-compliance in the manufacturing sector seems to follow this pattern. The survival probability drops dramatically during the first year, but flattens out afterwards (figure 1, short dashes). On the other hand, non-compliance with WTO commitments that affect the agricultural sector decreases in a more monotone fashion (figure 1, long dashes).

-- Figure 1 about here --

When we plot the survivor functions at different values of *Sector Employment*, the picture becomes even more interesting. Differentiating between different levels of importance of the agricultural and the manufacturing sector in WTO member states, we see not only overwhelming support for our theoretical argument, but can also see distinct differences between non-

compliance in cases that affect the manufacturing and the agricultural sector. Independent of the sector, it is obvious that with increasing political importance of a sector, the duration of non-compliance increases. As relative employment in a sector increases, the opportunistic governments of WTO member states become less and less inclined to swiftly change their trade policies. However, while member states' inclination to comply with dispute panel and Appellate Body reports that address issues related to manufacturing varies markedly for different levels of employment in the manufacturing sector (figure 2, right), this variation is dwarfed by that of the *Time-to-Compliance* for different levels of employment in the agricultural sector (figure 2, left). While the short dashed and solid curves at minimum and mean levels of relative employment in the agricultural sector do not look remarkable or too different from those at different levels of employment in the manufacturing sector, the long dashed curve seems to belong to a class of its own. It indicates that if employment in the agricultural sector is high relative to total employment, compliance in agricultural dispute cases is rather the exception than the rule even after years of non-compliance. In countries with a pronounced agricultural sector, the probability that the necessary policy change is initiated, which would make trade policies that affect the agricultural sector consistent with WTO commitments, remains far less than 20 percent even after more than a decade of non-compliance.

-- Figure 2 about here --

Discussion and Outlook

This paper engages the growing literature on the politics of WTO disputes by focusing on the compliance stage of the WTO's dispute settlement process, when panel or Appellate Body rulings adopted by the DSB prevail upon the respondent that has lost the case to restore the WTO consistency of the trade policy in question. In doing so, the paper redresses a surprising gap in the literature, in which little attention has been paid to the compliance stage and, more importantly, what are the factors that determine why states comply (or not) with the recommendations of adopted reports. We advance a political economy argument, emphasizing the domestic interaction between reelection minded politicians and the economic sectors benefiting from continued non-compliance.

In the empirical analysis of WTO disputes in the years 1995-2008, in which respondents received adverse panel rulings, we find strong support for our theoretical argument on the domestic politics of compliance with international obligations. A respondent's decision to (quickly) comply with the findings of WTO dispute panel and Appellate Body reports is a function of the political importance of the domestic economic sectors that are benefitting from continued infringements on the international rules of trade. Especially when the interests of sectors with relatively high employment are at stake, opportunistic governments shy away from implementing the required trade policy changes.

Scholarship on the politics of compliance in WTO disputes would benefit greatly from additional research beyond this study. One promising area of further inquiry is the retaliation mechanism built into the compliance process, in which a complainant may obtain authorization from the DSB, in cases where the respondent's policies have not been clearly or adequately

brought in line with WTO rules, to withdraw concessions as retaliation for the respondent's continued non-compliance. Building on our domestic politics of compliance argument, one especially needs to take a closer look at the domestic side of retaliation. To us, it seems important to analyze whether complainants' threats of retaliation can help to mobilize domestic export-oriented interests and to create political pressure that – depending on the relative political importance of the targeted industries vis-à-vis those industries, which are profiting from ongoing non-compliance – provides survival maximizing government with additional and stronger incentives to comply with the recommendations of panel and Appellate Body reports. In addition to addressing these theoretical refinements when analyzing the effect of retaliatory measures on the time-to-compliance, we believe that it is important to be aware that requests for the authorization of retaliation are not randomly submitted during the course of the compliance phase of a dispute. Therefore, we need to use appropriate selection-duration models to avoid severely biased estimates of coefficients, standard errors, and even the duration dependence of non-compliance (Boehmke et al. 2006).

At the level of the dispute, third-party effects, i.e., the impact on compliance of WTO member states that elect to participate in the dispute as third-parties (Busch and Reinhardt 2006), may also be a significant factor determining compliance with panel recommendations. As third-parties substantially increase the contingent of complainant countries and bring additional economic power and pressure to bear on the respondent, they may expedite the compliance behavior of respondent countries. Last, but not least, the spatial dynamics of non-compliance needs to be analyzed at the level of WTO member states as respondents do not make their compliance decisions in isolation, but take the decisions of other governments into account.

In extending the range of explanatory variables that influence compliance behavior, future research can identify the factors that successfully reduce the duration of non-compliance in WTO disputes and, in doing so, not only provide us with a better perspective on the politics surrounding WTO disputes and the institutional effectiveness of the WTO's distinct dispute settlement process, but provide us with a broader understanding of international institutions, the violations of international commitments, and the quest for the establishment of compliance in general.

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Table 1
Weibull Models of Non-Compliance

Models:		(1)	(2)	(3)	(4)	(5)
	<i>Expected:</i>					
<i>Respondent:</i>						
Sector Employment _{t-1}	+	0.11*** (0.03)	0.11** (0.05)	0.09** (0.05)	0.10*** (0.04)	0.33* (0.18)
GDP _{t-1}	+		-0.00* (0.00)	-0.00** (0.00)	-0.00*** (0.00)	
GDP per Capita _{t-1}	+/-		0.04 (0.03)	0.06** (0.03)	0.06** (0.02)	
Openness _{t-1}	-		0.01 (0.01)	0.01 (0.01)		
Left Government _{t-1}	+		0.01 (0.19)	0.45 (0.42)		
Veto Players _{t-1}	+		-0.15 (0.15)	-0.07 (0.31)		
<i>(Major) Complainant:</i>						
GDP _{t-1}	-		-0.00*** (0.00)	-0.00*** (0.00)	-0.00*** (0.00)	
GDP per Capita _{t-1}	-		0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	
<i>Dispute:</i>						
Complainants	-		0.19*** (0.07)	0.31*** (0.06)	0.34*** (0.05)	
GATT Agreements	+		0.12 (0.12)	0.25* (0.15)	0.28** (0.14)	
WTO Agreements	+		0.30* (0.17)	0.44*** (0.17)	0.41** (0.19)	
EU-U.S.	+		2.10*** (0.55)	1.28** (0.51)	1.33*** (0.51)	
Retaliation	-					2.76*** (0.99)
Agriculture	+	2.53*** (0.68)	2.60*** (0.84)	2.19** (1.02)	2.40*** (0.86)	7.01* (3.71)
Constant		4.12*** (0.77)	3.29** (1.34)	3.87** (1.60)	3.62** (1.46)	-1.11 (4.17)
Year Dummies		no	no	yes	yes	no
ln p		-0.19*** (0.05)	0.05 (0.07)	0.16 (0.10)	0.15 (0.11)	-0.03 (0.20)
Log Likelihood		-113.14	-97.48	-91.70	-92.09	-36.26
Observations		68	68	68	68	30
Time at risk		57965	57965	57965	57965	34188

Response variable is Time-to-Compliance in all models. Robust standard errors using the Huber and White heteroskedasticity-consistent covariance matrix as well as clustering on countries (assuming that observations between countries are independent, but not necessarily within countries) in parentheses. *** = p 0.01, ** = p < 0.05, * = p < 0.10.

Table 2
Weibull and Probit of Non-Compliance

Models:		(6)	(7)	(8)	(9)
Response variable:		Weibull	Weibull	Probit	Probit
	<i>Expected:</i>	Time-to-Compliance		In-Time-Compliance	
<i>Respondent:</i>					
Sector Employment _{t-1}	+			0.13** (0.06)	
Sector GDP _{t-1}	+	0.05 (0.05)	0.09*** (0.03)		0.10 (0.07)
GDP _{t-1}	+		-0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)
GDP per Capita _{t-1}	+/-		0.05*** (0.02)	0.08 (0.05)	0.06* (0.04)
Openness _{t-1}	-		0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)
Left Government _{t-1}	+		0.40 (0.54)	-0.13 (0.42)	-0.16 (0.54)
Veto Players _{t-1}	+		0.02 (0.04)	-0.01 (0.30)	0.08** (0.04)
<i>(Major) Complainant:</i>					
GDP _{t-1}	-		-0.00*** (0.00)	-0.00*** (0.00)	-0.00*** (0.00)
GDP per Capita _{t-1}	-		0.08*** (0.01)	0.12*** (0.02)	0.12*** (0.02)
<i>Dispute:</i>					
Complainants	-		0.33*** (0.05)	0.24** (0.12)	0.23*** (0.08)
GATT Agreements	+		0.18 (0.13)	0.46** (0.22)	0.29 (0.23)
WTO Agreements	+		0.30 (0.20)	0.29 (0.28)	0.44 (0.37)
EU-U.S.	+		1.09*** (0.37)	1.74*** (0.53)	1.18*** (0.39)
Agriculture	+	1.43 (0.94)	1.84*** (0.50)	2.79** (1.25)	2.00* (1.10)
Constant		5.64*** (0.91)	3.58*** (0.89)	-12.49 (0.00)	-10.33*** (2.11)
Year Dummies		no	yes	yes	yes
ln p		-0.20*** (0.05)	0.18* (0.10)		
Log Likelihood		-124.84	-100.74	-31.07	-35.00
Pseudo R ²				0.33	0.28
Observations		74	74	68	71
Time at risk		59254	59254		

Robust standard errors with clustering on countries in parentheses. *** = p 0.01, ** = p < 0.05, * = p < 0.10.

Figure 1
Weibull Survivor Function across Sectors

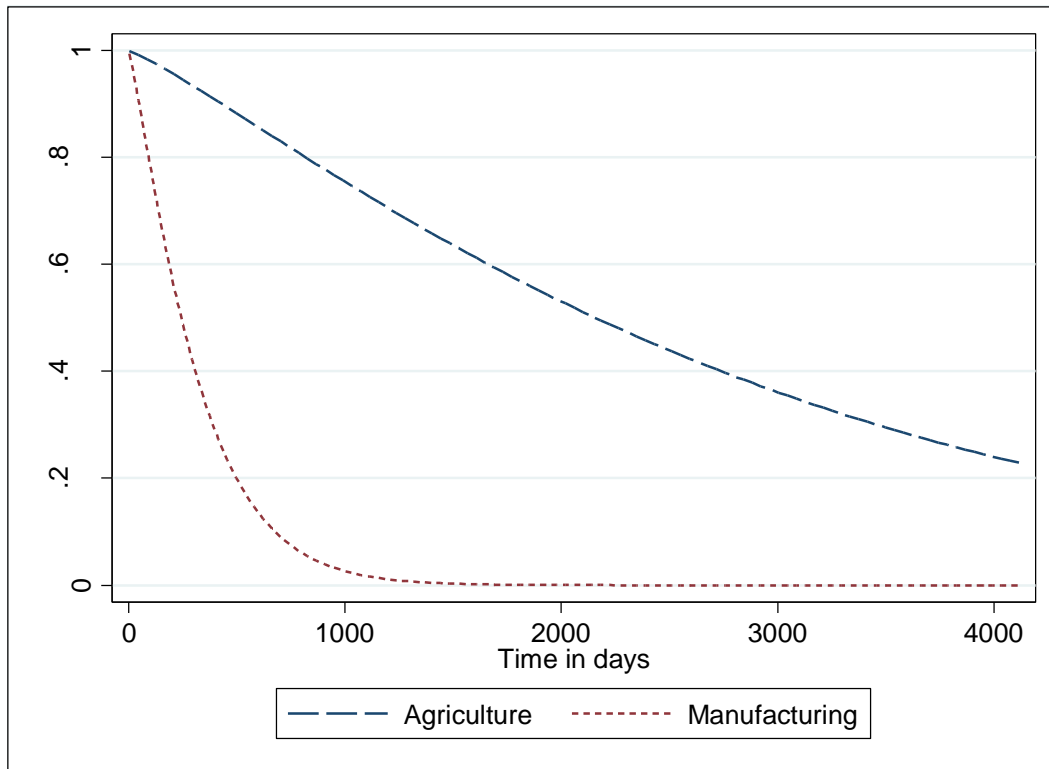
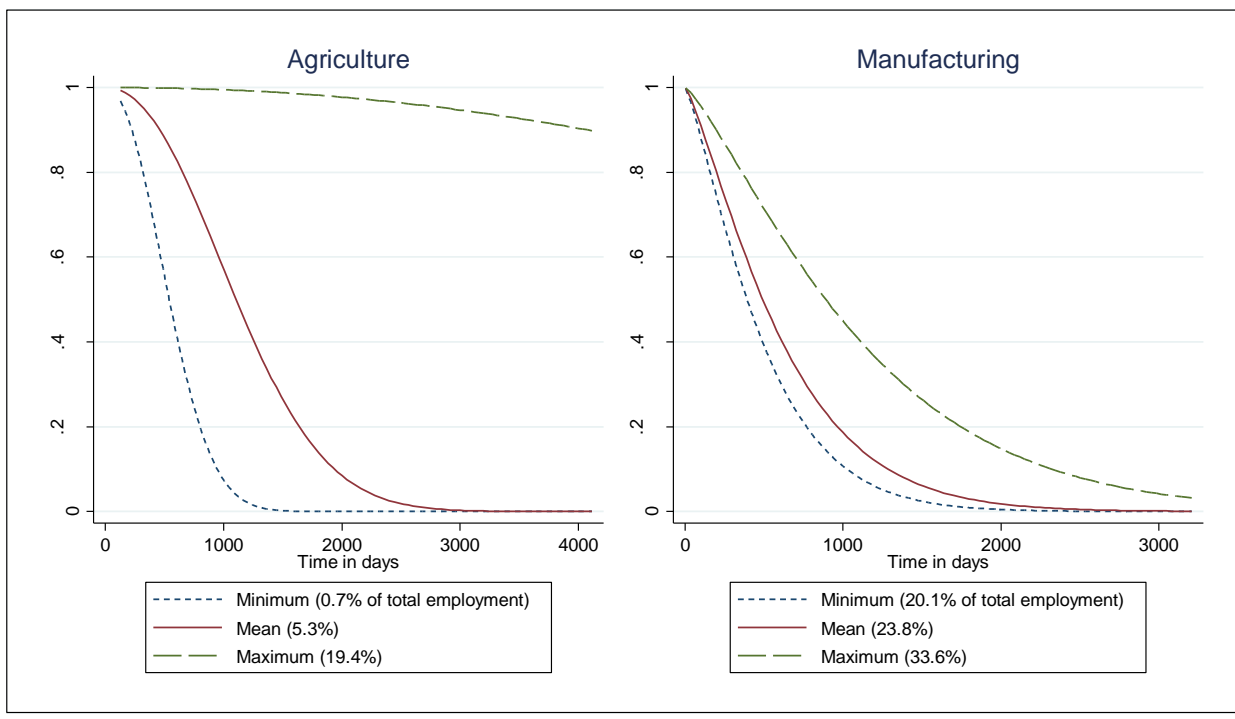


Figure 2
Weibull Survivor Functions at Sectoral Levels of Employment



Annex 1

Descriptive Statistics

	Mean	Standard Deviation	Minimum	Maximum
Time-to-Compliance	751.29	933.90	4.00	4115.00
In-Time-Compliance	0.39	0.49	0.00	1.00
<i>Respondent:</i>				
Sector Employment	15.59	9.87	0.70	33.60
Sector GDP	11.56	7.74	1.18	28.60
GDP	5380.15	4387.89	21.41	11563.60
GDP per Capita	22.66	13.00	0.40	39.82
Openness	43.22	23.60	15.86	99.35
Left Government	0.08	0.27	0.00	1.00
Veto Players	4.77	2.75	2.00	18.00
<i>(Major) Complainant:</i>				
GDP	4137.98	3947.92	8.41	11314.70
GDP per Capita	18.34	12.84	0.42	42.45
<i>Dispute:</i>				
Complainants	1.38	1.25	1.00	11.00
GATT Agreements	0.96	1.37	0.00	6.00
WTO Agreements	1.04	0.62	0.00	3.00

Notes

¹ Horn, Mavroidis, and Nordström (1999) find that GDP per capita, as a proxy for legal capacity, is not related to the propensity to file a WTO dispute. In contrast, looking at the first ten years of WTO disputes, Guzman and Simmons (2005) also utilize GDP per capita to test capacity and power hypotheses. Their analysis finds a strong negative effect for per capita GDP, suggesting that the decision to initiate WTO disputes is driven largely by the capacity to do so rather than the fear of retribution from respondent countries.

² Brown (2004) examines the degree to which disputes encourage trade liberalization in respondent countries. The study, however, defines the end date of the dispute to be the year, in which the dispute panel or the Appellate Body report is adopted, or the last year, in which there is formal correspondence between the disputing parties. The study makes no mention of the implementation stage of the dispute settlement, nor of the surveillance reports issued by the DSB regarding compliance on the part of respondent parties that lost the dispute.

³ Compliance involves behavior that is consistent with provisions explicitly stated in an institutional agreement (Dai 2007; Young 1979; Fisher 1981; Mitchell 1994). Compliance may be applied to different dimensions of institutional obligations, including procedural obligations, substantive obligations, and the spirit of the agreement (Weiss Brown and Jacobson 1998). For the purposes of this study, we conceptualize compliance as behavior that is consistent with the substantive obligations of international agreements, specifically WTO member states' obligations to adhere to the rules of trade that are enumerated in the GATT/WTO agreements.

⁴ Even though we use the term complainant in its singular form throughout the paper, individual dispute cases can of course involve multiple complainant countries. For instance, in

the hormone case that we discussed in the introductory paragraph the European Union is the respondent and the U.S. and Canada are the two complainants.

⁵ Descriptive statistics for all variables are provided in Annex 1.

⁶ In our regression models, the number of disputes is reduced due to missing values on the covariates of interest.

⁷ cf. Tallberg (2002) and Börzel et al. (2011), among others, for similar arguments on compliance in the European Union.

⁸ When there are multiple complainants involved in a dispute, we identify the complainant with the largest GDP as the major complainant.

⁹ We do not report the results from estimated Cox semi-parametric models, but are happy to make them available on request. Even though the more flexible Cox models have the advantage that they do not specify the particular distribution of the underlying survival rate, graphical inspection and Wald tests point us to Weibull models. In fact, a comparison of the estimated coefficients from the Weibull models and the hazard ratios from the Cox models reveal no substantial differences.