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TRADE POLICY TRANSPARENCY AND INVESTOR CONFIDENCE - THE IMPLICATIONS OF AN EFFECTIVE TRADE POLICY REVIEW MECHANISM

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ABSTRACT

TRADE POLICY TRANSPARENCY AND INVESTOR CONFIDENCE - THE IMPLICATIONS OF AN EFFECTIVE TRADE POLICY REVIEW MECHANISM

Joseph F. Francois

This paper is concerned with the value of the WTO's Trade Policy Review Mechanism, particularly its transparency role and its potential role in policy stability, for investor confidence in developing countries. The implications of reduced risk and uncertainty regarding trade policy for investor confidence, and ultimately for the capital stock and the long-run structure of production, are the examined in an analytical model. Certainty equivalence is employed to assess the general equilibrium effects of risk and uncertainty. Their reduction can boost risk adjusted returns, leading to an increase in long-run levels of capital.

Keywords: trade policy uncertainty and investment, TPRM, WTO

JEL codes: F13, F43

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NON-TECHNICAL SUMMARY

The rights and obligations embodied in the WTO are not limited to tariffs. They also include a set of agreements that limit the scope of non-tariff actions. Adherence to these obligations is also reinforced by procedures for the settlement of disputes and for the regular monitoring of the policies of World Trade Organization (WTO) Members through the Trade Policy Review Mechanism (TPRM). The TPRM was established (on a provisional basis) in 1989 as a part of the GATT following the December 1988 Montreal Mid-Term Review of the Uruguay Round. It was made a permanent part of the World Trade Organization (WTO) through Annex 3 of the 1995 Marrakesh Agreement establishing the World Trade Organization. The stated purpose of the TPRM is enhancement of the transparency and understanding of WTO Members' trade policies.

This paper is concerned with the value of the WTO's Trade Policy Review Mechanism, particularly its transparency role and its potential role in policy stability, for investor confidence in developing countries. The institutional background of the TPRM is discussed. The implications of reduced risk and uncertainty regarding trade policy for investor confidence, and ultimately for the capital stock and the long-run structure of production, are then examined in an analytical model. Certainty equivalence is employed to assess the general equilibrium effects of risk and uncertainty.
What are the benefits of the TRPM for developing countries? Two sets of potential benefits are emphasized here. Both involve reduction in policy uncertainty (broadly defined to include risk of policy changes given institutional constraints, and uncertainty about the exact parameters that characterize this process). The first benefit relates to improved monitoring of trading partner commitments under the various WTO agreements. In particular, this involves added insurance that the larger export markets (i.e. the OECD) will meet their commitments regarding market access for developing countries. The second benefit relates to the credibility of domestic policy reform and to how such reform is viewed by domestic and international investors.

It is argued that a truly effective TPRM is one that, when applied to trading partners, contributes to political support for trade reform at home, to the general orientation of the economy toward tradable activities, and to investor confidence. However, for developing countries to benefit, they must actively engage themselves in the TPRM process, pressing their own interests not just with regard to OECD markets, but also with regard to the trade policies of other developing countries. An effective TPRM should also serve to reinforce the credibility and rationality of home policies regarding the domestic and international economy. The TPRM does not at present conform to this ideal model, though it is moving in that direction.

The current value of the TPRM reporting process lies in its role as a purely positive, rather than normative report. It focuses on accurate information. This alone is a path-breaking and daunting task. TPRM reports describe the policy landscape, exposing it to the daylight for the WTO Members, their leaders, the business press, academia, and the electorate themselves to inspect, evaluate, and discuss. In the process, they also summarize external views on these policies. (Not surprisingly, political
pressure is applied to limit this process). The potential benefits of the mechanism actually go beyond the effects emphasized in this paper. The availability of comparable data across countries would place the developing countries on a more equal footing during trade negotiations. The TPRM can also serve to keep trade policy a relatively open process, important for the democratic setting of policy. In the poorer countries, it can provide an otherwise impossible chance to examine the overall trade policy implications of otherwise disjoint policy decisions.

Within this pure informational role, there is scope for improving the value of the TPRM to developing countries. Some of the roles ascribed in this paper are in reality either nascent or non-existent. Possible improvements include better organization and retention of the data already collected as part of the TPRM process, better dissemination of the information collected as part of the TPRM process, and technical assistance in the use of this information. Such technical assistance should target local stake-holders, and promote their and use of the information collected to inform and guide the local policy process.
1. Introduction

The rights and obligations embodied in the WTO are not limited to tariffs. They also include a set of agreements that limit the scope of non-tariff actions. Adherence to these obligations is also reinforced by procedures for the settlement of disputes and for the regular monitoring of the policies of World Trade Organization (WTO) Members through the Trade Policy Review Mechanism (TPRM). The TPRM was established (on a provisional basis) in 1989 as a part of the GATT following the December 1988 Montreal Mid-Term Review of the Uruguay Round. It was made a permanent part of the World Trade Organization (WTO) through Annex 3 of the 1995 Marrakesh Agreement establishing the World Trade Organization. The stated purpose of the TPRM is enhancement of the transparency and understanding of WTO Members' trade policies.

When considering the gains from increased stability and transparency of policy regimes under WTO rules (vis-à-vis the GATT 1947 system), it is helpful to recall that for much of the postwar period a common characteristic of most developing country trade regimes was their ingenuity in combining policy instability with opacity. In other words, investors were faced with a mix of risk that policies would change unfavorably, combined with uncertainty about the exact nature of this process. In this context
periodic monitoring, such as that undertaken through the TPRM may enhance the domestic and foreign credibility of trade policy and reform.

This paper is concerned with the value of the TPRM, and particularly its promotion of transparency, for investor confidence in developing countries. It explores the analytical relationship of mechanisms like the TPRM to investor confidence. Following background on the TPRM itself (Sections 2 and 3), the implications of reduced risk and uncertainty regarding trade policy for investor confidence, and ultimately for the capital stock and the long-run structure of production, are examined in Sections 4 and 5. Conclusions are offered in Section 6.

2 What is the TPRM?

The TPRM was introduced on an interim basis in 1989. It was motivated by concerns that the only available review of global trade policies at the time was one produced by the Office of the U.S. Trade Representative. Logically, this report was viewed as one that was biased towards U.S. interests. (See Keesing 1998 for discussion). Being a U.S. report, it also steered clear of U.S. trade barriers.

In its first years, the TPRM was limited to a review of policies affecting trade in goods. However, with the creation of the WTO, which also includes services and intellectual policy commitments, the TPRM was expanded to cover new areas like trade in services and intellectual property rights. The TPRM was moved from interim to permanent status with the creation of the WTO.

The frequency of reviews varies across WTO Members. There are technically three review cycles: every two years for the four largest trading entities (the United States, the European Union, Japan, and Canada); every four years for the next sixteen countries; and every six years for other Members. There is nothing sacred in the 2
year cycle, and one frequent option raised for stretching the resources devoted to the TPRM is to stretch the review time out for the big 4. Even under the existing schedule, in practice not all Members are reviewed on this cycle. There are provisions for a longer interval for least-developed countries, and the practice has been to review the smaller trading countries only when they request a review.

The TPRM reports are prepared by the WTO's Trade Policies Review Division (the TPRD). This Division, at full strength, consists of only one Director, sixteen professional and eleven support staff. The approach of the TPRM is therefore very different from country monitoring by the World Bank and the IMF. Where the Bank and IMF, comparatively speaking, have armies of analysts following national policy developments, the WTO works on a relative shoestring budget. Yet even these resources are under constant pressure, as the mission of the WTO has expanded greatly vis-à-vis the old GATT 1947 without a comparable expansion of resources.

The TPRD writes its reports on the basis of Member replies to a questionnaire, discussions with officials during mission visits, and information collected from other (unofficial) sources. The entire process usually takes about ten months. While the TPRM reports draw on academic research, they have also generated occasional reviews of national policy within the academic press. This includes "reviews" of the reviews published in the journal *World Economy*. (See for example Anderson 1995, Balasubramanyam 1995, Fane 1996, Gunning 1996, Holden 1995, Kehoe 1995, Krenin 1996, Krueger 1995, Pelkmans and Carzaninga 1996, Qureshi 1995, Togan 1995, and Wonnacott 1996.)
3. Why the TRPM?

3.1 Policy Credibility in Developing Countries

What are the benefits of the TRPM for developing countries? Two sets of potential benefits are emphasized in this section. Both involve reduction in policy uncertainty (broadly defined to include risk of policy changes given institutional constraints, and uncertainty about the exact parameters that characterize this process). The first relates to improved monitoring of trading partner commitments under the various WTO agreements. In particular, this involves added insurance that the larger export markets (i.e. the OECD) will meet their commitments regarding market access for developing countries. The second set of reasons relates to the credibility of domestic policy reform and to how such reform is viewed by domestic and international investors.

For the reasons outlined in this section, we should view a truly effective TPRM as one that, when applied to trading partners, contributes to political support for trade reform at home, to the general orientation of the economy toward tradable activities, and to investor confidence. However, for developing countries to benefit, they must actively engage themselves in the TPRM process, pressing their own interests not just with regard to OECD markets, but also with regard to the trade policies of other developing countries. An effective TPRM should also serve to reinforce the credibility and rationality of home policies regarding the domestic and international economy. The TPRM does not at present conform to this ideal model, though it is moving in that direction.
3.2 Market access in export markets

As trade economists, we often emphasize import protection when writing on trade policy. However, political emphasis during negotiations is not placed on home protection. Rather it is placed on protection in export markets. Improved market access, which to exporters means more restrictive bindings on protection in export markets, is the price demanded by governments for own-liberalization. This follows, in part, from the willingness of individual exporters to back initiatives that involve improved access to their export markets.

While improved market access is an important precondition for political support for liberalization at home, there are other effects that follow from improved market access conditions in export markets. Reduced uncertainty about trading conditions in export markets has significant welfare implications for the economy as a whole. (Francois and Martin (1999) offer a formalization of this point.) Concern about policy-induced terms-of-trade volatility depresses the expected level of national income. Such uncertainty can follow directly from trade policy in export markets. Beyond this, such uncertainty also provides incentives for investors to shy away from tradable sectors. Wincoop (1992) for example offers econometric evidence that increased terms-of-trade volatility leads to a higher fraction of national resources (employment and capital) being placed in the non-tradables sector. In effect, risk and uncertainty vis-a-vis the general conditions of market access (i.e. the terms-of-trade) acts as a tax on the tradables sector of the economy. It hits both import competing and export sectors. It also serves to dampen investment. Mendoza (1997) for example offers both theoretical arguments and econometric evidence supporting the
assertion that terms-of-trade uncertainty implies significant macroeconomic costs, manifested as lower investment and growth rates.

A very real source of market access uncertainty involves contingent protection. Uncertainty (and hence intertemporal variability) in the rate of protection can be particularly marked in import monitoring and administered protection regimes such as those imposed where dumping is alleged. In this regard, Winters (1994) finds that import surveillance, in the case of the European Union, has a significant dampening effect on trade. Tollefsen (1994) notes that, as a group, VERs and monitoring mechanisms are the most common form of nontariff barrier (NTB) protection applied in the industrial countries. Both are a common outcome of threatened or suspended antidumping and countervailing duty actions. Boltuck et al (1990) make a similar point with regard to the U.S. antidumping mechanism, where the system of posted duty bonds, estimated duties, and administrative reviews adds considerable price uncertainty to importers of good subject to antidumping reviews. With the spread of antidumping regimes to the developing countries themselves (a spread aided by technical assistance from the WTO, World Bank, and European Union), developing countries will encounter difficulties in this area in coming years as they try to gain access to other developing country markets.

The TPRM, by subjecting the largest OECD markets to periodic review, shifts the balance of power in this game, ever so slightly, in favor of the developing countries. It ensures that the trade policy practices of the industrial countries are subjected to periodic, public peer review. While the TPRM is not charged with passing judgement on the compliance of Members with WTO obligations, it plays an important transparency role. For example, it makes it easier for the developing countries to point collectively to the use of dumping duties by the European Union
and the United States against developing countries. Perhaps equally important, the TPRM also subjects the developing countries themselves to a review of market access conditions. Since some of the most dynamic export markets (recent crises notwithstanding) over the next two decades will be found outside the OECD, reduced uncertainty about market access in developing country markets is going to be increasingly important for developing countries themselves. (See Blackhurst et al 1995 for a discussion of the importance of developing country market access to other developing country markets.)

3.3 The TPRM and the credibility of domestic reform

The recent movement to market based policies in developing countries has served to highlight the importance of political economy constraints in the economic reform process. As North (1990) has emphasized, not all stable policy regimes are characterized by good practice. In fact, through most of history, and across most of the world, regimes conducive to stagnation and decline have been remarkably tenacious and even robust. Recent experiences with capital market crises (like those in Brazil and Russia in 1998 and 1999) have served to remind us of this reality. Politics can conspire (often with apparent ease) to stymie well-intentioned reform efforts.

Membership in the WTO involves commercial policy commitments (technically called commercial policy "bindings"). Because policy reform undertaken in the context of binding external commitments involves restraints on backsliding, it may carry more credibility than otherwise. (Francois 1997). Periodic reviews under the TPR mechanism can serve to remind capital markets of this fact, enhancing the expected durability of domestic reforms and the extent to which such
reforms are "locked-in" under external obligations. The net result under such a situation would be a reduction in policy uncertainty. As recent research (discussed above) suggests, the reduction of policy uncertainty in this way may have important positive implications for investor confidence.

3.4 The Advantages of Boosting Investor Confidence

From a developing country perspective, an effective TPRM should have two outcomes. The first is that it should boost the security of market access in export markets. At the same time, it should also boost credibility of domestic policy and policy reform. Taken together, both in turn should serve to boost investor confidence and reduce country risk. (Investment effects are emphasized in the next sections).

What are the likely investment-related benefits of a fall in country risk? They relate to dynamic mechanisms that have been examined in the context of simulation analysis by Kehoe (1998) and Young and Romero (1994) for Mexico and Baldwin et al (1997) for the Central and East European Countries (CEECs). Francois (1997) focuses more broadly on developing countries.

In general, the conditions for international capital lending reflect a number of factors, including risk of nationalization, and the security provided by outside obligations (i.e. the Mexican GATT accession in 1986 and the NAFTA, or CEEC obligations as part of their efforts to join the EU). As elements are added to the climate that reduce the underlying risk premium, investors are willing to accept projects that yield lower returns. The result is an increase in investment levels, and hence a national income gain from the reduced risk premium. This is related to expanded production and rising labour productivity and wages. Arguably, this effect
may be one of the most important medium- to long-run effects of anchoring investment-related external policy reforms.

How important are such effects? First, we know from Wincoop (1992) and Mendoza (1997) that trade-related uncertainty is associated with lower investment and growth rates and with a shift in resources toward non-tradables. In addition, we also know that riskier policy regimes are directly associated with higher capital costs. As a result, rates of return on capital differ sharply across nations. Such differences can be very persistent. Put simply, investors demand a risk premium on funds invested in nations with economic and/or political environments that are perceived as unstable.

One view on these costs, offered by Baldwin et al (1997), involves the cross-country comparison of international lending terms. Such a comparison is provided in Figure 1. The figure plots, on the horizontal axis, World Bank estimates of the basis point spread charged to emerging economies for dollar-denominated fixed rate issues in 1994-95 (World Debt Tables, 1996 Extracts, World Bank 1996). The vertical axis plots country risk indexes (from the Economist Intelligence Unit) for 1995. (Russia is off the charts on both axes.) It can be seen that country risk does correlate closely with rates of return. "Safe" markets, from the point of view of investors, enjoy a significant advantage in capital markets.

Notwithstanding the discussion to this point, it must be emphasized that the TPRM can at best be one piece in a multi-pronged approach to boosting the economic climate in developing countries. The ongoing effort to anchor domestic policy and reform, and to reassure investors, has involved multiple strategies, including regional commitments, multilateral commitments, and efforts to reduce the cost of acquiring information about local markets. The TPRM can fit into and complement this general
approach. But is only one of many elements (and one subject to political constraints in practice).

**FIGURE 1**

*Risk and return in emerging markets*

1994-1995

basis point spread on dollar-denominated fixed-rate issues, (IMF estimates for comparable maturity issues of benchmark U.S. securities).

4. **A Formalization of Some (Hoped for) Effects of the TPRM**

As noted above, periodic reviews under the TPRM mechanism may serve to remind capital markets of the fact that policies are bound. This in turn may enhance the expected durability of domestic reforms and the extent to which such reforms are "locked-in" under external obligations. To the extent that peer review also puts pressure on governments to limit backsliding, the enhancement effect may be reinforced.2 The net result under such a situation should be a reduction in the volatility of policy and investor lack of knowledge (uncertainty) about policy. At a

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2 Of course, for small countries that are "insignificant," in terms of trade shares, both bindings and peer pressure may have no effect, though the enhancement of access conditions in large export markets (the
more basic level, the TPRM may also offer a public airing of the reasoning, politics, and technical mechanisms behind the setting of commercial policies.

4.1 the steady-state with certainty

We now turn to exploring formally the links between policy volatility and the process of capital accumulation. We start with a general stylized representation of a steady-state trade equilibrium with investment under certainty, along the lines of Manning and Markusen (1991). First, assume a Ramsey economy (i.e. inter-temporal optimization and infinitely lived consumers) with a national budget constraint that holds in each time period (i.e. we are not modeling international borrowing.) This can be represented by the following system of equations:

\begin{align}
(1) \quad e(p, q) - g(p, k : v) - m \cdot (p - p^*) &= B \\
(2) \quad m &= e_p - g_p \\
(3) \quad p &= p^* \cdot T' \\
\text{where } T &= (1 + t) \\
(4) \quad r(T, k) &= g_k / e_q \\
(5) \quad \bar{r} &= [\delta + \rho] \\
(6) \quad r(T, k) &= \bar{r}
\end{align}

In equation (1), the term \( e(,.) \) is the expenditure function for the composite good \( q \), which can be either consumed directly or invested. The vector of domestic prices is \( p \). The national GDP function is \( g(,.) \), and it is defined over domestic prices \( p \), capital \( k \), and other endowments \( v \). The vector of foreign prices is \( p^* \), and \( m \) represents the vector of net imports (or gross imports in homogenous goods models, like the Heckscher-Ohlin or Ricardo-Viner model). The balance of trade (we will disciplining of larger trading partners through the same process) should provide some benefit on the
assume below that \( B = 0 \) is given by \( B \). Imports, in turn, represent the difference between domestic supply and demand, as reflected in equation (2). The difference between domestic and world prices is given by equation (3), while equation (4) relates real investment returns to the expenditure and revenue functions. Equation (5) defines the equilibrium real rate of return in steady-state, which will be determined by the rate of time discount and the rate of depreciation. Equation (6) simply relates the supply and demand sides of the savings-investment market in long-run equilibrium. Together, these equations determine the steady-state structure of production (including the long-run capital stock) for a small open economy.

4.2 the steady-state with policy volatility

Consider next the introduction of policy volatility. We are concerned with investor perceptions, both about the risk of a policy change, and about uncertainty regarding the factors that determine policy changes. For simplicity, we assume a uniform rate of protection \( T \) applied to imports. We also assume that we can characterize the variable \( T \) as variable, as represented by the probability \( f(T) \) associated with values of \( T \):

\[
(7) \quad \mu_r = \int_{-\infty}^{\infty} T \cdot f(T) \cdot dT
\]

Combining equations (6) and (7), we then have the expected real return to investment:

\[
(8) \quad \mu_r = \int_{-\infty}^{\infty} r(T,k) \cdot f(T) \cdot dT
\]
We need to take investor concerns about this variability into account when relating long-run returns to the supply of savings.\(^4\) To do this, we assume that investors in the economy have exponential temporal utility functions, with consumers maximizing the expected present value of the stream of utility. The temporal utility function is given by equation (9).

\[
(9) \quad u = c - e^{-b q_c}
\]

The term \(b\) is a measure of relative risk aversion, while its reciprocal gives us the degree of risk tolerance. The term \(c\) is a constant, while \(q_c\) denotes consumption of \(q\).

Given equation (9), we can replace equation (6) with a similar condition involving the certainty equivalent rate of return to investment. The certainty equivalent is the return needed under absolute certainty to provide the same expected utility as a particular return with mean \(\mu_r\) and variance \(\sigma_r^2\). The certainty equivalent will be the following given either a normal distribution for \(T\):

\[
(10) \quad CE = \mu_r - \frac{b}{2} \cdot \sigma_r^2
\]

Given equation (10), we can then replace equation (6) by the following relationship.

\[
(11) \quad CE(\mu_r, \sigma_r^2) = \tilde{r}
\]

Equation (11) states that, at the margin, savers/investors will allocate their spending between current and future consumption so that the net certainty equivalent return is exactly enough to offset the discounting of future consumption in the inter-temporal optimization program.

What is the effect of commercial policy variability in this setting? Assuming investors know the parameters of the underlying random process, risk is manifested

\(^4\) Note that uncertainty about tariffs may also affect the allocation of capital across sectors, as capital will need to be allocated to maximize the economy-wide portfolio held by investors and adjustment costs may preclude continuous reallocation of capital. This problem is not
through the parameter $\sigma^2_T$. To the extent that an effective policy transparency mechanism limits the scope for backsliding, it should reduce this parameter. This in turn will boost risk-adjusted returns.

Another critical aspect relates to uncertainty about the underlying parameter. To deal with this, we will assume that investors form conjectures about a notional value for $\sigma^2_T$ that is greater than the true value because it reflects their lack of knowledge about the actual process. Improved knowledge then reduces the gap between the real and perceived parameter values.

In effect, risk and uncertainty act as a deadweight tax on economywide returns. This drags down the capital stock. The exact relationship depends on the structural equations of the system. We develop this issue explicitly in the next section.

5. A Numeric Example

5.1 basic structure

We now turn to a numeric example. This involves a stylized, analytical model of Armington-based trade along the lines developed by de Melo and Robinson (1989). (This class of models is the effective standard in the computational trade policy literature). Formally, we assume an economy where demand is derived from a CES composite defined over a domestic good D and an imported good M.

\[
Q = A_i \cdot \left[ \beta \cdot M^\rho + (1 - \beta) \cdot D^\rho \right]^{1/\rho}
\]

relevant for the discussion in the next (analytical) section, given the specific model we work with.

5 While beyond the scope of this paper, this framework would also allow us to examine situations where investors initially conjecture that $\sigma^2_T$ is smaller than it actually is. They will then learn by being surprised periodically, until they adjust their assessment upwards.
In equation (12), the composite good $Q$ (the Armington composite good) can be used for consumption or investment.

On the supply side of the economy, we assume a transformation technology defined over the domestic good $D$ and an export good $E$. The size of the economy, as indexed below by $X$, is determined by the aggregate production function defined in equation (14).

$$X = A_2 \cdot [\alpha \cdot E^h + (1 - \alpha) \cdot D^h]^{1/h}$$

(14)  

$$X = A_3 \cdot K^{\alpha} \cdot L^{(1-\alpha)}$$

The elasticities of transformation in production $\Omega$ and demand $s$ are defined in equations (15) and (16).

$$\Omega = \frac{1}{(h-1)} \quad h > 1$$

(15)  

$$s = \frac{1}{(1-\rho)} \quad 1 > \rho > -\infty$$

(16)  

Given this basic model, it can be shown (see the appendix) that the equilibrium real return earned by capital will as presented in equation (17), while the steady-state capital stock (under certainty) will be as represented in equation (18).

$$r(T, K) = a \cdot A_3 \left( \frac{K}{L} \right)^{1-a} \cdot \left( \frac{P_x}{P_Q} \right)$$

$$= a \cdot A_3 \left( \frac{K}{L} \right)^{1-a} \cdot \left[ A_6 \cdot (1 + A_7 \cdot T^{\phi \Omega h})^{-1/h} + T^{\phi} \cdot A_4 \cdot (1 + A_5 \cdot T^{\phi \Omega h})^{-1/h} \right] \cdot \left( (\beta \phi + (1-\beta) \cdot A_5^{1-x} \cdot T^{\phi}) \right)^{1-\phi}$$

(17)  

$$K = L \cdot \frac{P_Q}{P_x} \cdot a^{1-a} \cdot \frac{1}{\phi^{a-1}}$$

$$= A_4 \cdot (j(T))^{1-a}$$

(18)
In equations (26) and (27), the coefficients \( A_j \) represent reduced form constants, as detailed in the appendix.

In our model (see the appendix for formalization) relative supplies depend on the level of import protection, which has the effect of shifting demand toward the domestic sector and reducing trade. At the same time, the real return to capital is inversely related to the supply of capital (i.e. diminishing marginal returns in the GDP function) and is related in a non-linear fashion to the degree of protection. This non-linear relationship between protection \( T \) and real returns \( r \) is captured by the \( j(T) \) function.

5.2 uncertainty regarding commercial policy

We next turn to the impact of investor concerns about risk and uncertainty about commercial policy on real returns. The mean and variance of return earned by investors will depend on the properties of the \( j(. \) function, as specified in equations (29).

\[
\begin{align*}
\mu_r &= a \cdot \left( \frac{K}{L} \right)^{a-1} \cdot \mu_j \\
\sigma_r^2 &= a^2 \cdot \left( \frac{K}{L} \right)^{2(a-1)} \sigma_j^2
\end{align*}
\]  

(19)  

We can apply equations (10) and (11) to relate the properties of the \( j(.) \) function to the certainty equivalent return earned on investment. For the normal distribution we have

\[
\bar{r} = \mu_r - \frac{b}{2} \cdot \sigma_r^2
\]  

(20)

From equation (19) and (20), we can isolate the following characteristic roots (one of which will be real).\(^6\)

\(^6\) In comparing computational results with the gamma and normal distributions, the impact of uncertainty on CE-adjusted returns is virtually identical.
Equation (21) tells us that, in steady-state, the stock of capital will be related to our variance measure of real returns on investment, which in turn will follow from risk and uncertainty surrounding commercial policy itself.

5.3 the TPRM as a reduction in uncertainty

Figure 1 presents computational results relating the level of steady-state capital to our subjective measure of uncertainty, as captured by the variance component of the $j$ function. This involves an application of equation (21). The parameters in this example are as follows: $a=.35$, $b=1/2$, $\bar{r}=.03$, $L=100$, $\mu_j = .05$. The example illustrates graphically the negative relationship between investor uncertainty vis-à-vis commercial policy and the level of capital supported by those investors in the steady-state.

Analytically, improved transparency and limits on backsliding involve moving the economy to the left on the mapping in Figure 2. This corresponds to a boost to investor confidence) and a rise in long-run capital stocks. Through equation (14), this will then involve a general expansion of the GDP function, with the usual transitional growth effects.
6. Summary

The TPRM was established (on a provisional basis) in 1989 as a part of the GATT following the December 1988 Montreal Mid-Term Review of the Uruguay Round. It was made a permanent part of the World Trade Organization (WTO) through Annex 3 of the 1995 Marrakech Agreement establishing the World Trade Organization. The stated purpose of the TPRM is enhancement of the transparency and understanding of WTO Members' trade policies. The TPRM is at its heart a vehicle for providing information. In its present form it is not meant to be used for policy recommendations. The WTO Members said as much when stating, in Annex 3 of the Uruguay Round Agreements defining the TPRM that the TPRM "is not …. intended to serve as a basis for the enforcement of specific obligations under the Agreements or for dispute settlement procedures, or to impose new policy commitments on Members." Even so, it does serve
as a basis for WTO-centered per pressure and periodic airing of the extent to which Members are adhering to obligations.

After outlining a set of reasons why the TPRM maybe useful for developing countries, this paper develops analytically one reason why the transparency and understanding of WTO Members' trade policies is an important goal. (A more detailed examination of related goals and the actual workings of the TPRM are offered in Francois 1999). Emphasis has been placed on long-run effects regarding investor confidence. From a developing country perspective, a truly effective TPRM should serve to reinforce the credibility and rationality of home policies regarding the domestic and international economy. We have shown that this can be linked analytically to have positive implications for investor behavior (and hence for medium-term growth performance). Recent work on terms of trade variability and investment suggest that this should also be important in practice.

The current value of the TPRM reporting process lies in its role as a purely positive, rather than normative report. It focuses on accurate information. This alone is a path-breaking and daunting task. TPRM reports describe the policy landscape, exposing it to the daylight for the WTO Members, their leaders, the business press, academia, and the electorate themselves to inspect, evaluate, and discuss. In the process, they also summarize external views on these policies. (Not surprisingly, political pressure is applied to limit this process). The potential benefits of the mechanism actually go beyond the effects emphasized in this paper. The availability of comparable data across countries would place the developing countries on a more equal footing during trade negotiations. The TPRM can also serves to keep trade policy a relatively open process, important for the democratic setting of policy. In the poorer countries, it
can provide an otherwise impossible chance to examine the overall trade policy implications of otherwise disjoint policy decisions.

Within this pure informational role, there is scope for improving the value of the TPRM to developing countries. (See Francois 1999, Keesing 1998.) Some of the roles ascribed here to the process are nascent, (or non-existent). Possible improvements include better organization and retention of the data already collected as part of the TPRM process, better dissemination of the information collected as part of the TPRM process, and technical assistance in the use of this information. Such technical assistance should target local stake-holders, and promote their and use of the information collected to inform and guide the local policy process.

7. Technical Annex

This annex develops the functional relationships exploited in the computational example in the main text.

To simplify the calculus (and without loss of generality), we will employ a normalization of quantities in equations (12)-(14) so that world prices for exports and imports are unity. From the marginal pricing conditions on the product transformation surface, we can then relate relative supply to the price of the domestic good $P_D$.

\[
(A-1) \quad E = D \cdot P_D^{-\alpha} \cdot \left(\frac{1 - \alpha}{\alpha}\right)^\alpha
\]

At the same time, from the first order conditions for utility maximization, we can also relate relative quantities on the demand side to the price $P_D$.

\[
(A-2) \quad M = D \cdot P_D^s \cdot T^{-s} \cdot \left(\frac{1 - \beta}{\beta}\right)^{-s}
\]

In addition, we can also relate the price of utility (identical to the term $e_Q$ in equation 4) to relative prices. The CES price index for $Q$ is given in equation (A-3).
In equation (A-3), we have represented the internal price of imports by the power of the tariff (recall that world prices are unity.)

Finally, we note that, with balanced trade ($B=0$) and world prices of unity, imports must equal exports in equilibrium. Alternatively, this means we can relate equations (A-1) and (A-2) through the trade balance equation. This is represented in equation (A-4).

$$E = M$$

or

$$D \cdot P_D^{\alpha \cdot \Omega} \cdot \left( \frac{1-\alpha}{\alpha} \right)^{\Omega_{\beta \cdot \Omega}} \cdot \left( \frac{\beta}{1-\beta} \right)^{\frac{s}{\alpha + \Omega}} = D \cdot P_D^s \cdot T^{-\frac{s}{\alpha + \Omega}} \cdot \left( \frac{\beta}{1-\beta} \right)^s$$

From equation (A-4), we can isolate the equilibrium price level $P_D$. This is represented in equation (A-5).

$$P_D = T^{\frac{s}{\alpha + \Omega}} \cdot \left( \frac{1-\alpha}{\alpha} \right)^{\Omega_{\beta \cdot \Omega}} \cdot \left( \frac{1-\beta}{\beta} \right)^{\frac{s}{\alpha + \Omega}}$$

Once we have $P_D$, we can then solve for equilibrium quantities $D$ and $E$ and prices $P_Q$ and $P_X$.

$$D = X \cdot A_2^{1-h} \cdot (1-\alpha)^{-\frac{1}{\alpha}} \cdot \left[ \left( \frac{1-\alpha}{\alpha} \right)^{\Omega_{\beta \cdot \Omega}} \cdot \left( \frac{\beta}{1-\beta} \right)^{\frac{\Omega}{\alpha + \Omega}} \cdot T^{\frac{-\Omega_{\beta \cdot \Omega}}{\alpha + \Omega}} + 1 \right]^{-\frac{1}{\alpha}}$$

$$E = X \cdot A_2^{1-h} \cdot \left[ \left( \frac{1-\alpha}{\alpha} \right)^{\Omega_{\beta \cdot \Omega}} \cdot \left( \frac{\beta}{1-\beta} \right)^{\frac{\Omega}{\alpha + \Omega}} \cdot T^{\frac{-\Omega_{\beta \cdot \Omega}}{\alpha + \Omega}} + 1 \right]^{-\frac{1}{\alpha}}$$

$$P_Q = \left[ \beta^s \cdot T^{1-s} + (1-\beta)^s \cdot T^{\frac{s}{\alpha + \Omega}} \cdot \left( \frac{1-\alpha}{\alpha} \right)^{\Omega_{\beta \cdot \Omega}} \cdot \left( \frac{1-\beta}{\beta} \right)^{\frac{s}{\alpha + \Omega}} \right]^{\frac{1}{1-s}}$$
Finally, from the first order conditions associated with equation (14), it can be shown that the equilibrium real return earned by capital will as presented in equation (A-10), while the steady-state capital stock (under certainty) will be as represented in equation (A-11).

\[
\begin{align*}
\text{(A-10)} \quad r(T, K) &= a \cdot A_3 \cdot \left( \frac{K}{L} \right)^{a-1} \cdot \frac{P_X}{P_q} \\
&= a \cdot A_3 \cdot \left( \frac{K}{L} \right)^{a-1} \cdot \left[ A_6 \cdot (1 + A_7 \cdot T^{\phi \Omega \theta})^{1/h} + T^\phi \cdot A_9 \cdot (1 + A_9 \cdot T^{-\phi \Omega \theta})^{1/h} \right] \\
&= a \cdot A_3 \cdot \left( \frac{K}{L} \right)^{a-1} \cdot j(T)
\end{align*}
\]

\[
\begin{align*}
\text{(A-11)} \quad K &= L \cdot \frac{P_q}{P_X} \cdot \frac{1}{\frac{1}{\alpha^{a \cdot r}} - \frac{1}{\alpha^{1 - a}}} \\
&= A_4 \cdot (j(T))^{\frac{1}{1 - a}}
\end{align*}
\]

In equations (A-10) and (A-11), the coefficients \( A_j \) represent reduced form constants, as detailed in equations (A-12).

\[
\begin{align*}
A_1 &= A_1 \cdot A_2 = A_2 \cdot A_3 = A_3 \\
A_4 &= (a \cdot A_3)^{\frac{1}{1 - a}} \cdot \frac{1}{\alpha^{a \cdot r}} \cdot L \\
A_5 &= \left( \frac{1 - \alpha}{\alpha} \right)^{\frac{\Omega}{1 + \Omega}} \cdot \left( \frac{1 - \beta}{\beta} \right)^{\frac{\phi}{1 + \Omega}} \\
A_6 &= A_2^{-1} \cdot \alpha^{-1/h} \\
A_7 &= \left( \frac{1 - \alpha}{\alpha} \right)^{1 - \phi \Omega \theta} \cdot \left( \frac{1 - \beta}{\beta} \right)^{\phi \Omega \theta} \\
A_8 &= A_3 \cdot A_2^{-1} \cdot (1 - \alpha)^{-1/h} \\
A_9 &= \left( \frac{1 - \alpha}{\alpha} \right)^{\phi \Omega \theta - 1} \cdot \left( \frac{1 - \beta}{\beta} \right)^{-\phi \Omega \theta} \\
\phi &= \frac{s}{s + \Omega}
\end{align*}
\]
8. References


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