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"When Win-Sets Turn Volatile: Measuring the effect of domestic uncertainty on the formation and design of preferential trade agreements"

by

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Abstract

In the last decade, the number of newly concluded international economic agreements has steadily declined. While most attribute this trend to the crisis of the liberal international order or the fact that most countries able to benefit from such agreements have already satisfied their appetite, the crucial element of rising domestic uncertainty has been neglected. Drawing from Putnam's two-level game theory, we propose the concept of *volatile win-sets*, whereby a negotiator faced with unstable and rapidly shifting domestic preferences cannot reliably gauge the necessary current and future political support for an international agreement. Thus, policymakers facing volatile win-sets are less likely to sign binding international agreements. Looking at the field of trade, we find conclusive empirical evidence that domestic uncertainty is negatively correlated with the probability of countries signing a preferential trade agreement. We further find that domestic uncertainty influences the design of such agreements, as negotiators facing volatile win-sets safeguard agreements with particular design tools to mitigate future domestic backlash. These findings have important implications for the formation and design of international institutions. They expose a persistent paradox of the international order, whereby the creation of the very institutions designed to reduce uncertainty in the international sphere may be jeopardized by uncertainty in the domestic realm.

Keywords: Uncertainty; Preferential Trade Agreements; International Institutions; Institutional Design; Win-Sets; Putnam

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1. Introduction

Over the past decades, international institutions have played a paramount role in mitigating the uncertainty involved in international cooperation. In particular, in prisoner's dilemma settings such as trade and investment, international institutions can facilitate the convergence of expectations, provide information about other actors' behavior, and signal future commitment (Baccini & Yeon Kim, 2012; Keohane, 1984; Koremenos et al., 2001; Mansfield & Pevehouse, 2006). The importance of international institutions for the governance of the global economy is suggested by the dramatic proliferation of preferential trade agreements (PTAs) and international investment agreements (IIAs) since the 1990s (see Baccini, 2019; Dür et al., 2014; UNCTAD, 2021). However, the growth of these international economic institutions has stagnated in recent years. Indeed, the number of trade and investment agreements concluded per year has been falling.[1] Between 1990 and 2004, about 28 PTAs and 158 IIAs have been signed on average per year, while for the period between 2005 and 2020 this number has declined to about 16 PTAs and 71 IIAs, respectively.[2] This is particularly puzzling since none of the conditions spurring the proliferation of international institutions stated in the literature seem to have faded.

For instance, a burgeoning body of research has attributed the proliferation of PTAs to factors such as strategic interdependence (Mansfield, 1998), lacking advances on the multilateral stage (Bhagwati, 2008), the pursuit of geopolitical stability (Martin et al., 2008), competition for market access (Baccini & Dür, 2011), previous discrimination against excluded countries (Baldwin & Jaimovich, 2012), the internationalization of production and the rise of global value chains (GVCs) (Chase, 2005; Kim et al., 2019; Manger, 2009; Meckling & Hughes, 2017). Similarly, the rise of IIAs has arguably been driven by a determination to attract FDI (Büthe & Milner, 2008; Elkins et al. 2006), with governments seeking to tie their hands internationally, which is deemed as more credible than simply adopting investor-friendly policies domestically (Blake, 2013; Büthe & Milner, 2008, 2014). Yet, despite the multilateral system remaining in deadlock, geopolitical stability being high in demand, international

[1] The same stagnation trend can be observed for international institutions in other policy fields, such as environmental agreements (see Mitchell et al., 2020), and for international law in general (see Pauwelyn et al., 2014).

[2] Numbers were calculated from the DESTA database on trade agreements for PTAs (Dür et al., 2014) and from the UNCTAD database on investment treaties for IIAs (UNCTAD Investment Policy Hub, 2022). Data was retrieved online on December 10, 2022.

competition for FDI being as fierce as ever, and the structure of the world economy continuing to be dominated by GVCs, the creation of international economic institutions has stalled.

One explanation for this recent trend could be the attainment of some sort of saturation phenomenon, whereby most countries that can benefit from PTAs or IIAs have already concluded a sufficient number of these agreements (Dür & Elsig, 2018). Another explanation might lie in the intensifying legitimacy problem of the international liberal order (Börzel & Zürn, 2021) and the general backlash against globalization (Goldstein & Gulotty, 2021; Lake et al., 2021). In this paper, we offer an alternative explanation focusing on the role of domestic uncertainty for the formation and design of international institutions. Indeed, the level of domestic and global uncertainty has dramatically increased in recent years (Ahir et al., 2019; Bloom et al., 2022). We conceive domestic uncertainty as consisting of two dimensions: (1) the constant, underlying uncertainty reflecting the problem of imperfect information of negotiators when it comes to identifying domestic demands and constraints; and (2) the concrete manifestation of uncertainty in the form of changing political and economic conditions during international negotiations. While the first, more general dimension of domestic uncertainty is always present in international negotiations, the concrete manifestation of uncertainty can be low or high depending on the case and time-specific context in which a country finds itself.

We investigate the implications of this second dimension of domestic uncertainty, which has received little attention in the literature so far, on the formation and design of international institutions. In particular, by looking at the case of PTAs, we argue that domestic uncertainty is negatively correlated with the probability of countries concluding an international agreement. We also explore the degree to which domestic uncertainty affects the design of PTAs by specifically investigating whether and how uncertainty has any effect on the inclusion into PTAs of what we define as *win-set synchronization* arrangements. The latter are understood as provisions allowing parties to review the terms of a given institutional obligation they previously put in place, without altering the stability of the overall institutional system this obligation belongs to. In the case of PTAs, specific obligations coincide with given provisions, whereas the system refers to the overall agreement. Win-set synchronization arrangements include, for instance, the establishment of post-ratification consultation bodies or regulatory cooperation forums allowing the parties to adapt the terms of an agreement to evolving domestic preferences. We expect this to be particularly the case when countries are

faced with high levels of domestic uncertainty, which can perturbate pre-existing domestic preferences, and push policymakers to adapt institutions to changing conditions. To theoretically link domestic uncertainty to the propensity of countries concluding international agreements, and resort to win-set synchronization, we introduce the concept of *volatile win-sets*.

Building on Putnam's (1988) two-level game theory, we suggest that if the level of domestic uncertainty increases, win-sets become more volatile as it becomes harder to pin down a finite set of preferences around which both negotiators and respective domestic constituents can converge in the long-run. Thus, we propose a notion of volatile win-sets that captures the instability of domestic win-sets in international negotiations over time. We argue that domestic preferences can evolve rapidly, as a function of political, economic or natural exogenous shocks and as result of domestic dynamics such as the involvement of new actors, changing domestic coalitions or electoral turmoil. Thus, constituent preferences may well evolve over time in ways that make them at odds with the terms of a negotiated agreement, signaling a win-set shift that no longer falls within the scope of a negotiated text. In uncertain times, negotiators anticipate that their own domestic win-sets could change over time, rendering ratification and implementation difficult and, thus, generating hesitancy around signing an international agreement.

To test this theory, we carry out a quantitative analysis estimating the effect of domestic uncertainty on win-set volatility. As win-set volatility is not directly observable, we employ the probability of a government signing a PTA as a proxy while controlling for a host of political and economic factors. We expect that the higher domestic uncertainty, the lower the probability of governments concluding a PTA all else being equal. Moreover, we explore whether the level of domestic uncertainty has an impact on the design of PTAs by testing the effect of domestic uncertainty on specific design features to adopt PTAs to volatile win-sets. We expect that PTAs which are concluded under higher levels of domestic uncertainty, will tend to include more provisions providing institutional space to negotiate new obligations or adapt existing ones in response to evolving domestic preferences. Our results support our expectations and indicate an important role of domestic uncertainty for PTA formation and design which has been widely neglected in the literature so far.

The paper seeks to complement the literature on the formation and design of international institutions on two main grounds. First, it conceptually and empirically explores the assumption

that negotiators may not fully know where the preferences of their domestic stakeholders lie and may therefore incur ratification issues and consequential deal breakdowns. While this assumption has been voiced in the literature (see Iida, 1993; Janusch, 2016), it is yet to be empirically tested using predictors that capture a country's own domestic uncertainty and its effect on the probability of entering into an international agreement. Second, our research explores what effect domestic uncertainty has on given design features in a PTA. To that end, we reflect on how the implementation of a PTA, beyond ratification, can also be doomed by conditions of uncertainty, and the win-set volatility that derives from it, and how policymakers can consequentially equip a text to make it more robust to prolonged, future volatility.

2. Literature Review: Uncertainty and International Institutions

Politics in general, and international cooperation in particular, have always been plagued by uncertainty (Koremenos, 2005). While early analyses of the role of uncertainty in strategic settings can be traced back far in history, structured analyses of the role of uncertainty gained momentum only in the 20th Century (Downs & Rocke, 1995). In particular, three strands of literature have advanced the research agenda on uncertainty. First, the realist school which has focused mainly on the link between uncertainty, power, and war (Aaron, 1973; DiLorenzo & Rooney, 2018a; Fearon, 1995; Fey & Ramsay, 2011). Second, the psychological tradition which has highlighted the biases and misperceptions shaping decision making under conditions of uncertainty (Levy, 1992; Stein, 1991). Finally, the institutionalist approaches, building on transaction cost economics and game theory, which have analyzed the role of uncertainty for the creation, design and functioning of international institutions (Keohane, 1984; Koremenos et al., 2001; Rosendorff & Milner, 2001; Thompson, 2009). With the acknowledgement of the paramount role of domestic politics for international relations within the literature (Milner, 1997; Putnam, 1988; Tarar, 2001), some scholars have also investigated the specific effect of domestic uncertainty on international institutions (DiLorenzo & Rooney, 2018b; Downs & Rocke, 1995; Iida, 1993; Milner & Rosendorff, 1997).

One of the first studies highlighting the implications of domestic uncertainty for international cooperation was Putnam's (1988) two-level theory of international negotiations. Although mainly anecdotal, Putnam (1988) pointed out that uncertainty about the size of domestic win-sets – defined as all possible agreements at the international level which would achieve the

necessary support from domestic constituents – might enhance or jeopardize a negotiator's bargaining position. In particular, uncertainty might be beneficial to a negotiator if she is able to convince her counterpart that without concessions ratification may fail (Schelling, 1960), but it can also jeopardize negotiations if the negotiator cannot convincingly demonstrate her ability to deliver in terms of ratification, which Putnam calls the "risk of involuntary defection" (Putnam 1988: 453).

A more formal approach to domestic uncertainty is provided by Iida (1993), who offers a useful classification by separating uncertainty arising from international asymmetric information and uncertainty based on incomplete domestic information. The former describes uncertainty related to asymmetric information between negotiators about the domestic constraints of the counterpart, while the latter captures the uncertainty of a negotiator about her own domestic constraints. While uncertainty conceptualized as incomplete information about the counterparts' domestic constraints has received a lot of attention (Greiner, 2018; Mattes et al., 2015; McGillivray & Smith, 2004; Morrow, 1989), uncertainty with regard to lacking information about one's own domestic constraints has largely been overlooked by the existing literature. Notable exceptions include studies looking at the effect of electoral uncertainty (Kleine & Minaudier, 2019; Lohmann, 1993) and analyses exploring the effect of uncertainty regarding the distribution of future gains and institutional design (Goldstein & Martin, 2000; Koremenos, 2005; Rosendorff & Milner, 2001; Thompson, 2009).

Uncertainty also enters the picture when it comes to the domestic distribution of the future gains and losses from international cooperation. As international agreements generate relative price changes, for example through the regulation of trade and investment, they can have distributional consequences at home (Downs, 2003). Moreover, most of the time, the benefits and losses from international cooperation are not equally distributed, causing disagreement about the value of international agreements (Mansfield et al., 2000; Milner, 1997). Since governments are keen to protect politically influential groups, it is crucial for negotiators to know about the domestic distribution of gains, and to identify the potential losers of international cooperation (Davis, 2022; Katzenstein, 1985). However, if the distribution of gains is uncertain, governments might be hesitant to policy change (Fernandez & Rodrik, 1991). In this context, Koremenos (2005) argues that negotiating parties might not commit themselves to an international agreement if they anticipate a change in the distribution of gains. To Koremenos and others (see Downs & Rocke, 1995; Goldstein & Martin, 2000; Rosendorff

& Milner, 2001; Thompson, 2009) this uncertainty regarding the future distribution of gains from international agreements can be modelled as exogenous shocks. For instance, Rosendorff and Milner (2001) argue that unanticipated economic or political changes impact the demand for protection at home. As a result of this uncertainty, negotiators seek to include specific flexibility provisions in trade agreements, such as escape clauses, to equip themselves in the event of changing political pressure at home.

This paper builds on this literature on uncertainty and international institutional formation and design. Yet, unlike the existing literature, which has largely looked at the effects of uncertainty on institutions at a theoretical level, including through formal game-theoretic models, the present research aims to empirically measure the impact of domestic uncertainty on the formation and design of international institutions. To do so, we expand existing conceptualizations of domestic uncertainty by disaggregating them into two distinct dimensions: (1) the constant, underlying uncertainty expressing the problem of imperfect information of negotiators when it comes to identifying domestic demands and constraints; and (2) the concrete manifestation of uncertainty in the form of changing political and economic conditions during international negotiations. While the former condition of underlying uncertainty is often discussed in the rationalist literature surrounding institutional formation and design, the impact of the manifestation of domestic uncertainty in the form of actual changing political and economic conditions is understudied, especially when it comes to PTAs.

3. A Theory of Domestic Uncertainty and Volatile Win-Sets

3.1 The General Concept

The core of our theoretical framework builds on the concept of win-sets in international negotiations. Following Putnam (1988), we define win-sets as all possible agreements at the international level which would reach the necessary support of domestic stakeholders. The most important feature of win-sets in Putnam's two-level game theory is their size. For one thing, the size of a win-set determines the likelihood of achieving an agreement at the international level: the bigger the win-set, the more likely it is that an agreement can be concluded. For another, the relative size of the respective domestic win-sets will influence the allocation of the joint gains from the negotiations.

While there are different factors affecting the size of win-sets, such as domestic preferences and coalitions, political parties, institutions, and international bargaining tactics, once identified, win-sets are treated as static. In Putnam's framework, negotiators know about the size of their domestic win-set. The only potentially uncertain variable is the size of the counterparts' win-set. Hence, when it comes to international bargaining, negotiators might have a hard time finding the overlap between their domestic win-set and the win-set of the counterparts, but at least they can be confident that once an agreement is reached it will find sufficient domestic support today and in the future as win-sets are treated as persistent over time. While treating win-sets as time-invariant variables might be theoretically justified in relative stable times, we suggest that in times of uncertainty, domestic win-sets become volatile.

Importantly, our analysis focuses on the impact of domestic uncertainty on the ability of a negotiator to identify the demands and constraints of her own domestic stakeholders, or what Iida (1993) classifies as incomplete domestic information. Thus, negotiators face imperfect knowledge vis- à -vis the size of their counterparts' domestic win-sets *as well as* vis- à -vis the size of their own domestic win-sets. We assume that under conditions of concrete domestic uncertainty, the problem of imperfect information on the current and future size of negotiators' own domestic win-sets becomes even more severe. We thereby conceive domestic uncertainty as consisting of two dimensions. The first dimension captures the constant, abstract uncertainty related to the omnipresent problem of imperfect information of negotiators when it comes to identifying domestic demands and constraints. The second dimension of domestic uncertainty encompasses the concrete manifestation of uncertainty affecting a country during international negotiations.

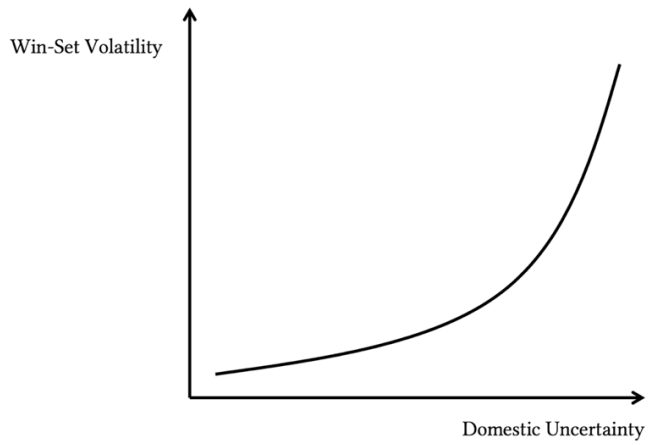
The difference between these two dimensions of domestic uncertainty can be best illustrated with a simplified case. For instance, let us take two countries which are equal in size and endowment. The only difference is that *country A* is experiencing a period of political instability, e.g., electoral turmoil, while *country B* is relatively stable politically. Negotiators from both countries face a general condition of uncertainty with regard to incomplete information about domestic demands and constraints, the distributional impact of the international agreements, and the impact of random exogenous shocks in the future on the respective domestic coalitions and preferences. Yet, adding to this general underlying

uncertainty, negotiators from *country A* also witness the concrete manifestation of domestic uncertainty arising from political instability at home.

To put it differently, while both negotiators face the first dimension of domestic uncertainty, e.g., uncertainty about the unfolding future, only one of them faces the second dimension of acute domestic uncertainty which has been manifesting itself in the form of changing political and economic conditions. As a result, one can assume that the two negotiators differ in their willingness to commit to an international agreement. In sum, we assume that domestic uncertainty consists of two dimensions, the first referring to general domestic uncertainty that is always present as a background condition, while the second being low or high depending on the case- and time-specific context in which a country finds itself. Importantly, from now on we refer to the second dimension of domestic uncertainty when discussing its impact on the formation and design of international institutions, since the first dimension is assumed to be present in any case.

In particular, we argue that if a country is exposed to high levels of domestic uncertainty, the volatility of win-sets increases as it becomes even harder to pin down a finite set of preferences around which both negotiators and domestic constituents are able to converge. As illustrated in Figure 1, one can assume that win-sets are never fully stable but always reflect some degree of volatility in domestic political demands. However, while institutional constraints and practices can mitigate domestic uncertainty until a specific point, by buffering against win-set volatility, once domestic uncertainty reaches a certain level, win-sets become exponentially more volatile.

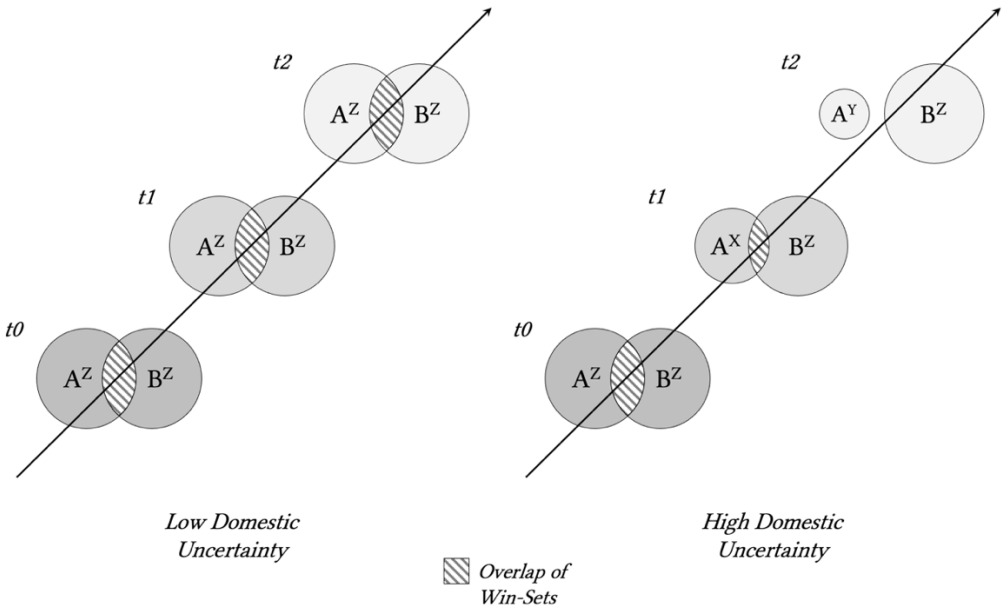
Figure 1: The Relationship between Domestic Uncertainty and volatile Win-Sets



Source: The Authors

Further, as shown in Figure 2, when the second dimension of domestic uncertainty is relatively low, the size *Z* of the win-sets of *country A* and *country B* is relatively stable over time. As a result, negotiators can be confident that the agreement reached at *t0*, will find public support also at *t1*, *t2* etc. However, if the level of uncertainty is high, the size of the domestic win-set of *country A* might change over time (the different sizes are indicated with *X* at *t1* and *Y* at *t2*). There are many reasons why domestic preferences can evolve rapidly and, hence, the size of the win-set might change over time. One reason for this can be political, economic, and natural shocks such as political crises, economic recessions, violent conflicts or natural catastrophes. Another reason can be the appearance of new powerful actors, such as civil movements, NGOs, new political parties, etc., which are capable of shifting the existing power distribution within a political system. In these scenarios, negotiators cannot be sure that the public support for the results of international bargaining at *t0* will be persistent over time, which negatively impacts the prospects of domestic ratification.

Figure 2: Win-Sets under Low and High Domestic Uncertainty



Source: The Authors

In fact, in uncertain times, negotiators would anticipate that their own domestic win-set will not be stable over time, making ratification and implementation difficult, and thus increasing hesitancy around signing. That is because policymakers are subject to a powerful status quo bias whereby uncertainty as to the distribution of gains and losses from policy reform constitutes a hurdle to policy change (Fernandez and Rodrik 1991). Moreover, failing to ratify

an international agreement at the domestic level comes with political costs. Given that even rational actors are subject to significant risk aversion (Calford, 2020; Greiner, 2018), negotiators being aware of these costs tend to sign an agreement only if they can be relatively sure that substantial political costs can be avoided. This notion is even reinforced by the fact that once committed to an international economic agreement, countries rarely withdrawal, making the decision to enter into such binding agreements even more substantive.[3] However, this does not mean that in a state of uncertainty, policymakers cannot negotiate and design international agreements in response to given uncertain conditions. Yet, the likelihood of successfully concluding negotiations will be negatively affected by the levels of domestic uncertainty.

3.2 Uncertainty and PTA Formation

The theoretical mechanism described above can be illustrated in the case of PTA negotiations. Like other international institutional arrangements, PTA negotiations can be highly politicized as the outcome of such negotiations can have substantial distributional consequences at home. While negotiations of trade agreements are generally time and resource intensive, stretching over many years, the most critical moment in the negotiation is the act of signing the PTA (Mansfield & Milner, 2018). The political decision to sign a PTA can be expected to be especially sensitive to win-set volatility as the audience costs of doing so in the absence of constituent support can backfire politically (Janusch, 2016). Hence, the likelihood of signing a PTA can be regarded as a good proxy for actual or anticipated volatile win-sets. Specifically, we assume that a lower probability of signing would reflect a more volatile win-set, and vice versa.

First, uncertainty makes it harder for negotiators to determine the preferences of domestic stakeholders. Consequently, domestic interests in international negotiations might not be mirrored correctly, thus reducing the likelihood that domestic interests are accurately represented in the negotiation outcomes. Poor interest representation, in turn, might cause domestic opposition and rejection of the outcome of the negotiations, making the ratification of a PTA less likely. This mechanism can be frequently observed in recent trade negotiations,

[3] For instance, only very few countries ever withdraw from a PTA. According to the DESTA dataset, the percentage of countries which have withdrawn from a PTA is under 5% when excluding the United Kingdom.

such as in the negotiations of the Transatlantic Trade and Investment Partnership (TTIP) or of the EU-Mercosur agreement, for which uncertainty about the preferences of domestic stakeholders, hence the size of the domestic win-sets, played a part in why these agreements could not be concluded yet. Second, if domestic uncertainty is high, the future size of domestic win-sets becomes even harder to predict. Overall, we can assume that win-sets which are anticipated to remain volatile for some time make PTAs more exposed to future political criticism, which would require substantial reviews and amendments in order to be ratified. This, in turn, diminishes a country's appetite for entering new trade commitments, compared to a situation in which domestic economic and political factors and resulting win-sets are (or are believed to be) more stable and predictable. Third, the relevance of grappling with volatile win-sets, beyond signing and ratification, is crucial not least in light of the increased political salience PTAs have been facing during enforcement. For instance, the Northern Ireland Protocol attached to the EU-UK Withdrawal Agreement offers a vivid example of a fluid win-set (European Commission, 2022). The intra-UK sea border envisioned by the Protocol and necessary to preserve a soft custom border between Northern Ireland and the Republic of Ireland has been scantly implemented due to mounting political unacceptability in Britain, despite both the EU-UK Protocol and the Trade and Cooperation Agreement having been ratified.

As a result, we conclude that a relatively high level of domestic uncertainty makes a country's win-set comparatively more volatile, reducing policymakers' perceived gains from entering a PTA as they anticipate political difficulties for its ratification and implementation, making the signing of a PTA less likely in the first place. To test this mechanism we, formulate the following hypothesis:

> *H1: The higher domestic uncertainty, the lower the probability that governments sign a PTA, all else equal.*

3.3 Uncertainty and PTA Design

If politico-economic uncertainty, by increasing win-set volatility, is theoretically expected to have an impact on a country's willingness to enter a PTA, it should also be expected to affect the design of a PTA when countries, despite domestic uncertainty, actually choose to conclude

an agreement. In this regard, institutionalist scholars have placed repeated emphasis on the design element of flexibility, conceived as an institutional response to policymakers' uncertainty (Koremenos et al., 2001; Koremenos, 2005; Rosendorff & Milner, 2001). Flexibility is understood in the literature as a rational institutional-design response to uncertainty that is usually defined at treaty level, be it through safeguard measures and escape provisions from existing commitments, including terminating altogether an agreement after a fixed duration period (Koremenos, 2005). However, we suggest that this traditional understanding of flexibility is only one type of response negotiators can implement in the face of uncertainty.

In what follows, we seek to introduce and explore a new dimension of institutional responses to uncertainty at PTA level, which we refer to as *win-set synchronization.* We define win-set synchronization as the ability of one or more contracting parties to review the terms of a given institutional obligation they previously put in place, without altering the overall institutional system to which such an obligation belongs to. In the case of PTAs, specific obligations coincide with given provisions, whereas the system refers to the overall agreement. As such, win-set synchronization provides for "out of text" institutional arrangements through which parties can review and adapt the terms of an agreement, without suspending its *de jure* enforcement following ratification. For instance, negotiators might introduce specific institutional space such as domestic advisory groups or regulatory cooperation forums which are found, for example, in recent EU PTAs to allow policymakers to consult with domestic stakeholders or make additional adjustments to the agreement if need be – including after ratification.[4]

We expect that win-set synchronization is also needed as two or more parties come to realize that given issue domains need modifications or have not been addressed at all in the original negotiation. In both cases, this may not only be due to a lack of foresight during negotiations but, crucially, to domestic uncertainty, and consequentially to new domestic demands calling for additional (or different) governance arrangements in a given domain. The reason is that, as an agreement is designed under conditions of domestic uncertainty, policymakers would be bound to expect such volatility to continue or reoccur in the future, hence expecting an

[4] Noticeably, such provisions have been included in many recently concluded PTAs such as the China–South Korea Free Trade Agreement of 2014, the EU-Singapore Free Trade Agreement of 2018, the Comprehensive and Progressive Agreement for Transpacific Partnership (CPTPP) singed in 2018, and the Japan-EU Economic Partnership Agreement concluded in 2018.

agreement to require adequate institutional responses. That is especially the case as PTAs have become increasingly about beyond-the border regulatory commitments on issues ranging from sanitary standards in agricultural products to labor and environment issues (Baccini, 2019; Blümer et al., 2019; Bondi & Hoekman, 2022; Lechner, 2016).

Deep and comprehensive PTAs are both more salient to domestic audiences and reduce the ability of a text to satisfactorily address every relevant contingency (Laursen & Roederer-Rynning, 2017). In particular, as 21st century trade has come to cover issue-areas beyond traditional trade issues, wider stakeholder participation and interest representation is necessary to match the increasing political weight of new actors like NGOs and grassroot movements in trade policymaking. Deeper trade relations require a degree of policy detail that PTAs often lack, and, as they cover more issue-areas, have a higher probability of incurring opposition by given domestic stakeholders.

Acknowledging the systemic trend towards deeper commitments in PTAs, the traditional analytical focus on only major domestic stakeholders, such as powerful business actors, is arguably no longer sufficient. In particular, it tends to overlook how win-sets can be reached in complex policy environments consisting of multifaceted and conflicting interests of diverse stakeholders. Against this background, approaches emphasizing deliberative policy processes yield more explanatory power as they are able to capture preferences from a diverse set of actors (Herrmann-Pillath, 2017). Moreover, we see that in practice, trade policymaking in major trading blocs such as the EU and the US has increasingly moved towards deliberative trade policymaking in recent times. Deliberative systems are characterized by decision-making processes in which the trade policy positions of a greater set of affected parties tend to be heard (Fishkin, 2011), rather than being selectively shaped by dominant actors and lobbies as "protection for sale" approaches suggest (Grossman & Helpman, 1994). In this context, as more interests and stakes are incorporated into the policymaking process, the more win-set volatility – probabilistically speaking – will tend to be reflected on decision outcomes like PTA texts. That is the case since, when uncertainty perturbates domestic preferences, wider preference representation is also more likely to highlight a greater number of changing preferences, as opposed to the more or less stable interests of a few.

In this light, we expect that phases of higher domestic uncertainty can lead policymakers to attach more future negotiating space to the agreement, or what we refer to as win-set synchronization. Specifically, we aim to test a mechanism whereby higher levels of

uncertainty, would push governments not only to equip a PTA with opt-outs, but also with the institutional space to negotiate new obligations or adapt existing ones in response to evolving domestic preferences, without suspending the overall application of the agreement. That would entail making a PTA flexible in terms of the future negotiating space attached to it and allow parties to monitor and adapt given obligations. The idea is that changing domestic demands may not only call for deviations from past decisions, but also for new decision-making. This expectation is coherent with the broader assumption in rationalist literature that uncertainty pushes decision makers to devise various forms of institutional flexibility (see Rosendorff and Milner 2001).

Thus, we formulate the following hypothesis:

> *H2: As domestic uncertainty increases, the institutional space for ex-post win-set synchronization in PTAs also increases, particularly in the presence of deliberative policy processes, all else equal.*

4. Research Design

To test our hypotheses, we create two datasets capturing the formation and design of PTAs between 1990 and 2020. We focus on the time period between 1990 and 2020 due to two reasons: Firstly, PTAs concluded from the 1990s onwards are generally considered to be "deep agreements" which include regulatory measures that reduce domestic policy space and are thus "fundamentally different from the previous generation of trade agreements" (Lamy 2020, as cited in Rocha et al., 2021). Therefore, trade agreements negotiated from the 1990s onwards should not be analytically equated with the old generation agreements, which were much less far-reaching. Secondly, the end of the cold war had major implications for the de-facto and perceived domestic uncertainty in many countries. This makes comparisons of domestic uncertainty levels before and after this major change in the international political and economic order difficult. As a result, the year 1990 seems to be a suitable cut-off point for comparative analyses, reducing the likelihood of omitted variable bias.

The unit of analysis for the first dataset is a directed country-dyad by year. Hence, for every given year, each country pair appears twice in the dataset having one observation corresponding to country *i*, and a second observation corresponding to country *j*. For instance, for the country-

dyad Switzerland-Colombia in the year 2011, we have two observations, one for which country *i* is Switzerland and country *j* is Colombia and one for which country *i* is Colombia and country *j* is Switzerland. Our sample of countries included in the dataset is limited by the data available on domestic uncertainty which we derive from the World Uncertainty Index (WUI) that tracks uncertainty levels across 140 countries (Ahir et al., 2022). Given that our second hypothesis focuses on PTA design, the unit of analysis for the second dataset is the PTA. The use of the PTA as the unit of analysis for the study of design features is the predominant approach in the literature, as the design of the PTA does usually not differ between members and the inclusion of separate observations for all members would lead to artificially reduced standard errors and violate the assumption of non-independence (see Allee & Elsig, 2017). According to the DESTA dataset, there were 648 PTAs concluded in our observation period.

4.1 Empirical Model of PTAs Formation

We test our first hypothesis about the link between domestic uncertainty and PTA formation, we rely on logistical regression analysis. The workhorse model for our analysis is the following:

$$
\begin{aligned}
&Pr\,(PTA\ Sign_{ij,t} = 1|\chi) = \beta_0 + \beta_1\, Domestic\ Uncertainty_{i,t} + \beta_2\, Veto\ Playing_{i,t} + \\
&\beta_3\, \Delta GDP_{i,t-1} + \beta_4\, Ally_{ij,t} + \beta_5\, Democracy_{i,t} + \beta_6\, Market\ Size_{i,t} + \\
&\beta_7\, Development\ Level_{i,t} + \beta_8\, World\ Uncertainty_t + \beta_9\, Existing\ PTA_{ij,t} + \\
&\beta_{10}\, PTA\ Diffusion_t + \beta_{11}\, Distance_{ij} + \beta_{12}\, Contiguity_{ij} + \beta_{13}\, WTO_{ij,t} + \varepsilon_{ij,t}
\end{aligned}
\tag{1}
$$

The Dependent Variable

The dependent variable for our first model is $PTA\ Sign_{ij}$, which captures the log odds that country *i* signs a PTA with country *j* in year *t*, we observe 1 if this occurs and 0 otherwise. We only include so-called base agreements in our analysis, e.g. agreements which imply adjustment costs for both countries. We derive information about all concluded PTAs between 1990 and 2020 from the DESTA database on trade agreements (Dür et al., 2014), which is one of the most comprehensive databases on trade agreements covering a substantially wider range of PTAs then the World Trade Organization (WTO) database which only lists officially notified PTAs. Importantly, we observe the value $PTA\ Sign_{ij} = 1$ only in the year in which country *i*

sings a PTA with country *j* but not in the following years after the agreement was signed. We include the control variable *Existing* $PTA_{ij,t}$ to absorb the value *PTA* $Sign_{ij}$ = 1 for any subsequent year and to account for cases in which country-pairs have already signed a PTA in the pre-1990 period.

The Independent Variables

Our main independent variable is *Domestic* $Uncertainty_i$ which captures domestic uncertainty in country *i*. To measure domestic uncertainty, we use the WUI, which tracks uncertainty across the globe. The WUI is created by analysing the country reports of the Economist Intelligence Unit which explain and track important political and economic trends in over 140 countries (Ahir et al., 2022). The WUI is widely used in academia and by central banks, the International Monetary Fund, the WTO, United Nations Development Programme, and other international organizations. Importantly, the index allows for country-level differentiation, making it perfectly suitable for statistical analysis. Given the directed-dyad structure of our dataset we indirectly control for the level of domestic uncertainty of the partner country *j* through the set-up of the data. This notion is confirmed by the fact that including *Foreign* $Uncertainty_j$ as a robustness check has no statistically significant effect on our results. As outlined above, the operationalist differentiation between domestic and foreign uncertainty is analytically important, to ensure that we capture the "home effect" of domestic uncertainty on the probability of PTA conclusion and not any uncertainty related to the foreign country.

Second, we include the control variable *Veto* $Playing_i$ which captures the extent of constitutionally mandated institutions that can exercise veto power over decisions in country *i*. We use the POLCON data on veto players, a continuous index which ranges from 0 to 1, with 0 indicating a total absence of veto players and higher values indicating a high number of political institutions acting as veto players vis-a-vis the executive (Henisz, 2002). Many studies have shown the importance of veto players for the formation and design of PTAs (see for instance Mansfield & Milner 2012). For our analysis, veto players are particularly important because they are a structural catalyst of uncertainty, in the sense that the higher the number of veto players the bigger the impact of uncertainty on the stability and predictability of domestic win-sets.

In addition, we control for the general macroeconomic condition of a country by including the variable $\Delta GDP_{i,t-1}$ into our analysis, which captures the business cycle of a country and is

measured by the change in domestic GDP of country *i* from year *t*-1 to *t*. We include this measure as Mansfield and Milner (2018) have shown that macroeconomic conditions have important implications for the formation of PTAs. Further, we include the variable $Ally_{ij}$, which indicates whether two countries are in an alliance in any given year. We use the data points provided by the Alliance Treaty Obligations and Provisions (ATOP) project which captures content of military alliance agreements signed by all countries of the world between 1815 and 2018 (Leeds et al., 2002). We also control for the regime type of a country by using the variable $Democracy_i$, which indicates the level of democratic governance in country *i*. We use the POLITY democracy index, which assigns every country a score between 0 and 10, with higher numbers indicating higher levels of democracy (Teorell et al., 2022).

Moreover, we include the controls *Market Size*$_i$, measured in GDP (log) in constant 2015 US$ and *Development Level*$_i$, measured in GDP per capita (log) in constant 2015 US$, provided by the World Bank database. In addition, we control for the overall level of uncertainty in the world by including the variable *World Uncertainty* using the annual average of global uncertainty. We derive the data again from the WUI database. Further, the literature on trade agreements has shown that their spread is characterized by powerful diffusion dynamics (Elkins et al., 2006; Quiliconi, 2014). Hence, we include the control *PTA Diffusion* which captures the percentage of all country-dyads in the system that concluded a trade agreement in year *t*-1. Finally, we include as further controls the variables $Distance_{ij}$, measuring the distance (log) in km between country *i* and *j*; $Continuity_{ij}$, indicating whether two countries share the same border; and WTO_{ij}, which captures whether both country *i* and country *j* are members of the GATT or WTO.

4.2 Empirical Model of PTA Design

We test our second hypothesis with a multivariate ordinary least squares (OLS) regression using a self-constructed index capturing ex-post *win-set synchronization*. The model regresses the index on our main predictor *Domestic Uncertainty*$_i$.

$$(2) \quad \begin{aligned} Winset\ Sync_i = {} & \beta_0 + \beta_1\, Domestic\ Uncertainty_i * Delib.\ Policymaking_i + \beta_2\, \Delta GDP_{i,t-1} + \\ & \beta_3\, Democracy_i + \beta_4\, WTO_i + \beta_5\, Flexibility_i + \beta_6\, Depth_i + \varepsilon_i \end{aligned}$$

The Dependent Variable

The dependent variable of our second model is the *Winset Sync* of a PTA *i* which captures decision-making arrangements allowing parties to adapt the agreement's framework to future contingencies, including after ratification. The index ranges from 0-13 and consists of 22 indexed dummy variables retrieved from the latest available version of the DESTA dataset. Irrespective of the specific PTA provision or chapter of occurrence (e.g., on services, regulation, or competition), the index seeks to capture any such type of arrangement present in a text. Similar provisions include the establishment of review or coordination mechanisms on issues like trade in services and investment. They also pertain to mandatory coordination arrangements on specific provisions, including the establishment of permanent coordination bodies, as in the case of the competition and investment chapters.

The abovementioned indicators, despite each pertaining to specific domains, all hint at policymakers' efforts to carve out additional institutional space in which given obligations can be amended and adapted to future contingencies. Such contingencies may well be a function of changing domestic preferences, causing win-sets to become volatile. Notably, domestic challenges to an agreement can jeopardize the ratification of it once negotiations have ended or cause obstacles to the implementation. In this regard, the index also captures whether a PTA explicitly provides for the inclusion of domestic stakeholders as part of implementation of regulatory provisions, which are often highly salient politically. Namely, the win-set synchronisation index looks at whether, besides committing to cooperation arrangements, parties also foresee the possibility of holding public consultations on regulatory standards that are also open to private-sector representatives in the foreign country, to ensure a calibration of respective domestic preferences on market harmonization in the long run.

The Independent Variables

Our main predictor is the interaction term between *Domestic Uncertainty*$_i$ and *Delib. Policymaking*$_i$. As a proxy for *Domestic Uncertainty*$_i$, we rely on the same country-specific data on uncertainty derived from the WUI as in our first model. Given the multi-unit nature of our data, we calculate the average level of domestic uncertainty across all PTA members. For consistency and simplicity reasons, we proceed similarly for all other variables. For the variable *Delib. Policymaking*$_i$, we use the deliberative democracy index from the Varieties of Democracy (V-Dem) Project (Coppedge et al., 2023), which measures the extent to which a

political system follows the ideal of deliberative democracy focused on the process by which decisions are reached in a polity.

In addition to a range of controls which are taken from the first model, we include the PTA design-specific controls of $Flexibility_i$ and $Depth_i$ into our analysis. The control variable $Flexibility_i$ is derived from the DESTA dataset ("Flexescape"), which measures the extent to which parties in a PTA protect themselves against future contingencies (Baccini et al., 2015; Dür et al., 2014). The DESTA variable "Flexescape" is based on four indexed dummy variables capturing whether the parties include the following opt-outs into a PTA: the possibility to suspend agreed tariff cuts in the event of balance of payments issues, a general safeguard provision, the possibility to impose countervailing duties, and the possibility to impose anti-dumping duties. In contrast to our dependent variable $Winset\ Sync_i$, the flexibility index from DESTA measures flexibility guarantees that are already known and formalized at the time of contracting. Moreover, we add the control $Depth_i$, which measures the regulatory coverage of a PTA, including "technical standards, discriminatory food safety and animal and plant health measures, inadequate protection of intellectual property rights, and competition rules that discriminate against foreign traders" (Baccini et al., 2015: 766). We use DESTA's depth index which is an additive index consisting of seven dummy variables capturing the presence of PTA provisions in line with the definition of depth introduced above. Controlling for PTA depth is relevant since this predictor captures how extensively an agreement covers regulatory standards and provides for regulatory harmonization between two or more countries in the first place.

5. Results

5.1 Formation of PTAs

Given the dichotomous nature of our response variable we rely on logistic regression models to estimate the effect of domestic uncertainty on PTA formation. Initially, we estimate a simple model without controls and fixed effects. We then include our set of controls and fixed effects for country *i* and country *j* as well as time fixed effects. By including both country-specific fixed effects and time fixed effects, we seek to address the presence of omitted variable bias by controlling for any unobserved heterogeneity across countries as well as across time.

Table 1: Estimated effects of domestic uncertainty on PTA formation

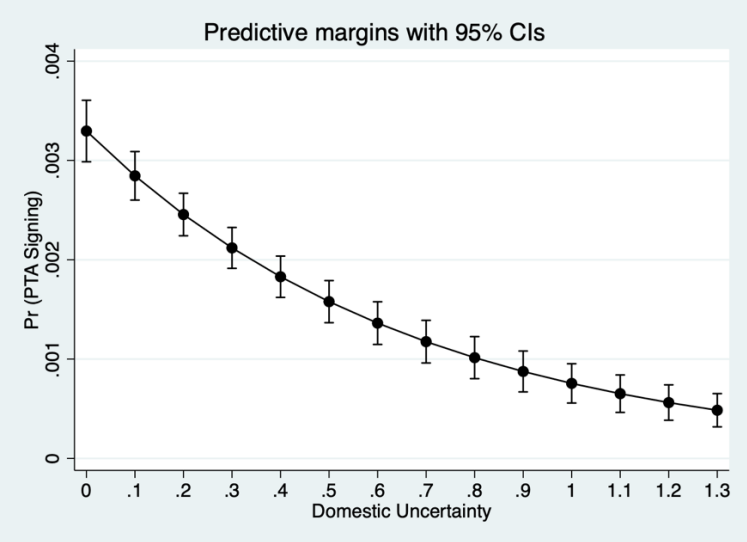
	Dependent Variable			
	PTA Sign$_{ij}$			
	I(a)	I(b)	I(c)	I(d)
Domestic Uncertainty	*-0.736****	*-1.339****	*-1.245****	*-0.802****
	(0.079)	*(0.150)*	*(0.159)*	*(0.230)*
Veto Playing		*-0.613****	*-0.617****	*-0.395****
		(0.113)	*(0.127)*	*(0.135)*
Domestic Uncertainty X Veto Playing				*-1.733****
				(0.638)
Foreign Uncertainty			*-0.111*	
			(0.141)	
ΔGDP		*-0.015****	*-.0174****	*-0.0149****
		(0.002)	*(0.002*	*(0.002)*
Ally		*0.017*	*0.013*	*0.015*
		(0.062)	*(0.071)*	*(0.062)*
Democracy		*0.062****	*0.063****	*0.059****
		(0.008)	*(0.009)*	*(0.008)*
Market Size		*2.69e-15*	*1.85e-14**	*2.70e-15*
		(9.80e-15)	*(1.04e-14)*	*(9.81e-15)*
Development Level		*7.11e-06****	*4.53e-06***	*7.34e-06****
		(1.22e-06)	*(1.40e-06)*	*(1.23e-06)*
World Uncertainty		*0.0002****	*.0002****	*.0002****
		(0.000)	*(0.000)*	*(0.000)*
Existing PTA		*2.178****	*1.95592****	*2.1798****
		(0.048)	*(0.053)*	*(0.048)*
PTA Diffusion		*-0.124*	*-0.083*	*-0.122*
		(0.128)	*(0.148)*	*(0.128)*
Distance		*-0.0001****	*-0.0001****	*-0.0001****
		(6.14e-06)	*(7.94e-06)*	*(6.13e-06)*
Contiguity		*0.497****	*0.444****	*0.494****
		(0.088)	*(0.090)*	*(0.088)*
WTO		*0.375****	*0.262****	*0.377****
		(0.049)	*(0.059)*	*(0.049)*
Constant	*-4.220****	*-10.912****	*-10.937****	*-10.956****
	(0.019)	*(0.984)*	*(1.176)*	*(0.984)*
N	*1,085,496*	*324,552*	*209,423*	*324,552*
Country Fixed Effects	*NO*	*YES*	*YES*	*YES*
Time Fixed Effects	*NO*	*YES*	*YES*	*YES*

Note: Results are logistic regression estimates. For all entries robust standard errors were calculated and clustered by country pair. Statistical significance is indicated as follows: *p<0.1; **p<0.05; ***p<0.01. All tests of significance are two-tailed.

As shown in Table 1, the results of our estimation strongly support our first hypothesis, that is, the higher domestic uncertainty, the lower the probability that governments sign a PTA, all else equal. Our main predictor *Domestic Uncertainty*$_i$ is strongly statistically significant and negatively correlated with the probability of concluding a PTA in a given year. This is also true after adding a series of control variables as well as country-level and time fixed effects, see Model I(b) to I(d). Notably, as predicted earlier, given the directed-dyad structure of the dataset, the inclusion of the control variable *Foreign Uncertainty*$_j$ has no effect on the results, as seen in Model I(c). Thus, our estimation results reflect the important distinction between domestic uncertainty related to the home country and the uncertainty with regard to the foreign country.

As the coefficients of logit models hardly entail any interpretative meaning, we calculate the marginal effect of domestic uncertainty on PTA formation using the Model I(b) specification and holding the dichotomous variables constant at their modal values and the continuous variables at their median values. As Figure 3 shows, the probability of signing a PTA visibly declines when domestic uncertainty increases. For instance, a country facing relatively low domestic uncertainty (10th percentile) is 1.5 times more likely to sign a PTA then a country facing relatively high domestic uncertainty (90thpercentile) and over three times more likely to conclude an agreement then a country facing very high domestic uncertainty (99th percentile).

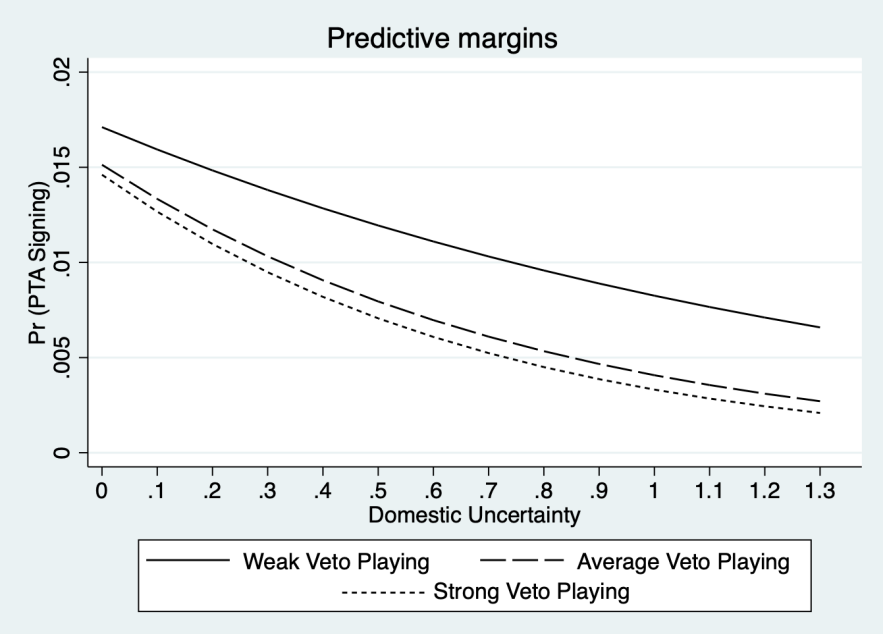
Figure 3: Marginal Effects of Domestic Uncertainty on PTA Formation



Note: Vertical lines represent 95% confidence intervals.

Furthermore, our results support the notion in the literature that high levels of veto playing are negatively correlated with PTA formation, with the coefficient value for the *Veto Playing*$_i$ variable being consistently negative and highly statistically significant across all models. To further test the relationship between *Domestic Uncertainty*$_i$ and *Veto Playing*$_i$, we interact the two variables. The results of Model I(d) support our theoretical expectation about the mutually reinforcing nature of both factors when it comes to PTA formation. Figure 4 displays the predicted probabilities of singing a PTA based on different levels of veto playing under various levels of domestic uncertainty. As shown, the effect of domestic uncertainty on PTA formation is dependent on the level of veto playing with the level of veto playing having a smaller impact at low levels of domestic uncertainty and a greater impact at higher levels of uncertainty. For instance, a country with an average domestic uncertainty level (mean = 0.125) but only weak veto playing (25th percentile), has a 26% higher likelihood of concluding a PTA then a country facing the same level of domestic uncertainty but with strong veto playing (75th percentile). In contrast, a country with very high levels of domestic uncertainty (99th percentile) and weak veto playing has a 200% higher probability of concluding a PTA then a country with the same level of domestic uncertainty but with strong veto playing.

Figure 4: Predicted Probability of Signing a PTA for Countries having Different Degrees of Veto Playing, under Various Levels of Uncertainty



The results for the other control variables are mostly in line with theoretical expectations across all models. Specifically, the estimators for $\Delta GDP_{i,t-1}$ and $Democracy_i$ are consistently statistically significant with a negative / positive effect, respectivly, on $PTA\ Sign_i$ confirming earlier findings in the literature (see Mansfield & Milner 2018). Moreover, while the coefficient of the control variables $Ally_{ij}$ and $Market\ Size_i$ seem not to have any statically significant effect on PTA formation, the level of *World Uncertainty* seems to have a very small but positive effect on the conclusion of a PTA. The effects of other variables are quite robust regardless of the model specification with the significant estimators of $Development\ Level_i$, $Existing\ PTA_{ij}$, $Distance_{ij}$, $Continguity_{ij}$ and WTO_{ij} confirming previous findings in the literature. In sum, our results clearly indicate a negative relationship between domestic uncertainty and PTA formation.

5.2 Design of PTAs

To test our second hypothesis, we rely on a series of bivariate and multivariate standard OLS models regressing the win-set synchronization index, $Winset\ Sync_i$, for a given bilateral PTA against $Domestic\ Uncertainty_i$. Given the skewedness of the win-set synchronization index, we take the log ratio. Overall, the results displayed in Table 2 yield support for the assumption that higher levels of domestic uncertainty would lead to a higher resort to win-set synchronization at the level of PTA design, all else equal. Specifically, we observe a statistically significant positive effect of $Domestic\ Uncertainty_i$ on $Winset\ Sync_i$, which is consistent across different model specifications. This result is coherent with our theoretical expectations, whereby higher levels of domestic uncertainty prompt higher volatility of domestic preferences by reshuffling the pre-existing interests and priorities of various domestic stakeholders, be they belonging to the business sector, organized labor, or civil society. As discussed earlier, win-set volatility does not only impact on the present, but can be expected to continue in the future, thus impacting on the ratification and enforcement of a PTA. That makes treaty design a relevant indicator of how negotiators craft institutions in a way they see fit for dealing with the future in uncertain times.

Table 2: Estimated Effects of Domestic Uncertainty on PTA Design Features

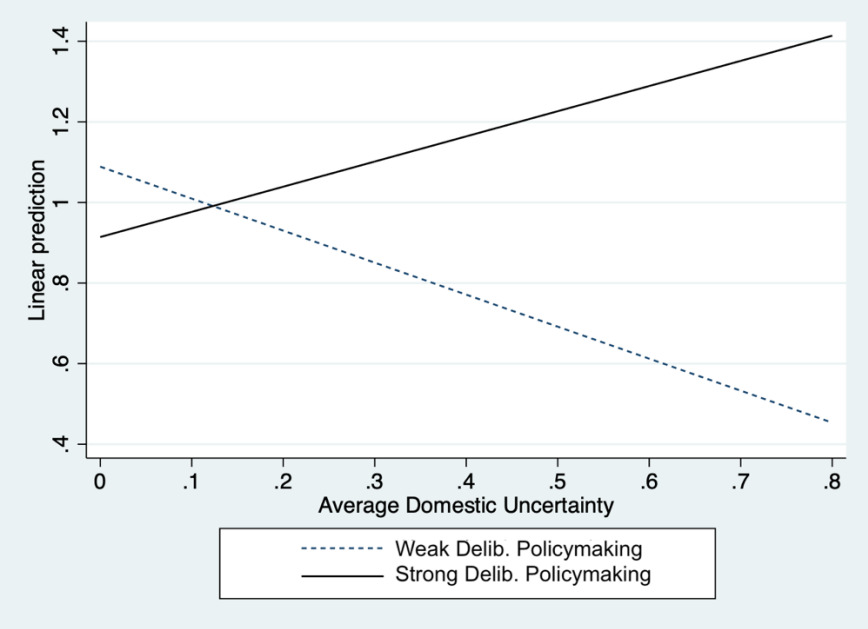
	Dependent Variable					
	Winset Sync			*Winset Sync Reg*		
	II(a)	II(b)	II(c)	II(d)	II(e)	II(f)
Domestic Uncertainty	*1.415*** (0.553)*	*-1.241*** (0.557)*	*-1.539*** (0.619)*	*1.253*** 0.458)*	*-0.959* (0.541)*	*-1.183* (0.616)*
Delib. Policymaking		*-0.490 (0.310)*			*-0.537* (0.309)*	
Domestic Uncertainty X Delib. Policymaking		*2.379** (1.067)*			*2.133* (1.104)*	
Delib. Policymaking Levels			*-0.103 (0.071)*			*-0.101 (0.072)*
Domestic Uncertainty X Delib. Policymaking Levels			*0.700** (0.277)*			*0.607** (0.294)*
ΔGDP		*0.013*** (0.003)*	*0.013*** (0.003)*		*0.009*** (0.003)*	*0.009*** (0.003)*
Democracy		*0.028 (0.020)*	*0.018 (0.018)*		*0.039* (0.022)*	*0.025 (0.019)*
WTO		*0.142** (0.058)*	*0.139** (0.058)*		*0.160*** (0.060)*	*0.156** (0.061)*
Flexibility Index		*0.039** (0.017)*	*0.040** (0.017)*		*0.031* (0.017)*	*0.032* (0.017)*
Depth Index		*0.299*** (0.013)*	*0.299*** (0.013)*		*0.219*** (0.013)*	*0.218*** (0.012)*
Constant	*0.799*** (0.086)*	*-0.284*** (0.106)*	*-0.228* (0.111)*	*0.606*** (0.071)*	*-0.321*** (0.113)*	*-0.268** (0.116)*
N	*329*	*319*	*319*	*329*	*319*	*319*
R2	*0.0267*	*0.7733*	*0.7741*	*0.0307*	*0.6704*	*0.6706*

Note: Results are OLS regression estimates. For all entries robust standard errors were calculated. Statistical significance is indicated as follows: *p<0.1; **p<0.05; ***p<0.01. All tests of significance are two-tailed.

Coherently with our expectations that deliberative processes, as they tend to involve wider interest representation increase the probability that domestic uncertainty will be reflected in PTA design, the interaction coefficient of *Domestic Uncertainty*$_i$ and *Delib. Policymaking*$_i$ is positive and statistically significant. The interaction coefficient indicates the difference in slopes for the effect of uncertainty on *Winset Sync*$_i$ when deliberative policymaking is weak vs. strong. As shown in Figure 5, when deliberative policymaking across PTA members is weak, the effect of domestic uncertainty on *Winset Sync*$_i$ is negative. That is, when national policymakers are faced with domestic uncertainty, but interest representation is low in

negotiations, they tend not to leave a lot of room for win-set synchronization in a text, all else equal. That is in line with the notion that, in the absence of a strong perception of win-set volatility, negotiators would address uncertainty through traditional flexibility provisions such as safeguards, or opt-outs, rather than carving out greater room for further negotiation and adaptation of the PTA to updated domestic preferences. Conversely, in the presence of strong deliberative policymaking, negotiators would be able to better sense volatility in their respective constituencies, hence addressing it institutionally by increasing win-set synchronization in a PTA. Specifically, if a country faces high domestic uncertainty (90th percentile), when moving from weak deliberation to strong deliberation, we observe an increase in the logged win-set synchronization index from 2.34 to 3.00. This effect is even more pronounced if we look at very high levels of domestic uncertainty (99th percentile). Here, when moving from weak deliberation to strong deliberation, the value of the logged win-set synchronization index nearly doubles, moving from 1.84 to 3.62.

Figure 5: Linear Prediction of Score at Win-Set Synchronisation Index depending on degree of Deliberative Policymaking



When repeating the same series of models replacing the response variable *Winset Sync*$_i$ with a smaller index capturing instances of win-set synchronization in PTAs' regulatory provisions, *Winset Sync Reg*$_i$, we obtain similar results suggesting a statistically significant, positive effect of domestic uncertainty on win-set synchronization provisions related to regulatory items, see Models II(d), II(e), and II(f). Furthermore, all six models present analogous and statistically

significant results if we include all existing PTAs as opposed to only bilateral ones. Looking at the effect of our control variables, the coefficient of $Democracy_{i,}$ measuring the average democracy score across all PTA members, seems positive but not significant. Moreover, it seems that macroeconomic conditions, $\Delta GDP_{i,t-1,}$ have a highly significant, positive effect on our response variable. We also account for whether the majority of PTA member countries are also WTO members, which increases the level of synchronization. Shared WTO membership guarantees parties common standards of behavior which are expected to enhance mutual confidence about the possibility of keeping negotiations open after signing – as opposed to sealing every commitment at the level of text. Lastly, as expected, there is a positive and statically significant relationship between the level of general flexibility and depth, and win-set synchronization. Overall, our main predictors *Domestic Uncertainty*$_i$, and *Delib. Policymaking*$_i$, consistently show higher predictive power than all abovementioned controls.

6. Robustness Checks

6.1 Formation of PTAs

We deploy a range of modifications to our main model to verify the robustness of our findings on the negative effect of uncertainty on PTA formation. First, while our main models rely on the level of domestic uncertainty a country faces in a given year, it does not account for the overall trend in domestic uncertainty, e.g. whether a country finds itself in a period in which domestic uncertainty has been falling or rising for some time. For instance, one might argue that policymakers are particularly hesitant to sign an international agreement when domestic uncertainty has been on a constant rise in recent times. To test for this time-variant factor, we replace our main predictor *Domestic Uncertainty*$_i$ with *Domestic Uncertainty Rise*$_i$, indicating whether domestic uncertainty in a given country *i* has been rising for the past three consecutive years. The results reported in the first column of Table 3 show that rising domestic uncertainty has indeed a negative impact on PTA formation, providing additional evidence that our theorised negative relationship between domestic uncertainty and the conclusion of international agreements is robust. As shown in Figure 6, a country is 80% less likely to sign a PTA if domestic uncertainty has risen over the last three consecutive years than if it had not.

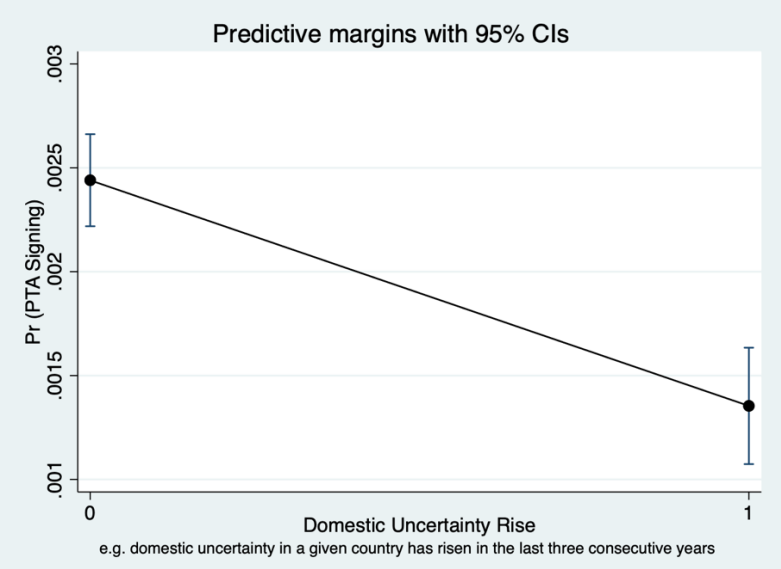
Table 3: Estimated Effects of the Rise of Domestic Uncertainty and Political Fragility on PTA Formation

	Dependent Variable			
	PTA Sign$_{ij}$			
	I(e)	I(f)	I(g)	I(h)
Domestic Uncertainty Rise	*-0.619****			
	(0.099)			.
Political Fragility		*-0.058****	*-0.079****	*-0.040****
		(0.003)	*(0.004)*	*(0.008)*
Veto Playing	*-0.518****		*0.036*	*0.818****
	(0.118)		*(0.122)*	*(0.180)*
Political Fragility X Veto Playing				*-0.108****
				(0.018)
ΔGDP	*-0.017****		*0.010**	*0.012***
	(0.003)		*(0.005)*	*(0.005)*
Ally	*0.055*		*0.0594*	*0.068*
	(0.061)		*(0.065)*	*(0.065)*
Democracy	*0.052****		*0.003*	*0.008*
	(0.009)		*(0.009)*	*(0.009)*
Market Size	*2.34e-15*		*3.28e-15*	*4.33e-15*
	(9.50e-15)		*(9.08e-15)*	*(9.18e-15)*
Development Level	*8.34e-06****		*5.29e-07*	*-8.22e-07*
	(1.23e-06)		*(7.17e-07)*	*(7.34e-07)*
World Uncertainty	*-0.0001****		*0.00001*	*0.00001**
	(8.31e-06)		*(9.90e-06)*	*(9.97e-06)*
Existing PTA	*2.241****		*2.486****	*2.483****
	(0.051)		*(0.054)*	*(0.054)*
PTA Diffusion	*0.738****		*0.018*	*0.012*
	(0.150)		*(0.109)*	*(0.110)*
Distance	*-0.00009****		*-0.00002****	*-0.00002****
	(6.12e-06)		*(4.79e-06)*	*(4.78e-06)*
Contiguity	*0.525****	.	*0.607****	*0.614****
	(0.090)		*(0.110)*	*(0.110)*
WTO	*0.391****		*0.492****	*0.525****
	(0.052)		*(0.059)*	*(0.060)*
Constant	*-1.963****	*-4.227****	*-5.817****	*-6.289****
	(0.150)	*(0.119)*	*(0.318)*	*(0.340)*
N	*305,683*	*456,816*	*303,309*	*303,309*
Country Fixed Effects	*YES*	*YES*	*YES*	*YES*
Time Fixed Effects	*YES*	*YES*	*YES*	*YES*

Note: Results are logistic regression estimates. For all entries robust standard errors were calculated and clustered by country pair. Statistical significance is indicated as follows: *p<0.1; **p<0.05; ***p<0.01. All tests of significance are two-tailed.

Second, we test whether our hypothesis still holds if we use another proxy then the WUI for domestic uncertainty. Measures of domestic uncertainty are scarce and even more difficult to obtain for a broad coverage of countries as needed for our analysis. However, one potential alternative proxy for domestic uncertainty is the State Fragility Index compiled by the Centre for Systemic Peace (Goldstein et al 2010). The State Fragility Index appears as an appropriate alternative to the WUI as it covers a big population of countries – the world's 167 countries with populations greater than 500,000 – between 1995 and 2018. The index is based on a range of political, economic and social indicators which track key dimensions of social conflict, governance, and sustainable human/physical development at a country level. While political fragility is not equitable to domestic uncertainty, it seems to be a relatively good proxy for our purposes. In particular, as the correlation between the WUI and the State Fragility Index is very small (0.09). We test the effect of political fragility as a proxy of domestic uncertainty on PTA formation with the same model specification as above, e.g. with the full set of controls as well as country-specific and time fixed effects. The results confirm our previous findings that domestic uncertainty, regardless of the proxy used, has a negative effect on PTA formation.

Figure 6: Effect of Domestic Uncertainty Rise on the Probability of Singing a PTA



6.2 Design of PTA

To test for the robustness of our statistical analysis concerning our second hypothesis, we ran a series of three regressions analogous to our main models discussed earlier, maintaining *Winset Sync*$_i$ as our outcome variable, but introducing the degree of veto playing and civil

society participation as alternative proxies for deliberative policymaking as well as political fragility as alternative measure of domestic uncertainty. Coefficients from each of these alternative model specification are in line with our main results, further corroborating our theoretical intuition. Results of our robustness checks are displayed in Table 4.

Table 4: Estimated effects of domestic uncertainty and political fragility on PTA design features

	Dependent Variable		
	Winset Sync		
	II(g)	II(h)	II(i)
Domestic Uncertainty	*-1.813**	*-1.608***	
	(0.950)	*(0.766)*	
Political Fragility			*-0.042***
			(0.017)
Delib. Policymaking			*0.0005*
			(0.000)
Political Fragility X Delib. Policymaking			*0.0001***
			(0.000)
Veto Playing	*1.250****		
	(0.374)		
Domestic Uncertainty X Veto Playing	*2.773**		
	(1.517)		
Civil Society Participation		*0.175*	
		(0.300)	
Domestic Uncertainty X Civil Society Participation		*2.376***	
		(1.156)	
ΔGDP	*0.013****	*0.012****	*0.019****
	(0.003)	*(0.003)*	*(0.007)*
Democracy	*0.066****	*-0.013*	*0.014*
	(0.020)	*(0.017)*	*(0.024)*
WTO	*0.140***	*0.109**	*0.204****
	(0.057)	*(0.059)*	*(0.071)*
Flexibility Index	*0.042***	*0.044***	*0.046***
	(0.017)	*(0.017)*	*(0.022)*
Depth Index	*0.298****	*0.296****	*0.247****
	(0.013)	*(0.013)*	*(0.015)*
Constant	*-0.019*	*0.294***	*-0.142*
	(0.153)	*(0.127)*	*(0.240)*
N	*319*	*319*	*331*
R2	*0.7769*	*0.7759*	*0.6766*

Note: Results are OLS regression estimates. For all entries robust standard errors were calculated. Statistical significance is indicated as follows: *p<0.1; **p<0.05; ***p<0.01. All tests of significance are two-tailed.

In Model II(g), we interact *Domestic Uncertainty*$_i$ with the continuous variable *Veto Playing*$_i$, measuring the extent to which domestic veto players constrain the policy process in each respective constituency, averaged across PTA members. Values for this variable are retrieved from the "Checks on Government" attribute in the Global State of Democracy Indices, which captures the degree of government scrutiny by national parliaments, the judiciary, and the media (The Global State of Democracy, 2022). The interaction term has a statistically significant positive effect on *Winset Sync*$_i$. In Model II(h), we interact *Domestic Uncertainty*$_i$ with *Civil Society Participation*$_i$, which expresses the degree of involvement of civil-society actors in consultations with policymakers and is retrieved from the Varieties of Democracy Dataset (Coppedge et al., 2023). Civil-society actors considered include NGOs, unions, and political activists. In line with our expectations, the results confirm our main findings that a greater degree of civil society participation has a positive and significant effect on win-set synchronization. Lastly, in Model II(i), we replace our main predictor *Domestic Uncertainty*$_i$ with *Political Fragility*$_i$, which measures dimensions of social conflict, governance, and sustainable human/physical development at a country level. The variable is retrieved from the State Fragility Index compiled for the Centre for Systemic Peace (Goldstein et al 2010). In line with our other findings, political fragility seems to have a positive effect on the inclusion of provisions aimed at securing future policy space as measures in the win-set synchronization index. Overall, the positive effect of all variables tested above suggest that our findings that domestic uncertainty, or proxies thereof, increase resort to win-set synchronization at the level of PTA design, are robust.

7. Discussion and Concluding Remarks

In sum, our results confirm the two hypotheses formulated in this paper on the effects of domestic uncertainty on PTA formation and design. Regarding PTA formation, our analysis clearly shows that domestic uncertainty, conceptualized as the concrete manifestation of uncertainty in the form of changing political and economic conditions during international negotiations, has a significant impact on the probability of a country concluding a PTA. In particular, our analysis demonstrates that the higher the domestic uncertainty a country faces, the lower the probability of a country signing a PTA. Our results thus complement existing literature on the types of constraints negotiators face as they negotiate international economic institutions. We expand this literature by placing our focus on the mechanism of win-set volatility introduced above. Specifically, in contrast to the more or less time-invariant

characteristics in a country's institutional setup and public debate (which are often captured with variables such as the level of domestic veto-playing or level of democracy), we focus on the more dynamic aspect of different levels of domestic uncertainty and its impact on the formation of international institutions.

By doing so, we seek to highlight a paradoxical aspect of international institutions, and namely that while international institutions are often portrayed as mitigating the uncertainty entailed in international cooperation, the formation of international institutions in the first place can be thwarted by domestic uncertainty. The statistical analysis presented in this paper thus helps show that a country's disposition towards international trade cooperation is equally, if not more, subject to domestic politico-economic changes than it is to more time-invariant factors highlighted by previous studies such as domestic institutional constraints, democratic accountability, and interest representation (Gilligan 1997; Hiscox 1999; Mansfield and Milner 2012). Finally, our results suggest that it might be premature to conclude that the recent stagnation in the formation of the international economic institutions simply reflects some kind of saturation phenomenon. In contrast, our analysis implies that the waning enthusiasm for international cooperation in the fields of trade and investment might be due to the higher levels of domestic uncertainty many countries have been facing in recent times.

Moving to PTA design, our analysis contributes to expanding existing notions of institutional flexibility, exploring whether and how the latter is affected by domestic uncertainty. Our results show that, as negotiators design a PTA under higher levels of domestic uncertainty, they will also feel the need to equip a text with greater policymaking space to buffer against the prospect of prolonged win-set volatility – both in view of PTA ratification and implementation. Specifically, trade policymakers would include into an agreement win-set synchronization arrangements, to be able to periodically adjust given PTA provisions to evolving domestic preferences, complementing them through additional decisions, protocols, or implementing regulations. In the history of preferential trade, this dimension of institutional flexibility is distinct from well-established formulations of the concept in terms of safeguards or countervailing measures. While safeguard provisions consist of deviations from a text or temporary suspensions of given provisions, win-set synchronization carries the idea of PTA provisions as being both amendable and adjustable over time, without altering or suspending the overall application of the agreement. That is also a function of the increasing depth characterizing 21st Century PTAs, which has often diminished the ability of a text to ex ante

regulate beyond-the-border policies without needing renegotiation, however circumscribed ex post decision-making may be.

We recognize that our analysis has a range of potential limitations. Our analysis does not account for the heterogeneous sources of uncertainty or country's abilities to cope with different levels of uncertainty. Specifically, negotiators from some countries might be more sensitive to domestic uncertainty than others. This in turn could have an impact on the propensity of a country to sign a PTA. However, the analyses deployed here is limited in controlling for such endogenous factors. In this context, comparative case studies might prove insightful.

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