



Exporting under trade policy uncertainty: Theory and evidence



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ARTICLE INFO

Article history:

Received 10 February 2014

Received in revised form 30 May 2014

Accepted 30 May 2014

Available online 16 June 2014

JEL classification:

D8

F1

F4

Keywords:

Policy uncertainty

Trade

World Trade Organization

Bindings

ABSTRACT

I provide novel evidence for the impact of trade policy uncertainty on exporters. In a dynamic, heterogeneous firms model, trade policy uncertainty will delay the entry of exporters into new markets and make them less responsive to applied tariff reductions. Policy instruments that reduce or eliminate uncertainty, such as binding trade policy commitments at the WTO, increase entry. The predictions are tested on disaggregated, product-level Australian imports with model-consistent measures of uncertainty. The estimates show that growth of exporter-product varieties would have been 7% lower between 1993 and 2001 without the binding commitments implemented after the WTO was formed in 1996. If Australia reduced all its tariffs and bindings to zero, more than half of predicted product growth is accounted for by removing uncertainty. These results illuminate and quantify an important new channel for trade creation.

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1. Introduction

Policy commitment and credibility are often thought to be extremely important for inducing economic agents to make investments, particularly when they entail large irreversible costs. Trade policy is one area where commitment and credibility are potentially very important (Limão and Maggi, 2013; Maggi and Rodriguez-Clare, 1998; Tang and Wei, 2009). A founding principle of the World Trade Organization (WTO) is to establish predictability of trade policy.¹ Despite this objective, a substantial share of the trade between WTO members takes place under flexible trade policy regimes where trade barriers are subject to change. Whether this creates policy uncertainty that has quantifiable impacts on trade has not been well understood. This is partly because most research focuses on trade policy in static, deterministic frameworks. But more importantly, evidence measuring the importance of policy uncertainty in the trade context is limited. I provide novel evidence that when trade policy is uncertain, multilateral policy commitments are an important channel of gains from trade agreements.

Even though the potential for large scale “trade wars” currently seems remote, trade policy uncertainty is pervasive in the world trade

system. For example, in the wake of the financial crisis in 2008, leaders of the G-20 repeatedly pledged not to “...repeat the historic mistakes of protectionism of previous eras.”² Such assurances were necessary because there exists a wide scope for protectionism even *within* the WTO. Members make enforceable commitments not to raise applied tariffs above maximum binding constraints.³ These “bindings” are presently well above applied tariffs in some countries. Over 30% of the tariff lines of WTO members could be increased unilaterally without providing compensation to affected trade partners (Bchir et al., 2005). Brazil, for example, could raise tariffs from an average of 11.5 to 36.2%; Indonesia from 6.7 to 35.6%, and; the average developing country from 8 to 28% (Messerlin, 2008). In short, the worst case scenario if governments were to backslide into protectionism, yet not violate any WTO rules is large.⁴

Securing multilateral commitments to eschew 1930's era protectionism was a founding principle of the General Agreement on Tariffs and Trade (GATT), the precursor of the WTO. The 1948 GATT charter explicitly states that “binding against increase of low duties or of duty-free treatment shall *in principle* be recognized as a concession equivalent in value to the substantial reduction of high duties or the

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¹ Under the principle “Predictability: through binding and transparency” the WTO explains that “Sometimes, promising not to raise a trade barrier can be as important as lowering one, because the promise gives businesses a clearer view of their future opportunities” http://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm (accessed January 20, 2014).

² <http://www.londonsummit.gov.uk/en/summit-aims/summit-communicue/> (accessed November 9, 2010).

³ A country that violated its bindings would have to provide compensation to affected trade partners or face WTO sanctioned retaliatory tariffs.

⁴ There are also other ways to increase protection within the WTO that can and have been used in the past such as anti-dumping cases, invoking special safeguard tariffs, or raising other non-tariff barriers.

elimination of tariff preferences.”⁵ The use of tariff bindings and the existence of gaps between applied and binding rates are a feature of optimal trade agreements (Amador and Bagwell, 2013).⁶ But in practice, the principle that constraints on future policy could be as valuable as applied tariff concessions has never been widely accepted or quantified; the trade off continues to be a considerable source of controversy in multilateral negotiations (Evenett, 2007; Mattoo and Subramanian, 2008).

My main contribution is to empirically examine the impact of tariff binding commitments, which lie at the heart of the GATT/WTO, on trade and export market entry. Little is known about effect of bindings on trade because most empirical research has focused on aggregate flows or applied protection. The cross-country study in Rose (2004), for example, questions whether there are any tangible benefits to WTO membership. In contrast, Subramanian and Wei (2007) find that the WTO does promote trade when controlling for differential rates of liberalization and access to other preferences. Firm-level evidence in Buono and Lalanne (2012) finds weak extensive margin effects for the tariff changes induced by the Uruguay Round when the WTO was created. However, they do not control for the change in binding commitments induced by the round, instead focusing only on applied concessions.

The channel explored here is uncertainty over trade policy. Dixit's (1989) seminal paper on firm entry and exit under uncertainty shows that when sunk market entry costs are combined with uncertainty over future conditions there may be an option value of waiting to invest. New exporters face both of these elements: evidence suggests that there are large sunk costs of entry (cf. Roberts and Tybout, 1997) and there is substantial uncertainty over trade policy. Existing models of policy uncertainty have been largely theoretical. Francois and Martin (2004) provide simulation evidence that by truncating the distribution of tariffs, WTO bindings on agricultural products reduced tariff volatility and raised welfare. In an independent theory piece, Sala et al. (2010) model the impact of bindings in a real options framework but don't provide empirical evidence; they solve the model numerically and then assess the impact of changes in tariffs and bindings for different parameterizations.

I provide a bridge from the theory to evidence by extending the tractable, heterogeneous firms trade model in Handley and Limão (2012) to encompass binding tariff commitments. Prospective entrants compare the value of beginning to export today versus waiting. On the margin, the present value of the difference between exporting and waiting reflects only the potential for “bad news” and this leads firms to delay entry. Bindings reduce uncertainty by constraining the range of observable tariffs and limiting losses in the worst case scenario. I provide new theoretical results on the effect of tariff liberalization on entry for unilateral tariff reductions versus multilateral reductions in bindings. In particular, the model delivers analytical expressions for the elasticity of the entry cutoff of the marginal firm to changes in bindings and tariffs under uncertainty.

I use the model to empirically quantify the policy uncertainty that arises through gaps between applied tariffs and bindings for Australia. I write the model in terms of a latent variable capturing the value of entry and estimate a linear probability model of observing trade in a disaggregated product as a measure of firm entry. This approach is complementary to Handley and Limão (2012), who focus on how preferential trade agreements can reduce trade policy uncertainty and induce entry rather than how variation in bindings at the WTO affect entry. Using firm-level data, they show that the reduction in uncertainty following Portugal's accession to the European Community explains a substantial share of net entry into EC markets. The method used here

is novel for two reasons: first, I am able to use the observable levels of tariff bindings to test for the impact of uncertainty with product-level data when the standard deterministic model is nested as the null hypothesis; second, the uncertainty measures can be directly controlled by policy so I can use the estimated model to quantify the relative impact of reducing applied protection versus the impact of reducing binding commitments.

The empirical method requires detailed product level trade data and corresponding data on applied and bound tariffs for a single importer. I focus on the role of Australian trade policy for exports to Australia from 1991 to 2001. High quality and detailed data on products and tariffs are available during this period and, more importantly, there is wide variation across products in binding commitments in both the cross-section and through time. Bound rates range from zero to as high as 55%. On average, Australia's MFN tariff is 4.5 log points during this period. Binding commitments are twice as high, at 9.4 log points. This provides an ideal setting to identify whether or not binding tariff commitments matter for entry and to quantify their role in multilateral liberalization.⁷ As described in Section 2, other aspects of Australian trade policy raise issues of uncertainty that are hardly unique to this application.

I find that lowering bindings, while holding applied tariffs fixed, brings the entry decision forward by reducing the incentive to delay investment. The estimates indicate that the cautionary effect of uncertainty makes entry up to 70% less responsive to tariff reductions on average. In a quantification exercise, the model predicts that if Australia unilaterally reduced tariffs to free trade levels in 2001, the number of traded products would increase by 4%. Alternatively, if Australia both reduced tariffs to zero and bound them through WTO commitments, the combined impact of removing caution and the incentive to delay investment would increase the number of traded products by 17%. More than half of predicted new product growth is accounted for by reducing uncertainty. In a counterfactual exercise where Australia lowers its tariffs from 1993 to 2001, but does not implement Uruguay Round binding commitments, growth in exporter-product varieties would have been 7% lower. These estimates empirically quantify the value of binding tariff commitments for the first time.

In the next section, I describe the Australian trade policy context and semi-parametric evidence for the role of bindings on trade. In Section 3, I develop a *general model* that provides a mechanism for how policy uncertainty affects trade. I then take the predictions of the model to data using reduced form and model-consistent measures of policy uncertainty back to the data in Section 4. I quantify the role of uncertainty and conduct several robustness checks. Section 5 concludes.

2. The application to trade policy in Australia

I focus on Australia, a country with a confluence of high quality data and policy variation relevant to uncertainty. In recent history, Australia maintained fairly high applied trade barriers. Unilateral liberalization means that there are now large gaps between applied protection and binding commitments. A simple measure of the gap between applied tariffs and bindings is the log of the ratio between the bound and applied MFN tariff rates. The trade policy literature refers to a positive gap in this measure as “binding overhang” or “water in the tariff.” In Australia, the gap between applied tariffs in binding ranges from zero to 55% on bound tariff lines.

While Australia has low applied tariffs at present, this has not been the case historically. Lloyd's (2008) careful construction of a 100 year time series for Australian tariffs shows that some sectors were highly protected as recently as the early 1990s. There was a legacy of protection for non-competitive industries and political interference in the tariff making process going back to the 1920s (Glezer, 1982). Gradual and, more importantly, *unilateral* liberalization began in the

⁵ Emphasis added. United Nations Conference on Trade and Employment, Final Act and Related Documents, Interim Commission for the International Trade Organization, April 1948, p. 31.

⁶ Beshkar et al. (2011) extend the theory and find empirical support for its predictions with WTO binding commitments.

⁷ In contrast, many countries bound their tariffs at across the board ceilings of 25 or 40%, leaving no variation to exploit empirically.

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