

Tricks of the Trade: Using Trade Agreements as Leverage *

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Abstract

What determines the duration of a trade agreement? This paper claims that when one party is more powerful than the other it can use a fixed agreement, which must be periodically renewed, as leverage by renewing the agreement only if the less powerful country complies with its demands. An evergreen agreement, which is concluded for an indefinite period, does not offer the same opportunity. I present a game theoretic model in which I analyze these dynamics, deriving interesting implications. In particular, I show that fixed agreements are implemented more frequently when the wealth of the parties to the agreement is more dissimilar. Additionally, a fixed agreement is less likely to be an effective tool when utility from policy is volatile. Lastly, I show that leverage is most effective when the trading partners have more similar values. I then provide an empirical illustration of the argument using data on all agreements the United States is party to, finding support for my claims.

1 Introduction

When do countries choose to govern international behavior via repeated interactions versus institutions? Scholars argue that institutions regulate more effectively because they tie the hands of politicians. Thus, politicians cannot alter their policies for political reasons, such as before elections. And while sometimes the flexibility of repeated interaction better responds to a changing world, it also breeds uncertainty and volatility. However, in this paper I argue for an overlooked political reason why countries might choose repeated interactions over institutions: they provide leverage over the politics of other countries. My argument is simple: repeated interactions provide frequent and ongoing opportunities for one country to pressure another to conform to its demands.

To fix ideas, I focus on a specific instance of the tradeoff between institutions and repeated interaction: international agreements. Agreements may be evergreen or fixed. An evergreen

agreement is concluded for an indefinite period (an institution), whereas a fixed agreement is concluded for a set period of time and often contains the possibility for renewal (repeated interaction). Trade agreements are a useful lens through which to view my claim, since they are often used as leverage, as discussed extensively in the Congressional Record and in national debate.

FIGURE 1 ABOUT HERE

A good example is the bilateral agreement between China and the United States, granting China most favored nation (MFN) status. MFN status gives countries all the rights of World Trade Organization (WTO) membership. In particular, countries granted MFN status cannot discriminate against each other so that, for example, all WTO members are subject to the same tariffs. Beginning in 1934, the United States granted MFN status to virtually all trading partners, until Congress passed the Trade Agreements Extension Act of 1951, requiring the President to suspend MFN status for the Soviet Union and all countries of the then Sino-Soviet bloc, including China. MFN status could only be restored by passage of a specific law until the Trade Act of 1974. The act allowed MFN status to be restored given the conclusion of a bilateral trade agreement and a presidential waiver of the so-called Jackson-Vanik amendment (an amendment requiring MFN to be revoked for countries that disallow freedom of emigration). In 1979, a fixed bilateral trade agreement was signed between the United States and China and the waiver was granted. The agreement had to be renewed every three years, and the waiver had to be granted every year for China to continue to receive MFN status (Pregelj, Lawrence and Watkins 2001).

China agitated for permanent normal trade relations (PTNR), which would grant permanent MFN status by making the bilateral trade agreement evergreen, and by concluding similar agreements with all members of the WTO. The United States, however, resisted granting PTNR to China because it believed that the renewal of the agreement provided the US leverage to demand that China improve its human rights record and advance US concerns

regarding the fate of Taiwan. For example, throughout his campaign for the presidency, Bill Clinton consistently stated his intention to tie renewal of MFN status to China's record on human rights, stating "whether I extend MFN next year depends on whether China makes significant progress in improving its human rights record" (*The Congressional Record* 2000). In Congress, the linkage between human rights and MFN was a primary argument used to advocate for the denial of PTNR. For example, Rep. Smith of New Jersey instructed Congress, "This is a real vote- the dictatorship will actually lose something they want. Deny China's PTNR today- require them to move in the direction of reform and the protection of human rights" (*The Congressional Record* 2000).

The renewal of the agreement was used to pressure China over other issues, as well. For example, in 1991, the United States stated that it would impose \$1.5 billion in trade sanctions against China for failing to adequately protect patents, copyrights, trade secrets and trademarks. China then threatened to impose retaliatory sanctions on the US. President H.W. Bush responded by threatening to revoke China's MFN status, but China and the United States reached a compromise instead. China finally received PTNR during the last few months of the Clinton administration, paving the way for it to join the WTO.

While China is perhaps one of the most prominent examples of using fixed agreements as leverage, other examples abound. For example, the United States renews its FTA with Vietnam annually, tying human rights to the renewal. Rep. Loretta Sanchez argued for the renewal because, "if we insist that Vietnam improve its human rights record as a condition to trading with America, we would gain human rights advances in Vietnam, so I think it is a tragic mistake for the United States to decline to use this tool that is available to us that would be effective in gaining freedom for those who are oppressed" (*The Congressional Record* 2001). Similarly, according to the US Department of State, in February 1993 a bilateral trade treaty between the United States and Belarus guaranteeing reciprocal most-favored-nation status entered into force. However, in 2000, the U.S. removed Belarus from

the Generalized System of Preferences (GSP) due to its continuing repression of labor rights.

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This argument applies outside the United States as well. For example, India and Nepal signed two fixed trade treaties in 1991 and 1996, but renewal has been contentious due to Indian opposition to Nepal's 1988 acquisition of Chinese weapons, suggesting that India used the agreements to pressure Nepal over the weapons issue (*India: A Country Study. Washington* 1995). Also, the series of the Lomé Convention trade-and-aid fixed agreements explicitly link economic and political objectives to renewal. Many non-preferential agreements signed by the EU make respect for human rights a key condition for yearly renewal and have been concluded with Mongolia, Sri Lanka, Vietnam and Nepal.

2 Trade Agreements as Leverage

My model contributes a novel theory for why trade agreements are signed. The literature points to a variety of reasons for a country to sign an FTA. Examples include: terms of trade externalities (Bagwell and Staiger 2002), the limited progress achieved in multilateral negotiations at the WTO (Bhagwati 2008), in response to other countries' FTAs (Fernandez 1997), foreign policy or security concerns (Gowa and Mansfield 1993), reduction of policy uncertainty (Hollyer and Rosendorff 2010), or to "tie the hands" of the government with respect to trade policy (Büthe and Milner 2008; Maggi and Rodriguez-Clare 2007).² In this paper, I argue that an additional rationale for a trade agreement is to gain leverage over another country.

Why do countries need to sign fixed agreements to gain leverage over other countries?

¹Note that the argument does not only apply to trade *agreements*. Often, a country will simply pass domestic legislation giving another country privileges that must be renewed. For example, the United States passed the Andean Trade Preference Act in 1991, which gives trade benefits to the Andean countries, but is only renewed if these countries make significant progress in fighting the "war on drugs."

²See UNCTAD (2009) and Sauvans and L.E. Sachs (2009) for an overview of the literature on trade agreements as commitment devices.

Why don't countries include these issues in their original agreements? Countries link disparate issues in agreements all the time; what additional advantages are there to using fixed agreements instead? To answer these questions, I first discuss the concept of issue linkage and then explain why issue linkage is often ineffective in gaining leverage over other countries.³ Issue linkage is the simultaneous discussion of two or more issues for joint settlement (Poast 2010). In the trade literature, for example, there are many examples of issue linkage. Many recent free trade agreements link issues such as trade barriers, intellectual property rights, investment, labor rights, the environment, etc. Such linkages can be helpful to conclude agreements, especially in multilateral settings or when the distribution of benefits is skewed. For example, if one country applies no tariffs on goods, while another applies heavy tariffs, it would seem the first country has nothing to offer in exchange for lower tariffs. Increasing the scope of allows the first country to offer, say, intellectual property right protection in exchange for lower tariffs. In global settings in particular, this can be helpful when there are many diverse countries that need to reach an agreement (Koremenos, Lipson and Snidal 2001).

While issue linkage can be a helpful tool for completing agreements, it does not enable one country to have leverage over another the way a fixed agreement does. For example, countries cannot sign one agreement that links every issue of concern. While it is possible to imagine that linking two issues increases the probability of signing an agreement, linking five hundred issues surely decreases the probability that an agreement can be signed. A fixed agreement, on the other hand, does not require bargaining over the "extra" issues. Instead, countries can use threats not to renew the agreement in order to pressure partner countries on a variety of issues. This is particularly advantageous when it is difficult to anticipate important future issues. For example, the United States renewal of its MFN-granting trade

³For a more thorough discussion of issue linkage, see, for example, Stein (1980), Spagnolo (1999) and Hoekman (1989).

agreement with China was automatic until the Tiananmen Square protests of 1989. All of a sudden, human rights in China became an major issue in the United States (Pregelj, Lawrence and Watkins 2001). Because the United States had a fixed agreement with China, it was able to use the agreement to pressure China to improve its human rights policies.

Additionally, issue linkages have limited use because countries are often unable to credibly threaten to punish violations of some issues, as it is often too costly to do so. Instead, issue linkages are often cheap talk used to satisfy domestic demands. For example, human rights provisions are increasingly included in trade agreements, but often not because of any intention to actually improve human rights. As Hafner-Burton (2009) points out, human rights provisions often lack teeth and serve mainly to allay domestic concerns about human rights violations of their trading partners. Examples abound: toothless labor provisions were added to NAFTA to appease the Democratic concerns about labor rights (Ritchie 1997); Chile reformed its labor laws in order to sign an FTA with the US but a subsequent survey found that hundreds of thousands of children still work under hazardous conditions (US state dept, 2007); Turkey set new standards for human rights before signing a PTA with the EU but violations are still commonplace (Comission 2005). In fact, a US Congressional Research Report explains why linking human rights has been ineffective:

To date, no labor dispute under any of the free trade agreements has reached the USTR.... Entering into the dispute resolution process is a lengthy, involved, expensive process in terms of both personnel and resources....Labor disputes could be more difficult to resolve than commercial disputes. This is because the labor principles in the ILO Declaration against which foreign actions could be compared are less detailed and specific. Moreover... the USTR may not wish to pursue the enforcement of these principles because... this could possibly subject a number of U.S. labor laws to challenge (Bolle 2008).

Thus there is strong evidence that linking human rights to trade agreements is not even

intended to improve countries' human rights practices. By contrast, using fixed agreements as leverage is intended to force countries to comply with a variety demands from trading partners, often human rights but also other policies such as the US war on drugs, foreign policy, etc. Thus, this argument adds to the international bargaining literature by arguing that fixed agreements provide countries with leverage that they simply can't obtain otherwise.

Additionally, this argument adds a political economy explanation for why we see variation in the duration of agreements. Current scholarship posits purely economic reasons for variation in agreement duration. For example, Guriev and Klimenko (2009) hypothesizes that countries who trade mostly commodities will sign fixed agreements while countries who trade mostly manufacturing goods and services will sign evergreen treaties. The authors posit that fixed term agreements provide the incentive for the initial investment, but also provide incentives for future investment through renegotiation. Thus, countries choose fixed term agreements when they trade homogenous goods that require lumpy, irreversible investments. However, if the countries trade in differentiated goods that require small, frequent investments, they should sign evergreen agreements, which provide ongoing incentives to invest. Another related argument is McLaren (1997), which argues that countries sign long-term agreements to prevent hold up by the partner country. A long-term contract allows one country to make irreversible investments without worrying that the other country will then increase demands once the investment has been made. However, this literature cannot explain many cases where countries that trade mainly in commodities sign evergreen agreements, or vice versa. For example, the US has signed many evergreen agreements with countries with which it trades mainly in commodities, such as its FTAs with Israel and Australia. Additionally, there are many examples of fixed term agreements signed with countries whose trade is dominated by manufacturing and services, such as the intellectual property rights agreements with Jamaica, Sri Lanka and Nicaragua. The economic arguments offer only a partial explanation of the duration of agreements.

While arguments about the duration of trade agreements have been purely economic, political economy arguments have been advanced to explain other aspects of agreements. For example, Maggi and Rodriguez-Clare (2007) argues that more politically motivated governments sign more liberalizing agreements and that governments prefer to commit to tariff ceilings rather than tariff levels in order to capture more lobbying rents. Horn, Maggi and Staiger (2010) argues that governments balance rigidity and discretion over policies when crafting agreements, which determines the nature of the agreement's incompleteness. This strand of literature currently has nothing to say about the duration of agreements, however.

Thus, one strand of literature offers political arguments about the contents of trade agreements while another strand offers economic arguments about the duration of agreements. What is missing is a political argument to explain agreement duration. This paper aims to fill that gap by arguing that a government signs a fixed agreement when it is able to use the agreement as leverage to exact concessions from the partner country. To analyze governments' political incentives, I present an infinite horizon bargaining model in which countries choose both the nature and duration of agreements. The next section presents the model. Section four extends the model into multiple states. Section five presents an empirical illustration of my claims and the last section concludes.

3 The Trade Game

3.1 Strategies and Game Sequence

To formalize the theory presented above, I analyze an infinite horizon bargaining game between two countries, home H and foreign F who bargain over the nature and duration of a trade agreement. If there are potential gains from trade, H and F enter trade agreement negotiations. They negotiate the terms of the agreement as well as the duration of the

agreement $\theta \in \{0, 1, \infty\}$.⁴ A duration $\theta = 0$ represents no agreement, $\theta = 1$ represents a fixed agreement and $\theta = \infty$ represents an evergreen agreement. If countries choose an evergreen agreement, the agreement remains in force throughout the game. Terminating the agreement incurs a prohibitively large cost due to both economic and political factors. Marjorie Bowker, a retired judge who has become a very vocal and influential critic of the US-Canada free trade agreement, makes the economic implications clear:

“No matter which country were to terminate the Agreement, it could place Canada in a serious predicament for this reason: once the Agreement takes effect in January 1989, Canadian industries would begin ”gearing up” and restructuring in anticipation of greater exports to the U.S. This could include costly capital expenditures for upgrading factories, modernizing equipment, training workers (with some being laid off, temporarily at least). Once Canada had embarked on an industrial conversions process, cancelation would simply create another disruption to our national economy. For these reasons, termination cannot be looked upon as a way out.” (Bowker 1988, 45)

In addition to this economic cost, the government will also incur a political cost from damage to the reputation of the country. Once a country backs out of an agreement, it makes that country a less desirable trading partner, as other countries will not want to invest in an agreement if the partner country may renege at any time.

If a fixed agreement is selected, each period the countries decide whether to renew the agreement. The cost of not renewing the agreement is smaller than it is for terminating an evergreen agreement because the political cost is not incurred since countries are following the terms of the agreement, preserving their reputations. Also, the economic cost is lower since firms expect the agreement may not be renewed and can alter their behavior accordingly. For

⁴A continuous θ could be used, however a discrete θ makes the game more tractable while preserving the main results.

convenience, I normalize this cost to zero. Because in each stage of the game expectations, incentives and payoffs are identical, countries will never want to renegotiate the agreement. Thus, the timing is as follows:

- Countries bargain over the nature and duration of an agreement.
- If an evergreen agreement is selected, the agreement is in force for the remainder of the game, which is infinitely long.
- If a fixed agreement is selected, countries have the option to renew the agreement each period.

3.2 Actors and Preferences

Players include a home country H and a foreign country F . Countries have utility over the welfare of their citizens, measured by total wealth. Total wealth is wealth prior to the agreement W_i plus the additional wealth from the agreement w_i . Countries also have utility over other policies. To fix ideas, I call the other policies “violations of human rights” $J \in \{0, 1\}$ by country F . For convenience, I assume country F prefers not to respect human rights $J = 0$, whereas country H prefers F to give rights to its citizens, $J = 1$. The ability to violate human rights $J = 0$, generates disutility v_H for country h and utility v_F for country F . The utility of country H is

$$U_H = f(W_H, w_H) + v_H \tag{1}$$

and the utility of country F is

$$U_F = f(W_F, w_F) + v_F. \tag{2}$$

I assume that $F()$ is increasing and concave.

3.3 Strategies

If a fixed agreement is signed, country H follows a strategy where it renews the agreement with F conditional on no human rights violations in country F . If F violates human rights, H moves into a punishment period where it does not renew the agreement for one period. The following period, it will renew the agreement conditional on no violations having occurred. Note that there are many possible strategies that could be used with the same basic results, but I begin with one period punishments as they very weak. Thus, if countries cooperate with a one period punishment, they will cooperate with a punishment of longer duration. Because all periods are identical, if F violates rights in one state, it will violate rights in all states, which is the equivalent of no agreement at all. Thus, F 's strategy in a fixed agreement is to never violate rights, otherwise it would simply not sign an agreement. An evergreen agreement, by contrast, cannot be conditioned on human rights because once the agreement is signed, it is permanent. H is unable to use the evergreen agreement as leverage because it cannot credibly commit to terminate the agreement after a violation due to the high cost.

I now check for profitable deviations. If countries sign an evergreen agreement, there are no profitable deviations due to the high cost of terminating an evergreen agreement. In a fixed agreement, H won't deviate since it receives the benefits of the agreement and human rights are not violated, but F might deviate if it is very impatient. Specifically, F will not deviate if the benefits of playing its strategy are higher than the benefits of deviation. If it plays its strategy it receives utility from the agreement discounted at rate δ , or $\frac{f(W_F + w_F)}{1 - \delta}$. If it deviates, it receives benefits from the agreement and the utility from violating rights. The following period, F is punished with no agreement benefits and then the agreement is restored if F has not violated rights. Thus, $\frac{f(W_F + w_F)}{1 - \delta} \geq f(W_F + w_F) + v_F + \delta f(W_F) + \delta^2 \frac{f(W_F + w_F)}{1 - \delta}$.

Solving for δ , we get a quadratic equation, such that

$$\delta = \frac{-[f(W_F + w_F) + v_F - f(W_F)] \pm \sqrt{[f(W_F + w_F) + v_F - f(W_F)]^2 - 4[f(W_F) - f(W_F + w_F)](-v_F)}}{2[f(W_F) - f(W_F + w_F)]}. \quad (3)$$

We choose the positive root to ensure $\delta \leq 1$.

3.4 Bargaining Model

To analyze the model, I begin with the case in which H has all the bargaining power. Thus, H must divide the total surplus from trade, S , by choosing an element of the set $w = (w_1, w_2) \in R_+^2 : w_H + w_F \leq S$. The bargaining protocol is the following: H makes a take-it-or-leave-it offer $w_F \in [0, S]$. F chooses whether to accept or reject H 's proposal. If F accepts, the bargain proposed by H is implemented. If F rejects, no agreement is reached. H will offer F a share that makes F indifferent between accepting and rejecting the proposal. If H offered F less than this, F would simply reject the bargain and H would receive no benefits. If H offered more than this, F would accept, but H would be overpaying since F would also accept less. The twist to the standard model is that in addition to offering a share of the surplus, H also proposes a fixed or evergreen agreement. Thus, to solve I first calculate H 's offer under a fixed agreement and an evergreen agreement and then compare H 's utility under each agreement. I then provide a more rigorous proof for my results.

3.5 Calculating the Equilibrium

I begin by calculating the payoffs that countries receive for each value of θ . I denote the utility from each type of agreement as U_j^i $j \in \{H, F\}$ $i \in \{e, f, 0\}$, where j is the country and i is the type of agreement, so that e is an evergreen agreement, f is a fixed agreement and 0 is no agreement.

The value F derives from an evergreen agreement is the the utility from the trade benefits plus the utility from violating human rights. Thus, the per period value to F from an evergreen agreement is:

$$U_F^e = f(W_F, w_F) + v_F \quad (4)$$

If H signs an evergreen agreement, it receives the utility from the agreement, plus the disutility from F 's violation of human rights:

$$U_H^e = f(W_H, w_H) + v_H \quad (5)$$

When F signs a fixed agreement, it still receives the benefits from the agreement, but receives no utility from human rights violations, as it does not violate rights for fear of retaliation by H .

$$U_F^f = f(W_F, w_F) \quad (6)$$

For a fixed agreement, H will get the value of the agreement, and will not lose any utility from human rights violations since F will not deviate, or will be punished by H .

$$U_H^f = f(W_H, w_H) \quad (7)$$

If no agreement is signed, F simply gets the utility from violating human rights:

$$U_F^0 = v_F \quad (8)$$

No agreement gives H the disutility from human rights violations:

$$U_H^0 = v_H \tag{9}$$

Next, I calculate the offer H would make to F under a fixed and an evergreen agreement. I denote agreements proposed by H using w^j $j \in \{e, f, 0\}$, where e is an evergreen agreement, f is a fixed agreement and 0 is no agreement. Thus, w^e is F 's share of an evergreen agreement proposed by H . Additionally, I assume that the arguments of the function $f()$ enter additively for ease of exposition.

Under an evergreen agreement, since F can continue to violate rights, H can propose $w^e = 0$ to make F indifferent between an evergreen agreement and no agreement. Thus, H will keep the entire value of the surplus S , and receive utility

$$U_H^e = f(W_H + S) + v_H \tag{10}$$

Under a fixed agreement, F will no longer be able to violate rights. H must offer F a share of the surplus large enough to make F indifferent between rights violations and the agreement benefits, or $f(W_F + w_F) = f(W_F) + v_F$. Solving for w_F , $w_F = f^{-1}(f(W_F) + v_F) - W_F$. H 's share is then the surplus minus F 's share, or $w_H = S - f^{-1}(f(W_F) + v_F) + W_F$. Plugging into H 's utility function, the utility H receives from a fixed agreement is

$$U_H^f = f(W_H + S - f^{-1}(f(W_F) + v_F) + W_F) \tag{11}$$

We can now ask when H will choose a fixed agreement. He will choose a fixed agreement when his utility from doing so is higher than choosing an evergreen agreement, or, from

equations 9 and 10, when

$$f(W_H + S - f^{-1}(f(W_F) + v_F) + W_F) \geq f(W_H + S) + v_H \quad (12)$$

From this condition come the key results of the model, as illustrated in Figure 1. I take partial derivatives with respect to each variable of interest. First, because $f()$ is concave, the larger W_H , the smaller the benefits of the agreement become for H . Relative to human rights violations, H cares little about the agreement and is more likely to sign an fixed agreement, giving F a bigger share of the surplus in order to stop human rights violations. Therefore, the larger W_H , the more likely a fixed agreement. The larger W_F , the less F values the agreement benefits. Therefore, H needs to pay F more to compensate it for ceasing to violate rights. Therefore, all else equal, larger W_F implies an evergreen agreement is more likely. Greater v_H , or greater disutility to H from rights violations, will imply an fixed agreement is more likely, just as greater v_F , or greater utility to F for violating rights, implies an evergreen agreement is more likely. Thus, as shown in the figure, the values of W_H and W_F determine the diagonal line separating the fixed agreement equilibrium region from the evergreen agreement equilibrium region. Changes in V_F and V_H shift this line up or down. See Appendix A for a formal proof of the result.

4 Extension: Two-State Model

In the above game, H could often use a fixed trade agreement to force F to respect human rights. In that model, no country will deviate from the equilibrium path, so that if a fixed agreement is signed, human rights are never violated. However, in the real world countries often violate human rights or other key policies despite being party to fixed agreements, so that agreements are sometimes not renewed for a period of time. The introduction mentions a

few such examples: there were periods where the US did not renew its agreement with China for MFN, there were periods where India and Nepal did not renew their trade agreements, etc. In this section, I extend the model to account for periods where fixed agreements are not renewed. The key assumption is that F 's utility from violations of human rights varies depending on the state s , which can be high h or low l . Intuitively, such variation in utility could be due to political or economic fluctuations such as upcoming elections, coups, riots, etc. so that the government derives greater utility from violating rights in periods where it is more difficult to maintain power otherwise. Thus, in this extension, F 's utility is now $v(s)_F$ where s is high h with i.i.d. probability ρ and low l with probability $1 - \rho$. To determine the equilibria, I follow the same approach as before.

4.1 Strategies

Again, there are many strategies H might use, but I suppose that H follows a strategy where it agrees to renew the agreement in any period that F has not violated rights and refuses to renew the agreement for one period if F has violated rights. As before, $\theta \in \{0, 1, \infty\}$. Since I am interested in the occurrence of violations, F 's strategy is now to violate rights in the high state (when F gets the highest utility from doing so) and respect rights in the low state. After the one period punishment, if F does not violate rights the following period, the agreement is renewed, otherwise F suffers another punishment period. In order for H not to deviate from its strategy, it must be the case that in the high state of a fixed agreement, it is too expensive for H to pay F not to violate rights. As derived above, H would have to pay $f^{-1}[f(W_F) + v_F^h] - W_F$, which means that, plugging into the utility function, $f(W_H + S - f^{-1}[f(W_F) + v_F^h] + W_F) \leq f(W_H) + v_H$. This condition states that the value of paying F not to violate rights in the high state is less than the value of simply having no agreement at all in that state. This will occur when F values rights violations very highly, so that the price to cease violations is extremely steep.

4.2 Calculating the Equilibrium

As before, under an evergreen agreement, since F can continue to violate rights, H can propose $w^e = 0$ to make F indifferent between an evergreen agreement and no agreement. Thus, H will keep the entire value of the surplus S , and receive utility

$$U_H^e = f(W_H + S) + v_H \quad (13)$$

Under a fixed agreement, however, F 's utility depends on the state. In a low state, under the proposed strategy, F will not violate rights and so will receive utility from the agreement $f(W_F + w_F)$. In a high state F will violate rights and therefore will receive utility from violations but no benefits from the agreement due to the punishment, or $f(W_F) + V_F(h)$. Therefore, with probability ρ , F will receive the same utility regardless of whether it signs the agreement or not, as F violates rights and gets no agreement benefits. So to make F indifferent between accepting and rejecting the agreement, H offers the utility that F would receive from violating rights in the low state, times the probability of the low state, $f(W_F + w_F)(1 - \rho) = [f(W_F) + v_F^l](1 - \rho)$. Simplifying, $w_F = f^{-1}(f(W_F) + v_F^l) - W_F$.

Now we can calculate when H will choose a fixed or an evergreen agreement. Under an evergreen agreement, H receives

$$f(W_H + S) + V_H \quad (14)$$

Under a fixed agreement, H receives

$$f(W_H + S - f^{-1}(f(W_F) + v_F^l) + W_F)(1 - \rho) + [f(W_H) + V_H^h]\rho \quad (15)$$

and therefore H will sign a fixed agreement when

$$f(W_H + S - f^{-1}(f(W_F) + v_F^l) + W_F)(1 - \rho) + [f(W_H) + V_H^h]\rho \geq f(W_H + S) + V_H \quad (16)$$

We can see that the comparative statics are the same as in the previous case, where a larger W_H and v_H mean a fixed agreement is more likely and larger W_F and v_F mean an evergreen agreement is more likely. Here, however, H receives no benefits from a fixed agreement in the high state, reducing the overall value of a fixed agreement for H . If H could, it would simply offer F more in the high state to keep it from violating rights, but as stipulated above, a key condition for this equilibrium is that it cannot do this because F values violations so highly that the price is too steep. Thus bigger countries (who value a given agreement less) and countries who value violating rights highly are likely to enter this type of equilibrium. The United States and China’s MFN agreement mentioned in the introduction fits this equilibrium well.

5 Empirical Illustration

In this section I test key claims of the model: the larger W_H , the more likely a fixed agreement and the larger W_F the less likely a fixed agreement. Also, greater v_H and lower v_F the more likely a fixed agreement. What I will show in this section is that wealth and human rights violations are correlated with fixed agreements in the direction predicted by my model in both the United States and Australia.

We begin with the United States case. I obtained data on all trade agreements that the United States is currently party to from the US Trade Compliance Center website. This data is useful for a test of my model because since the United States is a major world power, it is a good representation of the “home” country in my model. Thus, I can hold the home country fixed, and then analyze the effect of varying the “foreign” country’s relative size and wealth. I begin the analysis with the 279 total bilateral and pluri-lateral agreements listed on the site. I exclude multilateral agreements (for example, the WTO Understanding of Settlement of Disputes), of which there are 37, leaving me with a total of 242 agreements.

To get a better idea of the nature of the data, I break it down by type of agreement. There are nine bilateral free trade agreements (FTAs), which create a free trade area, removing tariffs on many goods and services (although unlike a common market, labor and capital may not move freely). 39 agreements in the sample are bilateral investment treaties (BITs), which protect assets and investments and typically govern arbitration processes. 20 agreements are trade relations agreements, a form of economic agreement designed to set up trade liberalization frameworks such as trade councils. 14 agreements regulate intellectual property rights. 26 agreements are friendship, commerce and navigation treaties, typically intended to promote free trade and commerce by, for example, giving most favored nation status to the other countries' commerce and navigation. The remaining treaties in the sample are diverse, often covering specific goods or policies such as the Japan Distilled Spirits Agreement, the Korea Understanding on Telecommunications, or the Ukraine Textile Agreement. Note that although many trade relations agreements are fixed, not all are (for example, the US agreement with Peru) and although many FTAs are evergreen, again there are exceptions (such as the US FTA with Vietnam).

My dependent variable in the analysis is *fixed term*, a binary variable that equals one if an agreement is fixed. I coded these values through reading the text of each agreement. My key independent variables are *GDP per capita*, which is GDP per capita relative to the United States, and *human development*. *GDP per capita* comes from the Penn World Tables and *human development* comes from the World Bank Human Development Index. Table one presents summary statistics. Note that the values for the EU are population weighted averages of the values of individual member countries. Note also that I only have human rights data post 1980, and GDP data post 1950, which accounts for the missingness in the table. Table 2 presents pairwise correlations between the variables. As predicted, *GDP per capita* and *human rights* are negatively correlated with the dependent variable in each specification, so that countries that have lower GDP per capita or worse human rights records

are more likely to sign a fixed agreement. I provide an additional robustness check with the US data, only checking the agreements that effect terms of trade, and find similar results.

I also check my predictions using data on all bilateral trade agreements currently in force in Australia which I obtain from the Australia Government Department of Foreign Affairs and Trade website. Australia, although not as big of a world power as the United States is still a large developed country and therefore should fit the pattern of the “home” country as well. There are 73 trade agreements currently in force in Australia. These agreements are composed of five FTAs, four friendship, commerce and navigation treaties, and nineteen trade relations agreements, while the remainder is diverse. I find the same general results in the Australia case as I do for the United States, as shown in table 2. As predicted, *GDP per capita*, relative to Australia, and *human rights* are negatively correlated with the dependent variable in each specification, so that countries that have lower GDP per capita or worse human rights records are more likely to sign a fixed agreement. Note again that I only have human rights data post 1980, and GDP data post 1950.

6 Conclusion

I have shown that the value of a trade agreement is not just the payoff of the agreement itself but also the ability to use the agreement as leverage. I argue that fixed agreements, which must be periodically renewed, are implemented more frequently when the wealth of the parties to the agreement is more dissimilar. I claim that when one party is more powerful than the other, it can use a fixed agreement as leverage so that it renews the agreement only if the less powerful country complies with its demands. An evergreen agreement, which is concluded for an indefinite period, does not offer the same opportunity. I also show that bigger countries (who value a given agreement less) and countries who value violating rights highly are likely to enter fixed agreements where rights are still violated in some states, and

thus in some periods the agreement is not renewed. I have provided an empirical illustration of the argument using data on all agreements the United States is party to, finding support for my claim. However, further research is necessary to test my claim more systematically.

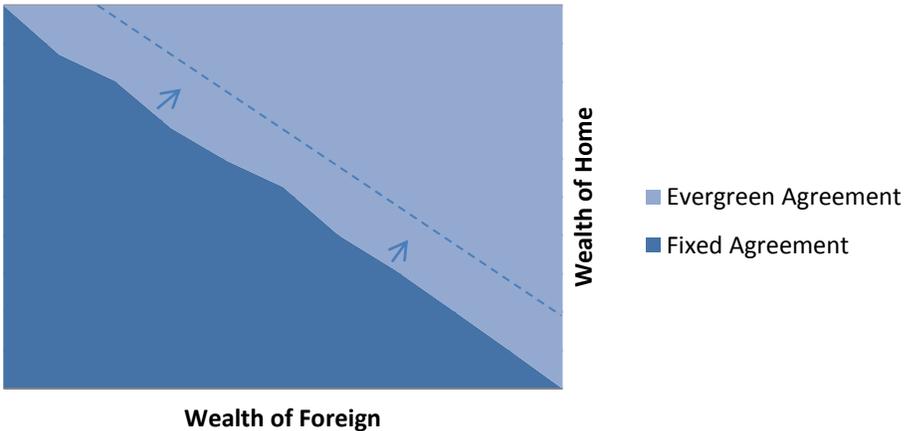
	Fixed Term	Share of US GDP	Human Rights
Fixed Term	1.000		
Share of US GDP Per Capita	-0.392	1.000	
Human Rights	-0.299	0.762	1.000

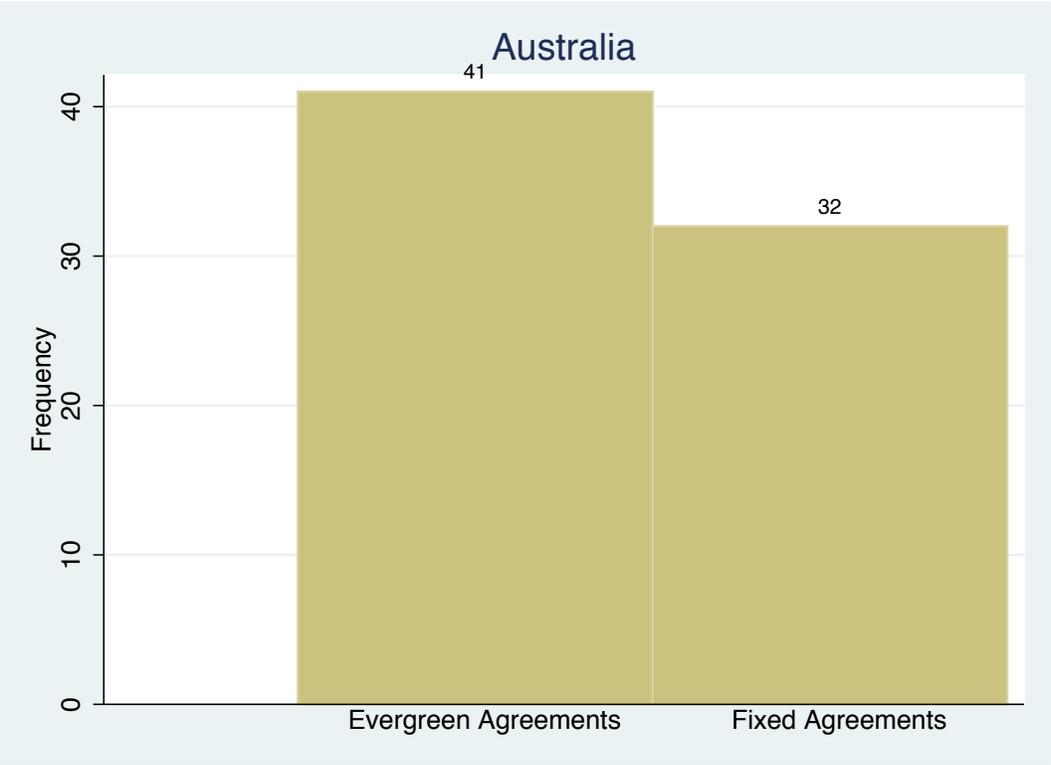
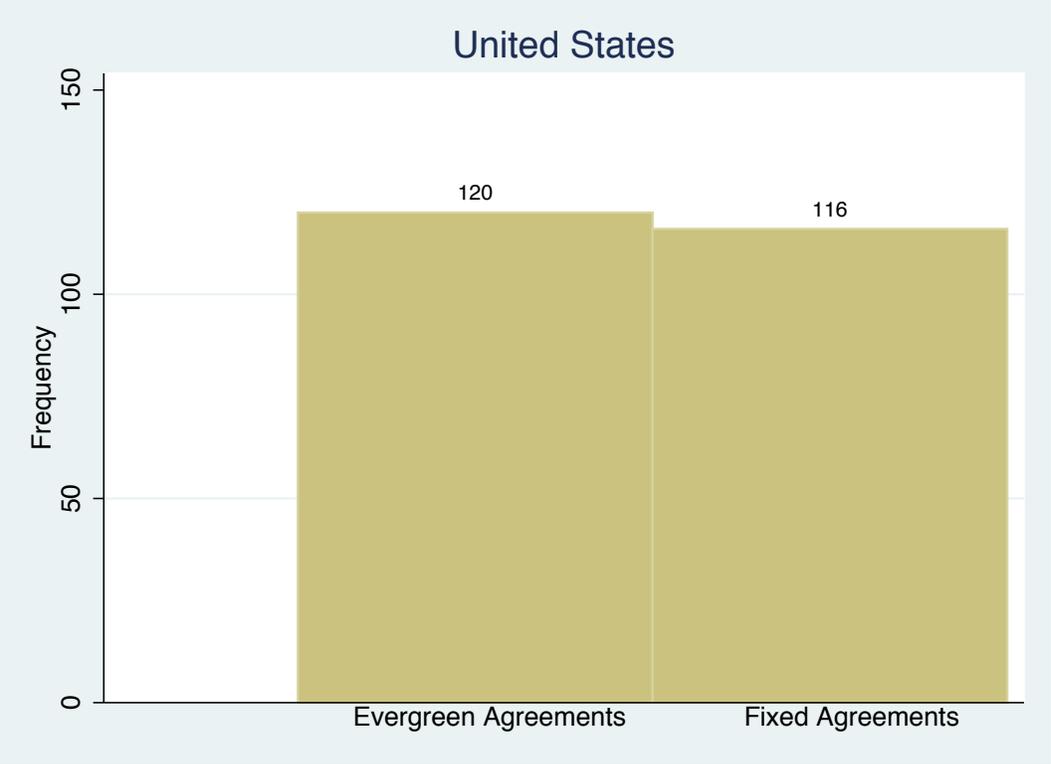
Table 1: Correlations of Fixed Agreements: United States

	Fixed Term	Share of Aus GDP	Human Rights
Fixed Term	1.000		
Share of Aus GDP Per Capita	-0.534	1.000	
Human Rights	-0.473	0.888	1.000

Table 2: Correlations of Fixed Agreements: Australia

Distribution of Agreements





7 Appendix A

I now prove this result formally. This proof is joint work with Professor John Roemer.

Proposition 1 1. *Given the strategy profile, $\frac{Jw}{Jw+1} \geq \frac{f'}{-f''}$, and equal discount factors, a Nash Bargaining Markov perfect equilibrium where H has total bargaining power exists in which H offers a fixed agreement when $f(W_H+S-f^{-1}(f(W_F)+v_F)+W_F) \geq f(W_H+S)+v_H$.*

2. *Given the strategy profile, $\frac{Jw}{Jw+1} \geq \frac{f'}{-f''}$ and unequal discount factors, a Nash Bargaining Markov perfect equilibrium where H has total bargaining power exists.*

Proof Part 1: We prove the results in continuous time, although they hold for fixed time, as well. For convenience we omit the constants W_H and W_F in the utility functions. Recall that $J = 1$ means that F has not violated rights and $J = 0$ means that violations have occurred. If an evergreen agreement is signed, it is clearly optimal for F to violate rights and for H to offer F its threat point, $w_F = 0$. Thus the trick is to show that under a fixed agreement, this is indeed the equilibrium outcome. We can define a more general utility function for a fixed agreement:

$$U_H = \int e^{-\rho t} [f(J(t)w(t)) - (1 - J(t))v_H] dt \quad (17)$$

$$U_F = \int e^{-\delta t} [f(J(t)w(t)) - (1 - J(t))v_F] dt \quad (18)$$

When $J(t) = 1$ we have a fixed agreement and when $J(t) = 0$, the agreement is evergreen.

We can set up our Lagrangian

$$\max \int e^{-\rho t} [f(J(t)w(t)) - (1 - J(t))v_H] dt$$

$$s.t. \int e^{-\delta t} [f(J(t)w(t)) - (1 - J(t))v_F] dt \geq \int e^{-\delta t} [f(0) + v_F] dt$$

$$s.t. 1 \geq J(t)$$

We must first check that the Lagrangian is concave to ensure it has a solution. If we assume that $J(t)$ is a continuous function, then most terms in the Lagrangian are clearly concave, as all parts except for $J(t)w(t)$ can be written as convex combinations. We must check that $J(t)w(t)$ is concave by checking that the Hessian matrix is negative semi-definite. Solving for the partial second derivatives of the Hessian: $f_1(J(t)w(t)) = f'(J(t)w(t))w(t)$, $f_2(J(t)w(t)) = f'(J(t)w(t))J$, $f_{11}(J(t)w(t)) = w(t)^2 f''(J(t)w(t))$, $f_{22}(J(t)w(t)) = J(t)^2 f''(J(t)w(t))$, and $f_{1,2}(J(t)w(t)) = J(t)f'(J(t)w(t))w(t) + f'(J(t)w(t))$. Therefore the Hessian is negative semi-definite if $J(t)^2 w(t)^2 (f'')^2 \geq (J(t)w(t) + 1)^2 (f')^2$. Solving, $\frac{J(t)w(t)}{J(t)w(t)+1} \geq \frac{f'}{-f''}$. This equation does not hold for all functional forms, but it holds for a specific class of functional forms. Consider, for example, $U = K - e^{-b}$. Then, $f' = e^{-b}$ and $f'' = -e^{-x} = f$. Plugging in to the key condition, we see that $\frac{J(t)w(t)}{J(t)w(t)+1} \geq \frac{e^{-b}}{-e^{-b}} = -1$, which always holds.

Next, we ask: when does the solution entail $J(t) = 1$? We define two new variables, $\hat{J}()$ and $\hat{w}()$ and stipulate that $\Delta J() + \hat{J}(t) - J(t)$ and $\Delta w() + \hat{w}(t) - w(t)$. Now we can redefine our parameters of interest as $J(t) + \epsilon \Delta J(t) = J(t)(1 - \epsilon) + \epsilon \hat{J}(t)$ and $w(t) + \epsilon \Delta w(t) = w(t)(1 - \epsilon) + \epsilon \hat{w}(t)$. Plugging into the Lagrangian,

$$\begin{aligned} \Delta(\epsilon) = & \max \int e^{-\rho t} [f_H((J(t) + \epsilon \Delta J(t))(w(t) + \epsilon \Delta w(t))) - (1 - J(t) + \epsilon \Delta J(t))v_H] dt \\ & + \alpha \int e^{-\delta t} [f_F((J(t) + \epsilon \Delta J(t))(1 - (w(t) + \epsilon \Delta w(t)))) + (1 - (J(t) + \epsilon \Delta J(t)))v_F] dt - K \\ & + \int_0^\infty A(t)[1 - J(t) + \epsilon \Delta J(t)] dt \end{aligned}$$

where α and $A(t)$ are the Lagrange multipliers and K is a constant. We now maximize the Lagrangian with respect to ϵ and evaluate the derivative at $\epsilon = 0$

$$\begin{aligned} \Delta'(0) = & \int e^{-\rho t} [f'_H(J(t)w(t))(w(t)\Delta J(t) + J(t)\Delta w(t)) + \Delta J(t)v_H] \\ & + \alpha \int e^{-\delta t} [f'_F((J(t))(1 - w(t)))(1 - J(t))(-\Delta w(t)J(t) - w(t)\Delta J(t)) - \Delta J(t)v_F] \\ & - \int_0^\infty A(t)\Delta J(t) \end{aligned}$$

Integrating and solving when $\Delta J(t) = 1$ and $\Delta w(t) = 0$,

$$\Delta J(t) : e^{-\rho t}[f'_H(J(t)w(t))w(t) + v_H] - \alpha e^{-\delta t}[f'_F((1-w(t))J(t))w(t) - V_F] - A(t) = 0 \quad (19)$$

Integrating and solving when $\Delta J(t) = 0$ and $\Delta w(t) = 1$,

$$\Delta w(t) : e^{-\rho t}f'_H(w(t))J(t) - \alpha e^{-\delta t}f'_F(1-w(t)+1)J(t) = 0 \quad (20)$$

Now we solve the $\Delta w(t)$ equation for α and find $\alpha = \frac{e^{\rho t}f'_H(w(t))}{e^{-\delta t}f'_F(1-w(t))}$ which is equal to a positive constant if $\rho = \delta$, so we have found the optimal division w^* . Then we have $\alpha = \frac{f'_H(w^*)}{f'_F(1-w^*)}$.

Next solving the $\Delta J(t)$ equation for $A(t)$ we find $A(t) = e^{-\rho t}[(f'_H(w^*)w^* + V_H) - \frac{f_H(w^*)}{f'_F(1-w^*)}(f'_F(1-w^*)w^* - v_F)]$ which is positive as long as $f'_H(w^*)w^* + v_H \geq \frac{f_H(w^*)}{f'_F(1-w^*)}(f'_F(1-w^*)w^* - v_F)$ which always holds. Thus, w^* is determined by the constraint, $f_F(1-w^*) = f_F(0) + v_F$ and the earlier analysis goes through.

Proof Part 2: What if the discount rates differ? We conjecture that H is more patient, so that $\rho \geq \delta$ and that $J(t) = 1$. Our calculation of α in part one of the proof was $\alpha = \frac{e^{\rho t}f'_H(w(t))}{e^{-\delta t}f'_F(1-w(t))}$. Rewriting, $\alpha f'_F(1-w^*) = f'_H(w^*)e^{(\delta-\rho)t}$. If $\delta - \rho \geq 0$ then $e^{(\delta-\rho)t} \leq [1, \infty]$. Now, simplifying our equation for $A(t)$, we get $A(t) = e^{-\rho t}[f'_H(w(t))w(t) + v_H] - \alpha e^{-\delta t}[f'_F(1-w(t))w(t) - v_F]$, or, $A(t) = e^{-\delta t}[e^{(\delta-\rho)t}f'_H(w(t))w(t) + v_H] - \alpha[f'_F(1-w(t))w(t) - v_F]$ and therefore $A(t) = e^{-\delta t}[v_H - v_F] \geq 0$ Thus, if $v_H \geq v_F$, we have a positive constant and w^* is determined by F 's incentive compatibility constraint: $\int e^{6-\delta t}(f_F(1-w(t)))dt = \frac{1}{\delta}(f_F(0) + v_F)$.

If we pick an $\alpha \geq 0$, there will exist a unique value $w(t; \alpha)$ satisfying F 's constraint. Since $w(t; \alpha)$ is monotone decreasing in α and given the Inada condition $f'_F(0) = \infty$, there will exist a unique α such that the constraint is true.

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