Political Stasis or Protectionist Rut?
Policy Mechanisms for Trade Reform in a Democracy

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Comments Appreciated

Abstract

This paper analyzes the dynamics of trade policy reform under democracy. In an overlapping generations model, heterogeneous agents may acquire skills when young, thereby determining the skill composition of their cohort. Current and anticipated trade policies influence education decisions, and thus the identity of the median voter. We show that there may exist two political steady states: one protectionist and one liberal. Transition from the former can be achieved by announcements or educational subsidies, but not by transfer payments to adversely affected workers. We find that reform is politically feasible only if the proposed liberalization is sufficiently large, suggesting that radical reform may be necessary for escaping a “protectionist rut.”

Keywords: Dynamic Political Economy, Trade Policy, Skill Acquisition, Politically Stable Policy Paths, Referenda

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1 Introduction

Trade liberalization is a dynamic political process, the path to reform characterized by difficult and unpopular adjustment frictions for workers that may give rise to political foot dragging and potential backsliding. In the presence of populist voter pressure, proposed liberalization programs that commence with great fanfare and optimism may easily (and frequently do) succumb to public backlash. In democratic political environments— which are necessarily subject to constant legislative reevaluation— generational differences, evolving expectations, and workers’ ability to adapt to changing market conditions surely are paramount in determining the ultimate success or failure of liberalization efforts. Fundamentally, successful reform under a democracy requires that the potential future winners from reform recognize their potential gains and vote accordingly; while it is not in the interest of a Pittsburgh steel worker to vote for tariff reductions, his clever daughter with an eye for design probably should.

It is particularly surprising, then, that most theoretical accounts of endogenous trade policy limit themselves to static models.\(^1\) Our paper takes a different approach, highlighting the potential importance of voters’ future expectations and intergenerational differences in a dynamic political economy model while, we hope, maintaining the parsimonious analytical structure customary to the trade literature. We develop a two period overlapping generations (OLG) model with endogenous skill acquisition in which agents vote every period on a referendum to adjust the current trade policy or to maintain the status quo. When deciding whether to acquire skills, heterogenous agents within each generational cohort take into account both current and expected trade policies, since domestic relative prices determine

\(^1\)Though there is a body of important work on dynamic trade models, including Findlay and Kierzkowski (1983), Davison, Martin, and Matusz (1999), Davison and Matusz (2004), Davison and Matusz (2006), Cameron, Chaudhuri, and McLaren (2002), Artuc, Chaudhuri, and McLaren (2003), Artuc (2006), none of these papers explicitly incorporate political economy considerations to evaluate the endogenous determination of trade policy. The exception is recent empirical work by Magee, Davison, and Matusz (2005), who examine how labor market characteristics influence trade preferences. Their paper articulates convincingly the intuitive connection between (dynamic) trade adjustment costs and U.S. congressional campaign contributions, but stops short of developing a formal dynamic political economy model.
wages and thus the anticipated return to acquiring skills. The model exhibits a feedback mechanism through which trade policy determines the skill composition of the population - and hence the identity of the median voter - who in turn votes on trade policy.

In the referendum, voters choose between two economic states of the world, a relatively protectionist regime or its more liberal counterpart. Given the population’s skill composition at the time of the vote and the expected trade regime in the future, we find the potential for multiple political steady states, which are defined as economic equilibria under which the median voter would elect to maintain the status quo trade policy. The multiplicity of equilibria obtains because the existing policy regime effects not only the skill acquisition choices of the young generation, but also the identity of the median voter. The more protectionist the existing policy, the greater the unskilled proportion of the older generation (which unambiguously opposes reform), and thus the lower the relative skill level of the median voter among her younger (pivotal) cohort. Intuitively, status quo trade policy enjoys the power of hysteresis through the past skill acquisition decisions of the older generation.\(^2\)

When the model generates multiple political steady states, voters may get stuck in a “protectionist rut” even though the country as a whole would be better off under the more liberal regime, which is itself a self enforcing equilibrium.\(^3\) Given that there are potential Pareto gains from freer trade, transition from the former to the latter should be feasible. We show that transition can be achieved by credible policy announcements as well as temporary educational subsidies that tilt the balance towards the more liberal policy path. Traditional trade adjustment through temporary transfer payments, on the other hand, is counter-productive since it adversely affects workers’ skill acquisition decisions. Furthermore, we show that the political feasibility of transition increases in the magnitude

\(^2\)This finding is an interesting complement to Fernandez and Rodrik (1991), who demonstrated the potential for “status quo bias” in the presence of voter uncertainty about their future gains or losses from proposed reform. Our model generates the same result under perfect foresight through political interaction across generations.

\(^3\)When the political steady state is unique, the (steady state) model exhibits properties similar to static political economy models with heterogeneous voters developed by Davidson, Matusz, and Nelson (2005), Bougeas and Riezman (2005), and Long, Riezman, and Soubeyran (2007).
of the tariff liberalization. Radical policy changes therefore may be more likely to be approved than small reforms.

Our approach and results — though novel to the trade literature — relate to recent work in macroeconomics. In particular, our framework is similar to that in Hassler, Rodríguez Mora, Storesletten, and Zilibotti (2003), who analyze domestic redistributive policies, and the related numerical simulations by Bassetto (1999), Saint Paul (2001), Krusell and Ríos-Rull (1996), and Krusell, Quadrini, and Ríos-Rull (1996). They find, as we do, the potential for multiple equilibria and the Hassler, Rodríguez Mora, Storesletten, and Zilibotti (2003) model in particular shares the feature that the identity of the current constituency supporting a proposed policy depends on the current policy framework. Our work differs from theirs in a number of important dimensions, however. Perhaps most crucially, Hassler et. al. assume that the young do not vote and hence play no role in politics, whereas intergenerational political frictions in voting are a key element in our model and findings. Earlier papers that feature a feedback loop between public policy and individual behavior include Glomm and Ravikumar (1995), Saint Paul and Verdier (1997), and Benabou (2000). The median voter does not have a stake in the future economy in these older models, however, which is quite different from our work.

In the trade literature, our model is reminiscent of the two-period model in Staiger and Tabellini (1987) who analyze the time consistency of trade policy. Closer to our work, though in a different context, is the contribution by McLaren (2002) who analyzes the possibility of endogenous policy lock-in in the context of preferential versus multilateral trade liberalization. Similar in spirit are also the contributions of Maggi and Rodríguez-Clare (1998) and Maggi and Rodríguez-Clare (2006), who consider the effects of prior investments— in their case by forward looking firms rather than short lived workers— on endogenous trade policy. Using a similar median voter framework, Krishna and Mitra (2006) develop a two country median voter model of reciprocal liberalization in which voters’ relative sectoral biases are heterogeneous; their model is static, however, which prevents the potential for multiple political equilibria in either country alone. Closing the circle towards macro, Ortega (2004) analyzes immigration policy in a framework that is similar to ours.
The paper proceeds as follows. Section 2 describes the model and establishes the conditions under which multiple political steady states exist. Section 3 then describes the potential for transition between steady states, focussing first on the role of expectations and then on active policy prescriptions for inducing reform. Section 4 concludes.

2 A Model of Political Stasis

The model is designed to capture a dynamic environment in which both current and future trade policy influence individuals’ skill acquisition decisions and voting behavior. Our approach highlights the importance of current policy in determining both the existing skill composition of workers – and thus the identity (not just the policy preference) of the median voter – and the intra- and inter-generational political friction borne of different abilities to adjust between unskilled and skilled work. The model allows formal evaluation of the endogeneity of voters’ preferences and choices with current and expected economic conditions, demonstrating how populations can (and do) evolve in response to changing economic conditions.

Equilibrium in this model has two components: economic and political. We begin in section 2.1 by defining an economic equilibrium as the skill composition and production levels that would result from an exogenous time path of tariffs; an economic steady state is then just the economic equilibrium that would obtain under a constant exogenous tariff level. Section 2.2 then endogenizes the political process to evaluate the existence, properties, and potential multiplicity of Markov Perfect political equilibria and political steady states.

As in Krishna and Mitra (2006) we first develop the model without inclusion of tariff revenue to simplify the analytical exposition. Appendix B demonstrates the robustness of the results to inclusion of tariff revenue.

2.1 The Model Economy

The model consists of a small open economy that may produce, consume, and trade two goods: a skill-based good, $S$, which requires skilled labor to produce, and a basic good,
$U$, produced using unskilled labor. Let good $S$ be the economy’s natural export good. Designating $U$ as numeraire, the domestic relative price of good $S$ then is given by $p = \frac{p^w}{\tau}$, where $p^w$ represents the exogenous world relative price and $\tau$ is defined as one plus the ad-valorem tariff on the basic good. Both goods are produced under perfect competition with constant returns to scale technologies. There is no uncertainty in the model and borrowing and lending are ruled out.\footnote{Given the structure of the model, agents are unable to make binding future commitments to each other, across or within generations. In assuming the voters cannot commit to future political positions or voting behaviors we follow Hassler et al (2003), among others.}

The economy’s population consists of a continuum of agents with \textit{ex-ante} heterogeneous natural abilities and rational expectations with perfect foresight. Agents live for two periods; thus at any point in time, two generations, the ‘young’ and the ‘old’, comprise the total population. Every generation is assumed to be the same size, with mass normalized to one. Individuals of each generation are indexed by $a \in [0, 1]$ according to ability level.

Every agent is endowed with one unit of labor in each period of life. At birth, each individual chooses either to remain unskilled for her lifetime, or to acquire skills a constant fixed education cost $c \in [0, 1]$ units of labor. For simplicity, we assume an extreme form of factor specificity in the production functions for both goods: if an agent elects to remain unskilled, she will produce exactly one unit of the basic good during each period of life, but if instead the agent elects to earn an education, she will produce $(1 - c)$ units of the basic good when she is young and $(1 + a)$ units of the skill-based good when she is old, where the parameter $a$ represents the agent’s individual specific ability skill premium.\footnote{Unskilled workers cannot produce skill-based goods, and no established skilled (second generation) worker would revert to unskilled good production as long as $p > 1$, which is implied in autarky by the Cobb-Douglas structure of preferences assumed momentarily, and under trade by the assumption that $S$ is the natural export good (so that $p^w > p^n$).} We assume that within each generation, the distribution of ability levels is uniform over the unit interval; i.e. $a \sim U[0, 1]$. Agent $a = 0$ is thus the least able of her generation, and agent $a = 1$ the most able.

An agent will acquire skills only if doing so will maximize her lifetime indirect utility.
Preferences are identical across individuals and functionally separable across time. Let each agent’s lifetime utility function be given by:

$$U = u(c_y, c_u) + \beta u(c_o, c_s),$$ (2.1)

where $\beta > 0$ represents the intertemporal discount factor, $c_y(c_u)$ denotes the individual’s consumption of good $S (U)$ when she is young, and $c_o(c_s)$ her consumption of good $S (U)$ when old. We assume intratemporal utility is a function of current consumption, given by $u(c_u, c_s) \equiv c^\alpha u^{1-\alpha}$, so that the corresponding within-period indirect utility function is $v(p, I) \equiv K p^{-\alpha} I$, where $K \equiv \alpha^\alpha (1 - \alpha)^{1-\alpha} > 0$, $I$ denotes current nominal income, and $\alpha \in (0, 1)$.

By choice of units, one unit of unskilled labor produces exactly one unit of the basic good, so that the nominal wage to unskilled labor is normalized to one for all agents. From the assumption that one unit of skilled labor by agent $a$ produces $(1 + a)$ units of good $S$, perfect competition implies that the nominal skilled wage to agent $a$ at time $t$ is $(1 + a)p_t$. Thus, as a function of current and anticipated prices, $p_t$ and $p_{t+1}$, a given agent $a$ will acquire skills only if:

$$v(p_t, 1) + \beta v(p_{t+1}, (1 + a)p_{t+1}) \geq v(p_t, 1) + \beta v(p_{t+1}, 1).$$ (2.2)

From 2.2 and the functional form of the sub-utility function in 2.1 we can define the threshold agent, $\hat{a}_t$ under a diversified equilibrium, as the member of the young generation at time $t$ who is just indifferent between remaining unskilled and getting an education, given the discount rate, the cost of education, the preference parameter $\alpha$, and current and anticipated tariffs:

$$\hat{a}_t(\tau_t, \tau_{t+1}) \equiv \frac{\beta + c(\frac{\tau_t}{\tau_{t+1}})^\alpha}{\beta p^w} \tau_{t+1} - 1.$$ (2.3)

All members of generation $t$ with ability below $\hat{a}_t$ will remain unskilled for life, while all agents with ability level above $\hat{a}_t$ will become skilled workers through education.

Because each generation of agents is mapped to the unit interval with a uniform distribution, $\hat{a}$ also equals the proportion of unskilled workers in each generation. For notational convenience, we define an economic equilibrium in terms of the equilibrium proportion of
each generation that acquires skills: \( \theta_t \equiv 1 - \dot{a}_t \). Output of each good then may be written as a function of the skill composition of the old (generation \( t - 1 \)) and young generations at time \( t \). Since the parameters \((p^w, \beta, c, \alpha)\) are assumed to be fixed and exogenous, we suppress these arguments in the definitions hereafter.

**Definition 2.1 Economic Equilibrium.** As a function of an exogenous tariff sequence, an economic equilibrium is characterized by the currently young and older generations’ skill composition and current levels of production over time in each sector so that \( \forall t \):

\[
\theta_t(\tau_t, \tau_{t+1}) = 2 - \frac{\beta + c(\frac{\tau_t}{1 - \alpha})}{\beta p^w} \tau_{t+1} \\ (2.4)
\]

\[
\theta_{t-1}(\tau_{t-1}, \tau_t) = 2 - \frac{\beta + c(\frac{\tau_{t-1}}{1 - \alpha})}{\beta p^w} \tau_t \\ (2.5)
\]

\[
q_u(t_{t-1}, \theta_t) = 2 - \theta_{t-1} - c\theta_t, \quad (2.6)
\]

\[
q_s(\theta_{t-1}) = \int_{a_{t-1}}^{1} (1 + a) da = 2\theta_{t-1} - \frac{\theta_{t-1}^2}{2}. \quad (2.7)
\]

Since the model assumes a small open economy,\(^6\) the definition of an *economic steady state* is trivial. Equilibrium is determined uniquely by the last period, current, and next-period tariffs; thus, if the tariff is fixed (and this is understood by voters), an economic steady state is reached. Formally:

**Definition 2.2 Economic Steady State.** The steady state economic equilibrium under a constant, exogenous, tariff level, \( \tau \) is characterized by a constant skill composition across generations and a constant level of production over time in each sector according to:

\[
\theta(\tau) = 2 - \frac{\beta + c}{\beta p^w} \tau, \quad (2.8)
\]

\[
q_u(\theta) = 2 - (1 + c)\theta, \quad (2.9)
\]

\[
q_s(\theta) = 2\theta - \frac{\theta^2}{2}. \quad (2.10)
\]

\(^6\)The derivation of the autarkic steady state and autarkic steady state price is offered in the appendix.
2.2 The Political Process

We model the political process as a direct democracy over trade policy. At the beginning of each period, every agent in the population – young and old – votes on current trade policy, which subsequently determines the wages and prices for that period. Agents have complete information and perfect foresight when they make their voting decisions. We adopt a binary referendum framework; agents can vote either to maintain the status quo tariff policy, $\tau^o$, or to switch to some alternate regime, $\tau'$. The two possible tariff regimes, denoted $\tau_L$ and $\tau_P$, are for now taken as given, assumed to be fixed by a third party agenda setter whose objectives are the focus of Section 3. Without loss of generality, let $\tau_L < \tau_P$. We define the reform step as $\Delta = \tau^o - \tau'$, so that $\Delta > 0$ represents a trade liberalization from $\tau_P$ to $\tau_L$, while $\Delta < 0$ would imply a protectionist shift from $\tau_L$ to $\tau_P$. We assume that there is no bureaucratic or time cost of changing tariff regimes.

Trade policy is determined by majority vote. In the case of a tie, we assume that the status quo is maintained. If half or more of the population (mass $\geq 1$; recalling that the mass of the total population is 2) votes in favor of the status quo tariff policy the tariff regime remains unchanged and the existing tariff regime is deemed politically stable. If instead the majority votes for reform, the tariff switches to the proposed alternative regime immediately. As in any majoritarian voting model, the median voter—hereafter with characteristics denoted by superscript $^M$—is decisive.

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7 Other forms of political competition would of course change the analysis considerably, but we argue that the qualitative underpinning of our findings – that there exists a feedback mechanism between economic policy outcomes and endogenous policy decisions that can lead to multiple equilibria and political stasis – obtains to a broad class of political economy models.

8 The assumption of a binary referendum framework is less restrictive than it may first appear to be. As demonstrated later in this section, agents in our model have extreme policy preferences—every worker (with the exception of one (zero mass) “indifferent voter”) strictly prefers complete protection (autarky) or the free trade (and indeed, import subsidies if possible). Thus, if the median voter was permitted to choose her most preferred tariff (in essence, deciding the structure of the referendum), she would choose one trade policy extreme or the other rather than some intermediate tariff. Since interior tariffs would never be chosen by a median voter, the binary referendum structure we adopt imposes little loss of generality. This issue is discussed further in section 3.4.
We define a political equilibrium to be any economic equilibrium in which agents’ expected time path of tariffs would be maintained endogenously under the existing political process. As in Hassler, Rodríguez Mora, Storesletten, and Zilibotti (2003), we restrict attention to Markov perfect equilibria, requiring that voters’ behavior depends on only payoff relevant state variables. In the context of this model, the state variables include the fixed parameters, \( p^w, \beta, c, \) and \( \alpha \), and the existing skill composition of the older generation, which will determine the identity of the median voter (demonstrated below). Recalling that the skill composition of the older generation at time \( t \) is denoted \( \theta_{t-1} \), we then have the following:

**Definition 2.3 Political Equilibrium.** A Markov perfect political equilibrium is defined by a policy rule, \( \tau_t = T(\theta_{t-1}) \), where \( T : [0,1] \to \{\tau_P, \tau_L\} \) is a time-invariant mapping from the current skill composition of the older generation to the current voting outcome and \( \theta_{t-1} = \theta(\tau_{t-1}) \), where \( \theta : \{\tau_P, \tau_L\} \to [0,1] \) is a time invariant mapping from the status quo (last period) tariff to the current skill composition of the older generation such that \( \forall t: \)

1. \( T(\theta_{t-1}) = \arg \max_{\tau_t \in \{\tau_P, \tau_L\}} V^M_t(\tau_t, \theta_{t+1}; a^M, p^w, \beta, c, \alpha) \) s.t. \( \tau_{t+1} = T(\theta(\tau_t)) \) and
2. \( \theta_t = \theta(\tau_t) = 2 - \beta + \frac{c}{\beta p^w} \tau_{t+1} \), s.t. \( \tau_{t+1} = T(\theta(\tau_t)) \).

The first condition requires that the median voter at time \( t \) chooses the current tariff \( \tau_t \in \{\tau_P, \tau_L\} \) to maximize her lifetime indirect utility, \( V^M_t(\cdot) \), with the rational expectation that the next period’s tariff will depend on the implied skill composition of the currently young cohort according to the same policy mapping, \( T \). The second condition requires that the skill composition of each cohort is determined in (economic) equilibrium as in (2.4), again subject to the rational expectation that \( \tau_{t+1} = T(\theta(\tau_t)) \).

We define a political steady state to be any economic steady state in which the status quo policy (\( \tau^o \equiv \tau_{t-1} \)) would be maintained endogenously under the existing political process. Thus, a political steady state defined under the referendum structure given by the

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9By requiring Markov perfect voting strategies, we effectively rule out the potential for stochastic beliefs that can generate sun-spot equilibria.
tariff pair \((\tau_L, \tau_P)\) is an economic steady state given by (2.8) - (2.10) under either initial tariff regime, \(\tau^o \in \{\tau_L, \tau_P\}\), in which the median voter would elect to maintain the status quo tariff policy over the competitive equilibrium that would arise under the proposed alternative. Formally:

**Definition 2.4 Political Steady State.** A political steady state is reached when 
\[ \tau_t \equiv T(\theta(\tau_{t-1})) = \tau_{t-1}. \]
A political steady state is summarized by the (constant) skill composition of the population under the steady state tariff, \(\bar{\tau}\):

\[
\theta(\bar{\tau}) = 2 - \frac{\beta + c}{\beta p^w \bar{\tau}}. \tag{2.11}
\]

Our framework provides straightforward environment for evaluating political equilibria. We begin by arranging both generations of voters over the uniform population interval \([0, 2]\) in weakly ascending order of each individual’s preference for trade openness; the most protectionist voters are indexed closest to zero, the most liberal are indexed closest to 2. We can then exploit the structure of the model to characterize the identities of two key voters among the population at any given time: the median voter, whose vote is decisive in the referendum, and the indifferent voter, who separates the population between those who prefer the more protectionist regime, and those who would prefer the more liberal tariff policy.

We consider the trade policy preferences of each generation in turn, allowing us to map individuals to the population interval \([0, 2]\) in (weakly) increasing preference for trade openness.

**Older Voters.** It is immediate that members of the older generation will be polarized in the trade policy debate. Because older workers are intersectorally immobile, the older unskilled (import-competing) workers have an unambiguous preference for the highest possible tariff (autarky), while all of the older skilled workers prefer the smallest tariff possible. (For semantic convenience we will refer to this as free trade, keeping in mind that it could be a trade subsidy in the absence of a non-negativity constraint on the tariff.) To confirm that the most preferred trade policy by any older worker is necessarily a corner solution,
simply note that the indirect utility of older unskilled (skilled) workers is strictly decreasing (increasing) in the local relative price according to:

\[ V^{u,o} = v(p, 1) = Kp^{-\alpha}, \quad (2.12) \]

\[ V^{s,o} = v(p, (1 + a)p) = Kp^{1-\alpha}(1 + a). \quad (2.13) \]

Starting from an economic equilibrium at time \( t \) in which the skill composition of older workers is given by \( \theta_{t-1} \), fraction \( (1 - \theta_{t-1}) \) of the older generation unambiguously favors autarky and thus can be “lined up” on the low end of the population distribution. Likewise, proportion \( \theta_{t-1} \) of the older generation is unambiguously pro free trade and therefore can be stacked at the top end of the \([0, 2]\) population interval. Accordingly, the younger generation spans the population interval from \([1 - \theta_{t-1}, 2 - \theta_{t-1}]\). It is immediate that the median voter must be a member of the young generation; by definition, the median voter is the individual at the center of the population interval (namely agent \( j = 1 \in [0, 2] \)) and since \( \theta_{t-1} \leq 1 \) by definition, the young generation necessarily spans the median of the overall population.

**Young Voters.** Assessing the trade policy preferences of the pivotal younger generation is somewhat more involved than for the older cohort, since the young can adjust their educational decisions in response to the current realization of tariff policy unlike their older counterparts. It is still the case that every agent’s most preferred tariff will be characterized by a corner solution so that the young generation, like the old, can be divided into those who unambiguously prefer protectionism and those wholeheartedly in favor of free trade. But from there the story is complicated by the endogeneity of the skill acquisition decision. Intuitively, the young agents of each natural ability level can be characterized as either lifetime net producers or net consumers of the basic good, depending on the current and anticipated tariff levels. Members of the former group will favor protectionism (the lower the relative price of the skill-based good, the better) while the lifetime net suppliers of skill-based goods may or may not prefer free trade, depending on the cost of education relative to higher expected wages from freer trade in the second period of life.

Fortunately, a simple observation provides substantial leverage in evaluating both the structure of trade policy preferences among the young generation and the characteristics of
political equilibria. Notice that for any fixed future tariff, every young voter would strictly prefer protectionism in the current period.\(^{10}\) (Recall that all workers are assumed to provide unskilled labor in the first period of life regardless of whether or not they undergo training to become skilled workers in the future.) Thus, even a pro-reform young voter would strictly prefer “protection today and free trade tomorrow” to “free trade today and free trade tomorrow.” This implies that the only reason that a young voter would vote for liberalization in the current period is to influence the voting outcome in the next period.

This universal preference for high tariffs while young (again, holding future tariff policy fixed) allows us to rule out the possibility of a protectionist shift from \(\tau_L\) to \(\tau_P\) in a Markov perfect political equilibrium, which implies in turn that we can rule out the possibility of temporary deviations from either status quo policy.\(^{11}\) If the median voter expects protection in the future, she would never vote for the liberal regime in the current period; we therefore can rule out the possibility of temporary liberalization in political equilibrium. A similar argument rules out the possibility of temporary protection. If starting from a liberal regime, a young voter at time \(t\) expected that she could deviate to protection, then her predecessor at \(t - 1\) must have anticipated this behavior and voted for protection as well, contradicting the initial assumption a liberal status quo at time \(t\).

Since temporary deviations from the status quo cannot occur in equilibrium, we can reduce young voters’ policy preferences to a choice between permanent maintenance of the status quo versus a permanent and immediate shift to the proposed alternate regime. To characterize how trade policy preferences depend on young voters’ skill acquisition decisions, we categorize the young generation into three groups: those who would upgrade their skills under either policy regime (the high ability agents), those who would educate themselves only under the more liberal policy regime (the middle ability agents), and those who would

\(^{10}\)Under the extreme parametric assumption that \(c = 1\) such that agents cannot earn wages as unskilled workers when undergoing skill-acquisition process, young future-skilled workers would be indifferent over first-period trade policy (holding second period trade policy fixed).

\(^{11}\)That is, we can rule out the possibility of political equilibria that include tariff sequences \(\tau_{t-1} \rightarrow \tau_t = \tau_L \rightarrow \tau_P\). The temporary deviation time paths \(\tau_{t-1} \rightarrow \tau_t \rightarrow \tau_{t+1} = \tau_L \rightarrow \tau_P \rightarrow \tau_L\) or \(\tau_P \rightarrow \tau_L \rightarrow \tau_P\) therefore are also ruled out.
remain unskilled under either regime (the low ability agents). Using \( \hat{a}_P (\hat{a}_L) \) to denote the ability of the threshold agent under a current and future protectionist (liberal) regime according to (2.3), and recalling that \( \hat{a} \), is strictly increasing in \( \tau \) (the greater the level of import protection, the higher the ability of the threshold agent and the lower the skill composition of the population) so that \( \hat{a}_P > \hat{a}_L \), the three types of agents are sorted on the generational unit interval so that low ability agents are those for whom \( a \in [0, \hat{a}_L] \); the middle ability agents have ability \( a \in (\hat{a}_L, \hat{a}_P] \); and the high ability agents are those for whom \( a \in (\hat{a}_P, 1] \). Figure 1 illustrates. We evaluate the trade policy preferences of each group in turn.

\[ \text{Figure 1: Young Generation Ability Types} \]

The lowest ability members of the young generation are the easiest to evaluate, so we start there. Since these least able workers will remain unskilled under either tariff policy, the low ability agents unambiguously favor protectionism. Thus, we can stack fraction
$\hat{a}_L$ of the young generation alongside their older counterparts on the left hand side of the population interval.

The middle ability agents, those with ability levels $a \in (\hat{a}_L, \hat{a}_P]$, will educate only under the expectation of the more liberal tariff regime. The proportion of the middle ability group that supports the more liberal tariff regime (if any) depends on the tradeoff between first period unskilled wages and education cost and second period income. This friction between current and future real earnings does not imply, however, that individually optimal tariffs are interior; quite the opposite, the members of the middle ability group prefer either autarky or free trade depending on prices and parameters (including education cost and the discount factor) and their individual specific ability level. A middle ability agent will vote in favor of the more liberal regime if:

\[
v(p_P, 1) + \beta v(p_P, 1) \leq v(p_L, 1 - c) + \beta v(p_L, (1 + a)p_L)
\]

\[
\Leftrightarrow a \geq \frac{\tau^P \tau^L a (1 + \beta) - (1 - c) \beta p^w}{\tau^L - 1}.
\]

This expression demonstrates that the higher ability agents within the group would be the first to support freer trade. This is intuitive; the higher an agent’s ability, the higher her skilled wage and hence the greater her expected gains from liberalization.

Perhaps surprisingly, the highest ability agents of the young generation will not necessarily favor free trade. This ambiguity in trade policy preferences is again driven by friction between unskilled earnings in the first stage of life and skilled earnings in the second period of life. Like the rest of the population, each high ability agent’s most preferred trade policy is characterized by a corner solution. A high ability agent $a \in (\hat{a}_P, 1]$ will support the more liberal regime ($\tau_L$) if:

\[
v(p_P, 1 - c) + \beta v(p_P, (1 + a)p_P) \leq v(p_L, 1 - c) + \beta v(p_L, (1 + a)p_L)
\]

\[
\Leftrightarrow a \geq \frac{(\tau^P - \tau^P a) 1 - c}{(\tau^L a - 1 - \tau^P a - 1) \beta p^w} - 1.
\]

Thus, we again find that the highest ability agents among the group will be the first in line to support liberalization. The expressions in (2.15) and (2.17) coincide at the border between the high and middle ability groups (where $a = \hat{a}_P$) so that if (2.15) or (2.17) holds
with equality for some \( a' \in (\hat{a}_L, 1] \), then (2.15) ((2.17)) holds with strict equality for all agents \( a \in (a', a^P] \ (a > a' \cap (\hat{a}_P, 1]) \) and is violated for all \( a < a' \).

Together, the preceding observations about the trade policy preferences of each ability group indicate that young voters can be indexed over the population interval in increasing ability type. For any initial skill composition of the older generation, \( \theta_{t-1} \), then, the young generation can be arranged ascending in ability type over the interval \( [1 - \theta_{t-1}, 2 - \theta_{t-1}] \) of the population support \([0, 2]\). With this ordering of agents in hand, it is a simple matter to identify both the indifferent agent who separates the protectionists from the free-traders as well as the pivotal median voter.

**The Indifferent Voter.** We define the indifferent voter to be the (zero mass) individual who separates the population between the protectionists and the free traders. It is clear that the indifferent voter is neither a member of the young low ability type nor of the older generation, since all of these individuals strictly prefer autarky or free trade. The indifferent voter therefore must be a member of the young generation in either the middle or high ability groups. Using \( \tilde{a} \) to label the ability level of this delineating individual, we note that if the indifferent voter is a middle ability type so that \( \tilde{a} \in (\hat{a}_L, \hat{a}_P] \), then she is the agent for whom:

\[
\tilde{a} = \frac{\tau_P^\beta \tau_L^{1-\alpha}(1 + \beta) - (1 - c)}{\beta p^w} \tau_L - 1. \tag{2.18}
\]

Alternatively, if the indifferent agent is a member of the high ability group, her identity is given by:

\[
\tilde{a} = \frac{(\tau_P^\beta - \tau_L^\beta)}{\tau_L^{1-\alpha} - \tau_P^{1-\alpha}} \frac{1 - c}{\beta p^w} - 1. \tag{2.19}
\]

For any quadruple of parameter values, \((\beta, c, \alpha, p^w)\) and pair of tariff alternatives, \((\tau_L, \tau_P)\), then, the system of equations (2.18)-(2.19) pins down the indifferent voter, \( \tilde{a}(\tau_L, \tau_P) \). Notice that because the indifferent voter is young, her identity is independent of the status quo tariff policy or the skill composition of the older generation.

**The Median Voter.** Since fraction \( 1 - \theta_{1-t} \leq 1 \) of the older generation is protectionist and the young voters are mapped to the population interval increasing in ability type, the
median voter at a given time \( t \) must is the young agent with ability level \( a = \theta_{t-1} \) so that:

\[
a^M_t \equiv a^M(\tau_{t-1}, \tau_t) = \theta(\tau_{t-1}, \tau_t).
\] (2.20)

The identity of the median voter therefore depends on both the status quo and realized contemporary tariff regimes through the skill composition of the older generation. As one might expect, the ability level of the median voter is decreasing the measure of older unskilled workers \((1 - \theta_{t-1})\); the greater the vested interest in a high tariff among the older generation, the more difficult it will be to implement tariff liberalization since only a small proportion of the young vote is needed to block a proposed reform. Conversely, the greater the skill composition of the older workers, the higher the ability of the median voter and the better the chance for the liberal regime. Figure 2 demonstrates.

Figure 2: The Population Interval by Trade Policy Preference
2.3 Political Equilibria

We can evaluate the existence of political equilibria simply by comparing the relative position of the median and indifferent voters on the population interval. If the indifferent voter lies to the left of the median voter, then the median voter will favor free trade and thus vote in the liberal regime; if instead the indifferent voter lies to the right of the median voter, the protectionist regime will succeed in the referendum. The key is to recognize that under rational expectations and individually optimal skill acquisition decisions, the identity of the median voter depends on both the status quo and realized tariff regimes according to (2.20). In contrast, the identity of the indifferent voter is independent of the status quo tariff, pinned down on the population interval for any pair of tariff alternatives by $\bar{a}(\tau_L, \tau_P)$.

Given the two possible tariff regimes, $\tau_L$ and $\tau_P$, there are then four potential median voters identified on the population interval, the young agents with ability $a^M(\tau_P, \tau_P)$, $a^M(\tau_L, \tau_P)$, $a^M(\tau_P, \tau_L)$, and $a^M(\tau_L, \tau_L)$. Notice that the second can be eliminated from the analysis pursuant to the discussion on page 13, which rules out the possibility of a protectionist shift from $\tau_L$ to $\tau_P$ in political equilibrium.$^{12}$ Combining (2.4) and (2.20), verifies that the three remaining possible median voters are arranged on the population interval so that $a^M(\tau_P, \tau_P) < a^M(\tau_P, \tau_L) < a^M(\tau_L, \tau_L)$: intuitively, the ability level of the median voter will be lowest when the older generation makes its skill acquisition decisions under the expectation of lifetime protectionist trade policy, and highest when older workers anticipate a lifetime of freer trade. For any set of parameter values and tariff alternatives, the position of the the indifferent voter among these three potential median voters determines the set of political equilibrium possibilities.

There are four cases to consider. The first two are simple but relatively uninteresting scenarios in which the unique political equilibrium is characterized by a political steady state under either $\tau_L$ or $\tau_P$. First, if the indifferent voter lies to the left of all three potential median voter ability levels ($\bar{a}(\tau_L, \tau_P) < a^M(\tau_P, \tau_P) < a^M(\tau_P, \tau_L) < a^M(\tau_L, \tau_L)$), so that every potential median would voter favor the more liberal regime, the unique political

$^{12}$Recall that a young voter at time $t - 1$ would never vote for $\tau_L$ if she expects the tariff at time $t$ to be $\tau_P$. Thus, the skill composition $\theta(\tau_L, \tau_P)$ cannot occur in political equilibrium under rational expectations.
equilibrium is characterized by the political steady state under $\tau_L$ according to (2.11). The second possibility is the opposite extreme in which the median voter lies to the right of all three potential median voters ($a^M(\tau_P, \tau_P) < a^M(\tau_P, \tau_L) < a^M(\tau_L, \tau_L) < \tilde{a}(\tau_L, \tau_P)$) such that political steady state under $\tau_P$ is the unique political equilibrium. These possibilities are depicted in Panels A and B respectively in Figure 3.

![Figure 3: Political Steady States](image)

The focus of this paper is of course the intermediate possibility in which the indifferent voter lies between the median voter that would obtain under either steady state tariff policy (i.e. $\tilde{a}(\tau_L, \tau_P) \in [a^M(\tau_P, \tau_P), a^M(\tau_L, \tau_L)]$ as in Panel C of Figure 3) so that there are multiple political steady states; starting from a protectionist status quo the median voter would vote to maintain protection, while starting from the liberal status quo policy, the median voter would vote to maintain the lower tariff. Two possible scenarios support the existence of multiple political steady states— in the first, $a^M(\tau_P, \tau_P) < a^M(\tau_P, \tau_L) < \tilde{a}(\tau_L, \tau_P) < a^M(\tau_L, \tau_L)$; in this instance, the two political steady states are the only possible
The remaining case in which $a^M(\tau_P, \tau_P) < \tilde{a}(\tau_L, \tau_P) < a^M(\tau_P, \tau_L) < a^M(\tau_L, \tau_L)$, permits three distinct forms of political equilibria: the two political steady states, and a third form of political equilibrium in which the time path of trade policy is characterized by a single transition from the protectionist regime to freer trade; starting from a protectionist status quo, voters can rationally expect reform to occur in the next period because the induced median voter in the next period, $a^M(\tau_P, \tau_L)$, would indeed favor the liberal regime. (Notice that because transition from the protectionist regime to the liberal tariff could occur at any point in the time path of the economy, there are in fact a multiplicity of these equilibria.) This rather exciting possibility of “organic” reform in equilibrium is addressed further in Section 3.1.

2.4 Existence of Multiple Political Steady States

The conditions under which multiple political steady states can obtain depends on parameter values and the choice of tariff alternatives $\tau_L$ and $\tau_P$, though the complete characterization provided by equations (2.20), (2.18), and (2.19) is far from transparent. Fortunately, a few simple observations go a long way towards characterizing the set of possibilities. Figure 4 illustrates.

Notice first that the fraction of skilled workers under a protectionist steady state, $\theta(\tau_P, \tau_P)$, must be less than the fraction of skilled workers under the relatively liberal steady state, $\theta(\tau_L, \tau_L)$, because $\tau_L < \tau_P$ by assumption and $\theta$ is strictly decreasing in the (steady state) tariff according to (2.8); thus, it must be true that $a^M(\tau_P, \tau_P) = \theta(\tau_P, \tau_P) < a^M(\tau_L, \tau_L) = \theta(\tau_L, \tau_L)$, ruling out the shaded region in figure 4. Second, note that if less than half of the population is skilled under even the more liberal tariff regime, so that $a^M(\tau_P, \tau_P) < a^M(\tau_L, \tau_L) < \frac{1}{2}$, then the median voter under either initial tariff regime must be a member of the low ability group so that $\tau_P$ can be the only political steady state in region IV of figure 4. Conversely, if more than half of the population would be skilled under

\[ a^M(\tau_P, \tau_P) < a^M(\tau_L, \tau_L) < \frac{1}{2}, \]

then the median voter under either initial tariff regime must be a member of the low ability group so that $\tau_P$ can be the only political steady state in region IV of figure 4. Conversely, if more than half of the population would be skilled under

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\[ a^M(\tau_P, \tau_P) < a^M(\tau_L, \tau_L) < \frac{1}{2}, \]

then the median voter under either initial tariff regime must be a member of the low ability group so that $\tau_P$ can be the only political steady state in region IV of figure 4. Conversely, if more than half of the population would be skilled under
even the more protectionist regime, so that $\frac{1}{2} < a^M(\tau_P, \tau_P) < a^M(\tau_L, \tau_L)$ as in region I of figure 4, the indifferent voter under either initial tariff regime must necessarily be a member of the high ability group. This does not, imply, however, that there are necessarily multiple political steady states or even that the more liberal regime is a steady state, since even high ability voters may be protectionists. Finally, if $a^M(\tau_P, \tau_P) < \frac{1}{2} < a^M(\tau_L, \tau_L)$ there are two possibilities, both of which may (but need not) give rise the multiple equilibria. First if $a^M(\tau_P, \tau_P) < 1 - a^M(\tau_L, \tau_L)$ as in region III, the median voter starting from $\tau_P (\tau_L)$ will be a member of the low skill (medium skill) group so that $\tau_P$ will definitely be one steady state, but $\tau_L$ may or may not be politically stable as well. Alternatively, if $a^M(\tau_P, \tau_P) > 1 - \hat{a}^M(\tau_L, \tau_L)$ as in region II, the median voter starting from $\tau_P (\tau_L)$ will be a member of the middle skill (high skill) group so that $\tau_L, \tau_P$, or both may be politically stable.\(^{14}\)

---

\(^{14}\)We have confirmed that each of the regions depicted in Figure 4 is non-empty for some reasonable set of parameters.
The question that arises, then, is if the economy is in a “bad” equilibrium from national welfare maximization standpoint – a protectionist rut characterized by the political steady state under $\tau_P$ – whether and how it can transition to the Pareto improving steady state under $\tau_L$. This is the focus of the next section, which explores the possibility of different mechanisms for transitioning between steady states.

3 Transition Mechanisms

In asking how a protectionist political steady state can be be escaped, we effectively assume the existence of a third party agenda setter whose objective is efficiency (trade liberalization). It is understood that the cause of transition out of steady state must lie outside of the political process modeled so far, as the median voter under the protectionist regime – once she is in place – has no interest in such a change. We argue that our conceptual framework with a third party agenda setter is a reasonable approximation to the political structure observed in many democracies, particularly in the determination of trade policy. It is often the case that a few political elites – frequently un-elected – define the structure of political platforms or the design of ballot referenda to be put forward to the voting public. Indeed, this agenda setting extends beyond the populist vote to the halls of representative democracy. In the United States, for instance, fast track negotiating authority grants the President (who ostensibly represents the welfare objectives of the country as a whole) the right to design the structure of proposed trade agreements, each of which is subsequently sent to Congress (composed of heterogeneous district and state representatives) only for the final up or down referendum.

3.1 Announcements and Organic Political Change

Political stability hinges on agents’ expectations over future trade policy. In particular, if the economy is caught in the protectionist steady state, the high tariff regime is perpetuated by agents’ self-fulfilling beliefs that the same regime will still be in place next period. And it is this very belief that leads to skill acquisition decisions and a subsequent skill composition
which in turn bring about a median voter next period who decides to keep in place this regime. One possibility to break away from this vicious circle is to alter agents’ expectations over future trade policy. If young workers anticipate freer trade in the future, they will upgrade their skills accordingly. This anticipatory skill upgrading will in turn increase the skill composition of the older generation in the next period and thus the future constituency in favor of liberalization.

Notice that if the potential future constituency supporting free trade is sufficiently large, an “organic” political shift from a protectionist steady state to a liberal steady state is possible in political equilibrium. To see this, suppose that $\tilde{a}(\tau_L, \tau_P) \in [a^M(\tau_P, \tau_P), a^M(\tau_L, \tau_L)]$ so that both steady states are political equilibria. Then, if starting from a protectionist steady state at time $t-1$, enough members of the then-young generation would upgrade their skills under the expectation of more liberal trade at time $t$ so that $\theta_{t-1} = \theta(\tau_P, \tau_L) = a^M(\tau_P, \tau_L) > \tilde{a}(\tau_L, \tau_P)$, the expectation of freer trade at time $t$ is rational so that such an “organic” equilibrium transition from the protectionist regime to the liberal steady state marks a third form of political equilibrium in addition two the two steady states.

At the same time, however, the assumption of Markov perfection implies that agents’ beliefs must be intertemporally stable; that is, agents cannot simply wake up one day believing something else about the future. And so the question becomes how expectations can be altered to bring about reform. Forces that can bring about a change in anticipated future policy could be new actors from either outside or inside the country itself. Inside actors could be elder statesmen or political pundits weighing in on trade policy or politicians’ announcements of anticipated future trade deals. Outside actors could be foreign governments pushing for multilateral trade talks or applying political pressure for reform cast as “inevitable”. Even the popular press could bring about changes in beliefs – and thus reform – without changing the parameters underlying the model simply by suggesting that change is on the horizon.

In practice, the credibility of announcements will play an important role in shaping expectations about the future, even if organic political reform is possible. We would expect that an outside actor seeking to induce a shift in expectations would most likely need to
rely on a commitment device, such as an international treaty unless she possesses a form of inherent credibility.\footnote{While a senior representative from Vermont would be unlikely to convince voters of any impending change, even a few casual words from former Federal Reserve Chairman, Alan Greenspan may convey the necessary gravitas to immediately shift voters’ beliefs.}

3.2 Trade Adjustment Assistance: Temporary Education Subsidies

Another mechanism, apart from changing beliefs, to affect the skill composition and thereby the decision on trade policy lies in altering directly the economic calculations that determine the skill acquisition decision. The obvious way to affect this decision in the desired way is to subsidize the acquisition of skills. This can be achieved by enacting a subsidy to education that reduces the cost of acquiring skill and is financed by a poll tax. By tilting the balance in favor of skill acquisition, such a subsidy will improve the skill composition of the cohort and — if sufficiently substantial — bring about a median voter who favors trade liberalization. Note that once we have moved towards the new free-trade steady state, the subsidy could well be abolished again as it has served its purpose and is no longer required given that the new steady state is politically stable even without the subsidy.

Formally, let $s \in [0, c]$ denote the (gross) subsidy paid to every young agent who decides to acquire skills, which reduces the cost of doing so from $c$ to $c-s$. This subsidy must be funded and a balanced budget on part of the government implies that the poll tax required to do so amounts to $t = \frac{s}{2}\hat{\theta}_t$. Taking this into account, equation (2.2) that governs the skill acquisition decision has to be modified as follows:

$$v(p_t, 1 - (c-s) - t) + \beta v(p_{t+1}, (1 + a)p_{t+1} - t) \geq v(p_t, 1 - t) + \beta v(p_{t+1}, 1 - t), \quad (3.1)$$

where it has been assumed that the agent expects the policy to be in place for the two periods of her lifetime.\footnote{Note that this assumption can be easily relaxed. Assuming it to be in place for one period would only alter the value of the tax which as will be shown has no effect on the skill acquisition decision.} This results in the following modified critical ability level:

$$\hat{a}_t(\tau_t, \tau_{t+1}) \equiv \frac{\beta + (c-s)(\frac{-\tau_t}{\tau_{t+1}})^{\alpha}}{\beta p w^{\tau_{t+1}}} - 1. \quad (3.2)$$
Clearly, the education subsidy decreases the critical ability level and thus increases the proportion of the cohort that decides to acquire skills. Note that the poll tax itself does not directly influence the decision as it has to be paid whether one acquires skills or not.

Similar to the analysis in the baseline case, the skill-decision determines, via the skill composition of the old generation, the identity of the median voter among the young. In particular, the identity of the median voter in steady state is given by:

$$a_t^M(\tau_{t-1}, \tau_t) \equiv \hat{\theta}_{t-1}(\tau_{t-1}, \tau_t) = 2 - \frac{\beta + (c - s)(\tau_{t-1}/\tau_t)^{\alpha}}{\beta p^w} \tau_t$$

(3.3)

As before the ability level of the median voter is decreasing in the steady state tariff level because a higher tariff leads to more support for protection among the old. The education subsidy, on the other hand, by increasing the number of skilled among the old, reduces the support for protection in that cohort. Correspondingly, the median voter’s ability level is increasing in the education subsidy.

We now draw attention to how the education subsidy affects the identity of the indifferent voter. As before, we have to distinguish two cases: the case where the indifferent voter acquires skills under both regimes and the case where she decides to acquire skills only when the tariff is low.\textsuperscript{17} In the first case, the identity of the indifferent voter takes the form:

$$\tilde{a}_1 = \frac{\tau^\alpha_L(1 - c + s - (1 + \beta)t_0) - \tau^\alpha_P(1 - c + s - (1 + \beta)t_1)}{\beta(\tau^\alpha_P p_1 - \tau^\alpha_L p_0)} - 1$$

(3.4)

In the second, it is:

$$\tilde{a}_2 = \frac{\tau^\alpha_L(1 + \beta)(1 - t_0) - \tau^\alpha_P(1 - c + s - (1 + \beta)t_1)}{\beta p_1} - 1$$

(3.5)

How does the education subsidy affect these identities? Differentiating with respect to the subsidy $s$ and taking into account the government’s budget constraint, it is straightforward to show that $\tilde{a}_2(s) < \tilde{a}_1(s) < 0$.

We see that whereas the ability levels and hence the identities of the respective median voter under each steady state increase with the education subsidy, the reverse happens to

\textsuperscript{17} Note that the case where the indifferent voter never acquires skills can still not arise as the education subsidy tends to increase every agent’s willingness to acquire skills.
the indifferent voter. This increase in the ability level is more pronounced in the second case, as the indifferent voter acquires skills no matter what in the first case so that we have only second order effects. This opens up the possibility that the ability level of the indifferent voter falls below the identity of the median voter in the protectionist steady state. When this happens, the protectionist regime becomes politically unstable implying the the re liberal regime w

\[
\begin{array}{c}
0 \\
\downarrow \quad \quad \downarrow d^t(t_2, t_3) \\
\downarrow \quad \quad \downarrow \tilde{a} \\
\downarrow \quad \quad \downarrow d^t(t_2, t_3) \\
1
\end{array}
\]

Figure 5: The Effect of Education Subsidies

Note the impact of education subsidy on the (net of transfers) wage gap between skilled and unskilled workers: because all workers are taxed to pay for the education subsidy, the lowest ability workers who will remain unskilled even in the presence of a subsidy are taxed at the expense of their higher ability contemporaries. The tariff liberalizing benefit of blanket educational subsidies thus should be weighed against their concomitant increase in income inequality between low and high ability agents. But as pointed out above, once transition has occurred the education subsidy can as well be abolished provided that the indifferent voter has a lower ability level than the median in the liberalized steady state without the education subsidy. The implied increase in income inequality therefore would be temporary also.
Let us also relate the results just derived to the analysis in the previous subsection on announcements and beliefs. The identity of the median voter in a transitional period, $a^M(\tau_P, \tau_L)$ also moves to the right according to the general equation (3.3) above. Even if the indifferent agent does not lie to the left of the median voter under protectionism, she could find herself to the left of the transitional median voter, implying that the latter prefers now prefers trade liberalization, provided beliefs have been altered so that he believes in a liberalized trade regime in the next period. This indicates that a combination of education subsidies and announcements can be successful even if the education subsidy is not sufficient to render the protectionist steady state politically unstable on its own. And again, also here the subsidy can possibly be abolished once transition has been achieved.

### 3.3 Trade Adjustment Assistance: Transfers

Among the most commonly found policy supplements to trade reform in developed countries are compensation schemes that partially offset the losses faced by workers who are adversely affected from trade liberalization. Unlike the transition mechanisms discussed thus far, which appear to be suitable means to achieve freer trade, transfer programs designed to compensate the losers from trade liberalization turn out to be counter-productive. This is result is particularly striking given that unemployment compensation or wage “top ups” are a prominent component of most countries’ existing trade adjustment assistance (TAA) programs.

In order to compensate workers in import competing sectors, TAA transfer programs must tax the winners from trade reform. In our context, this implies that transfers depress the skill premium since the economy is assumed to hold comparative advantage in the skill-based good. Similar to the educational subsidies analyzed above, this changes the economic profitability of skill acquisition, but now in the opposite direction. Skill acquisition becomes less attractive under such a policy and this makes trade liberalization even harder to achieve politically, even though the trade adjustment component makes it appear more palatable at first sight.

Formally, suppose the unskilled old receive a subsidy $s$ per person as soon as trade
liberalization is enacted.\textsuperscript{18} To balance the budget the government needs to raise taxes and it does so by introducing a poll tax of $t$ to be paid by the skilled.\textsuperscript{19} Modifying the model accordingly, we can derive the new critical ability level for skill acquisition:

$$\hat{a}_t(\tau_l, \tau_{l+1}) \equiv \frac{\beta(1 + s + t) + c(\tau_l/\tau_{l+1})^\alpha}{\beta p^w} - 1.$$ (3.6)

Clearly, the subsidy $s$ and the tax $t$ have to satisfy the government budget constraint, $\hat{a}_{t-1}(\tau_{l-1}, \tau_l)s = (1 - \hat{a}_{t-1}(\tau_{l-1}, \tau_l))t$, where we note that the cut-off ability level reflects the skill composition of the older generation. Substituting the budget constraint and totally differentiating, we obtain the transitional critical ability level:

$$\frac{\partial \hat{a}(\tau_P, \tau_L)}{\partial t} = \frac{1}{\hat{a}(\tau_P, \tau_L)p_{t+1}};$$ (3.7)

and similarly, the steady state critical ability level under the liberalized regime:

$$\frac{\partial \hat{a}(\tau_L, \tau_L)}{\partial t} = \frac{1 + t/\hat{a}(\tau_L, \tau_L)^2p_{t+1}}{\hat{a}(\tau_L, \tau_L)p_{t+1}};$$ (3.8)

whereas the critical ability level under steady state protectionism remains unchanged as no compensation ever takes place. Accordingly, the median voter under the liberal steady state is now of a lower ability type, as — less pronounced — is her transitional counterpart, whereas the median voter under the protectionist steady state is of the same type as without transfers. In other words, the respective median voters tend to move left, contrary to our results for the education subsidy.

We turn now to the indifferent agent. If she is a member of the medium ability group, she is characterized by

$$\tilde{a} = \tau_P^\alpha \tau_L^{-\alpha}(1 + \beta) - (1 - c) \tau_L - 1 + \frac{t}{p^w} \tau_L.$$ (3.9)

Alternatively, if she belongs to the high ability group, she is of ability level

$$\tilde{a} = \frac{(\tau_P^\alpha - \tau_L^\alpha)}{(\tau_L^{\alpha-1} - \tau_P^{\alpha-1})} \frac{1 - c}{\beta p^w} - 1 + \frac{t\tau_L^\alpha}{\tau_L^{\alpha-1} - \tau_P^{\alpha-1}}.$$ (3.10)

\textsuperscript{18}The unskilled young cannot expect such a payment as they still have the option to acquire skills.

\textsuperscript{19}Note that the skilled with relatively low ability actually lose from trade liberalization. However, trade adjustment programs typically do not draw this line, as the informational requirements would be unrealistically high.
It is clear that both possible indifferent agents move to the right, i.e. are now of a higher ability type.

Given that the median voters under the transitional equilibrium and especially under the liberal steady state move left, and the indifferent agents move right, we conclude that the political feasibility of trade liberalization diminishes. Transfer augmented trade liberalization might not be politically stable at all, even if without transfers liberalization would have been, or it might not be reachable by a shift in beliefs only. That is, we have the perverse effect that transfers, though seemingly appealing, actually render trade liberalization more difficult or even impossible to achieve.

3.4 Radical Reform

In this section we consider a different thought experiment: starting from a protectionist regime, are there preconditions on the structure of a liberalization referendum that are necessary for reform to be possible? Or conversely, starting from a liberal policy regime, what sort of protectionist proposals (if any) would induce the economy to revert to protectionism? As discussed earlier, we are effectively asking how a third party agenda setter (not the median voter) could influence the extant and future political steady state by altering the structure of referendum proposals.

From the analysis in Section 2 it is clear that the existence of any political steady state depends not only on the status quo tariff, but also on the alternative regime, since the identity of the indifferent voter (and hence implicitly the trade preferences of the median voter) depend on the tariff pair, $(\tau_L, \tau_P)$. The obvious policy question is then, starting from a given regime, which proposed tariff alternatives (if any) would ensure that the status quo is maintained as the unique political steady state (either protectionist rut or liberal political stasis)? which would lead to an unambiguous regime shift by making the status quo politically unstable? and which referendum alternatives would lead to the already must discussed possibility of multiple equilibria? We assume that the referendum must be structured as a choice between the status quo and some (different) alternative regime,\(^{20}\)

\(^{20}\)Alternative assumptions both would be inconsistent with the nature of referenda (almost always a choice
and we refer to a proposed tariff alternative as “reform” if it decreases the tariff and as “entrenching” otherwise.

Interestingly, and perhaps surprisingly, the best way to block reform (other than to offer entrenching tariff proposals) is to propose a relatively minor tariff liberalization. Starting from a protectionist regime, a tariff liberalization referendum is sure to fail for a sufficiently small reform step, since (tautologically) \( \lim_{\tau' \to \tau_p} a^M(\tau_p, \tau') = a^M(\tau_p, \tau_p) \). This can be seen in Figure 4; for example suppose that \( a^M(\tau_p, \tau_p) \leq \frac{1}{2} \), and that, for some initial tariff alternative, \( \tau' < \tau_p, \theta(\tau', \tau') = a^M(\tau', \tau', \) \( ) \geq \frac{1}{2} \) so that the initial tariff proposal may admit multiple political steady states under Region II or III. Decreasing the reform step by decreasing \( \Delta \) then causes \( a^M(\tau', \tau') \) to move left, toward \( a^M(\tau_p, \tau_p) \), eventually pushing the economy into Region IV where the only political steady state is the more protectionist status quo regime. Intuitively, since voters’ preferences are unambiguously protectionist or pro free trade, no voter would strictly prefer a small reform to radical reform; there are no moderate voters (except the zero-mass indifferent voter), only two extremist voter blocks. Reducing the magnitude of the reform step therefore serves only to decrease the future consistency of skilled workers who would favor liberalization without generating any additional support from the (nonexistent) moderates.

This finding that radical reform may be necessary to generate the political support for tariff reform parallels the similar finding by Krishna and Mitra (2006) whose intuition applies equally in this context: because voters’ political allegiances depend on their (net lifetime) sectoral orientation, and are monotonically increasing in the relative price of the good in which they have comparative advantage, a big shift in the proportion of the population employed in the export oriented (skill-based) sector is necessary to generate political support for reform. But while in their model, shifting workers’ sectoral orientation requires exogenous changes in terms of trade, this model demonstrates that political support can be about whether or not to adopt a policy change), but also would yield uninteresting results. (The agenda setter could ensure a political shift simply by making the two prosed regimes different from the status quo (and vanishingly similar), and could maintain the status quo simply by offering the degenerate proposal between the status quo and itself (which is as meaningless as the “democratic” votes on a single candidate observed in dictatorial regimes).
generated by sufficiently large tariff reform proposals, education subsidies or beliefs.

4 Conclusion

This paper evaluates the dynamic political economy aspects of tariff reform in the presence of populist politics. The model is designed in such a way to capture (i) a dynamic environment, specifically the potential influence of current policy on the identity (not just the policy preferences) of the median voter, (ii) the political frictions both within and across generations borne of different abilities to adjust to changing economic conditions, and (iii) the endogeneity of voters’ preferences and choices with current and expected economic conditions. Populations can and do evolve in response to economic conditions, even in the presence of myopic preferences; this paper constructs a simple model to evaluate how and why these changes can (and sometimes do not) occur.

We find that multiple political steady states may exist within an economy, and thus, that voters can potentially get stuck in a protectionist rut despite that aggregate welfare would be higher under a more liberal tariff regime. A series of thought experiments and comparative statics exercises demonstrate that the multiplicity of political equilibria can be broken through a number of third party induced changes. We discuss several potential mechanisms for escaping the protectionist rut: announcements of future policy commitments (for instance, preferential trade agreement talks) that change young voters’ beliefs about the future; temporary education subsidies that reduce the cost of skill acquisition and thus increase the political constituency in favor of open markets; and structuring referenda to put forward radical reform packages rather than minor policy changes. We also find, provocatively, that transfer payments to negatively impacted workers in the import-competing sectors will reduce the potential for reform unless they are carefully constructed in such a way that they do not influence young workers’ skill acquisition decisions.

There are a number of promising extensions to be pursued in subsequent research. From a theoretical perspective, it would be interesting to move away from the restricted set of Markov perfect equilibria to explore the further the role of beliefs. Empirically, cross
country panel studies could explore the potential influence of variations in educational access, cost, and education, differential voter turnout across generations, and welfare programs on the success of trade reform and public ratification of regional integration agreements. Finally, one could envision formal policy analysis of the optimal structure of the trade adjustment assistance (TAA) programs focussed on generational differences that would offer transfer payments to “buy out” old unskilled workers, while offering only education subsidies to younger, less able, workers.

5 Appendices

5.1 Derivation of the Autarkic Steady State

[Forthcoming]

5.2 Tariff Revenue

In this appendix we investigate how our results are affected by the collection and redistribution of tariff revenue. As is customary in the literature, we assume that the revenue is distributed uniformly to all individuals who are alive at a given point in time. Denoting aggregate tariff revenue by $R_t$, this implies that each agent, young and old, receives a demogrant of $r_t = R_t/2$ in a given time period $t$. Hence she receives two such payments over the two periods of her life.

We start by showing that the redistribution of tariff revenue in this way does not affect the skill acquisition decision. To see this, note that equation (2.2) has to be augmented as follows:

$$v(p, 1 - c + r_t) + \beta v(p_{t+1}, (1 + a)p_{t+1} + r_{t+1}) \geq v(p_t, 1 + r_t) + \beta v(p_{t+1}, 1 + r_{t+1}).$$

(5.1)

Solving for the threshold agent $\hat{a}_t$, the tariff revenue payments cancel, which leaves us with exactly the same skill acquisition decision for all $r_t$, including $r_t = 0$.

The tariff revenue rebate clearly does have implications when comparing different tariff regimes, as the payment will in general vary with the tariff. In particular, we can
solve the modified model and use the exterior trade balance condition \((I_m = p^w E_x)\) to derive:

\[
r_t = 0.5(\tau_t - 1)(1 - \alpha)(c\dot{\theta}_t) + (\alpha(2p - 1) + 1)\dot{\theta}_{t-1} - 0.5\alpha p\dot{\theta}_{t-1}^2/(1 - \alpha)\tau_t + \alpha
\]

(5.2)

As is easy to see, under a free trade regime \((\tau = 1)\) tariff revenue is non-existent. As the tariff approaches the prohibitive level, and \(\dot{\theta}\) converges towards its autarky level (CHECK THIS), tariff revenue falls back to zero. Within this range, tariff revenue is positive and convex. That is, at first it increases — the marginal increase exactly off-setting the marginal distortion when the tariff is optimal — and beyond the revenue maximizing tariff it decreases.

Returning to our main analysis, a choice between any two tariff regimes therefore entails a change in tariff revenue which can be positive, negative, or possibly zero. This revenue effect will in general change the identity of the indifferent voter, whereas it does not affect the identities of the respective median voters, which depend only on the skill acquisition decision that is unaffected by the tariff rebate.

Let us consider the case where tariff revenue is lower at the lower tariff. Normative economics would suggest that this is the relevant case. We note that the opposite case is a mirror image. The loss in tariff revenue — which we did not consider in the main text - makes liberalization less attractive and therefore increases the ability level of the indifferent voter. This tends to lower the political stability of the liberalized regime and strengthen the stability of the more protectionist steady state. If both tariff regimes were considered stable when ignoring tariff revenue, this could lead to the protectionist regime being the only politically stable steady state. If only the liberalized steady state was considered stable when ignoring tariff revenue, this opens up the possibility of both regimes being politically stable.

Taking account of tariff revenue therefore does not alter the qualitative conclusions of the main text.

\(^{21}\)Focusing on steady state tariff regimes somewhat simplifies the expression.
References


REFERENCES


