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**Abstract**

Fast Track Authority (FTA) is the institutional procedure in the Unites States whereby Congress grants to the President the power to negotiate international trade agreements. Under FTA, Congress can only approve or reject negotiated trade deals, with no possibility of amending them. In this paper, we examine the determinants of FTA voting decisions and the implications of this institutional procedure for trade negotiations. We describe a simple two-country trade model, in which industries are unevenly distributed across constituencies. In the foreign country, trade negotiating authority is delegated to the executive, while in the home country Congress can retain the power to amend trade agreements. We show that legislators' FTA voting behavior depends on the trade policy interests of their own constituencies as well as those of the majority of Congress. Empirical analysis of the determinants of all FTA votes between 1974 (when fast track was first introduced) and 2002 (when it was last granted) provides strong support for the predictions of our model.

*JEL classifications*: D72, F13

*Keywords*: Fast Track Authority, Trade Negotiations, Strategic Delegation.

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# 1 Introduction

Fast Track Authority (FTA) is the trade negotiating authority granted by the Congress of the United States to the President. The crucial feature of this institutional procedure is that, when the President negotiates trade agreements under FTA, Congress can only approve or reject them, but cannot amend their content. While congressional and private sector leaders are consulted throughout the negotiations, the fact that the final agreement is presented to Congress as a package assures trading partners that any solution they reach with the U.S. executive will not be renegotiated.

Fast track procedures played a crucial role during the Tokyo Round and the Uruguay Round of multilateral trade negotiations, as well as in the negotiations of all major free trade agreements involving the Unites States.[1] The recent expiration of FTA on July 1, 2007 is likely to endanger the already troubled Doha Round of multilateral trade negotiations,[2] as well as ongoing bilateral negotiations between the Unites States and various other countries. The objective of this paper is to examine the determinants of congressmen's decision to grant or not fast track authority to the President and to understand the impact of this decision on the outcome of international trade negotiations.

For this purpose, we develop a simple model of trade relations between two large countries, home (representing the Unites States) and foreign, which are characterized by similar economic features, but different trade policy institutions. In the foreign country, the authority to negotiate trade agreements is delegated to the executive, while in the home country, Congress can retain the possibility to amend trade deals. Each legislator in the home Congress will vote for or against FTA so as to maximize his expected utility, anticipating the impact that FTA (or lack thereof) will have on the outcome of the negotiations with the foreign country. We argue that this decision is effectively equivalent to choosing between two different country representatives: the President (in the case of FTA) and the majority of Congress (in case of no FTA). Hence the choice of fast track procedures will only have an impact on trade negotiations if the preferences of the President do not coincide with those of the majority of Congress.

In our setup, the executive represents the interests of the country as a whole, while each congressman stands for its own electoral constituency. In terms of their trade preferences, legislators can differ from each other and from the executive, as a result of an uneven geographical distribution of production activities. Compared to the President, representatives from districts

[1]The only free trade agreement which the Unites States did not negotiate under fast track authority was the U.S.-Jordan free trade agreement. As stated by Jagdish Bhagwati in a recent interview with the Council of Foreign Relations, "every time there's been something big and complicated—certainly the big multilateral ones, and even the big bilateral ones like NAFTA—they had to go through fast track" (see www.cfr.org).

[2]The director-general of the World Trade Organization, Pascal Lamy, warned that the Doha Round "will fail unless we get some sort of extension to the fast track" (*Sunday Telegraph*, December 3, 2006).

that are specialized in the production of import-competing (export) goods are less (more) willing to trade off reductions in domestic import tariffs with reductions in foreign import taxes.

Our theoretical model predicts that representatives of constituencies with higher stakes in import-competing industries will tend to vote against FTA, while representatives of more export-oriented constituencies may vote in favor or against, depending on the degree of protectionism of the majority of Congress. The intuition behind this result is that more export-oriented constituencies, which are eager to reach an agreement with the foreign country, may gain from being represented by a more protectionist negotiating party, which is able to achieve a more favorable deal. This is in line with results obtained in the literature on strategic delegation, which shows that principals may gain by delegating decision-making power to status quo-biased agents, to increase their "bargaining power" in negotiations (e.g., Schelling, 1956; Jones, 1989; Segendorff, 1998). Having one's hands tied domestically can thus help to extract concessions in international negotiations: "...the power of a negotiator often rests on a manifest inability to make concessions and to meet demands" (Shelling (1956), p. 19).

To test the predictions of our theoretical model concerning FTA voting decisions, we examine the determinants of all FTA votes which have taken place in the U.S. Congress between 1974 (when fast track was first introduced) and 2002 (when it was last granted). We distinguish between three types of legislators—import, export and non-specialized—depending on the stakes of their constituencies in import-competing and export industries. In line with the predictions of our theoretical model, we show that a congressman is significantly more likely to vote in favor of granting or extending FTA the more his constituency is specialized in export production compared to the Unites States at large. Moreover, in scenarios in which none of the legislator types has a majority in Congress, the likelihood that representatives of non-specialized constituencies support FTA decreases with their own share of seats.

In terms of negotiation outcomes, we show that lack of fast track tends to skew trade policy outcomes in favor of the home country. This result can explain why foreign countries are reluctant to negotiate trade agreements with the U.S. when Congress retains amendment power and suggests that U.S. legislators may use fast track procedures to try to shift the terms of the agreements closer to their own preferred outcome. Our analysis builds on the literature on "two-level games" (Putnam, 1988), which has stressed the interactions between domestic politics and international negotiations. While this literature has considered several important aspects of the process of endogenous formation of trade policies (e.g., Mayer, 1981; Grossman and Helpman, 1995; Broda *et al.*, 2007), somewhat surprisingly, very little attention has been paid to the workings of fast track procedures and their impact on trade negotiations.

Our paper also builds on the vast literature in political science that has examined the evolution of U.S. trade policy institutions (e.g., Lohmann and O'Halloran, 1994; Bailey and Brady,

1998; Hiscox, 1999).[3] To the best of our knowledge, this is the first paper to focus on FTA, providing a fully microfounded theoretical model to understand the determinants of this institution and its impact on U.S. trade relations. Finally, our paper also contributes to the empirical literature which has examined the determinants of congressional trade policy decisions (e.g., Kahane, 1996; Box-Steffenmeier *et al.*, 1997; Baldwin and Magee, 2000a,b).[4]

The remainder of the paper is organized as follows. In Section 2, we briefly describe the history of fast track procedures. In Section 3, we develop a simple model of trade negotiations between two large countries. Section 4 introduces the trade policy preferences of Congress representatives, examines the determinants of FTA voting behavior and the implications of fast track for trade negotiations. Sections 5 describes the data used in our empirical analysis, while Section 6 presents our methodology and our results. Section 7 reports the results of various robustness checks. Finally, Section 8 provides some concluding remarks.

# 2 A Brief History of Fast Track Authority

The U.S. Constitution explicitly assigns authority over foreign trade to Congress. Article I, section 8, gives Congress the power to "regulate commerce with foreign nations ..." and to "...lay and collect taxes, duties, imposts, and excises...". Under Article II, however, the President is granted exclusive authority to negotiate treaties and international agreements and exercises broad authority over the conduct of the nation's foreign affairs. Hence, both legislative and executive authorities have a role to play in the development and execution of U.S. trade policy.

For roughly the first 150 years of the United States, Congress exercised its authority over foreign trade by setting tariff rates on all imported products. Tariffs were the main trade policy instrument, and a primary source of federal revenues. During this period, the President's primary role in setting trade policy was in negotiating and implementing bilateral trade treaties with the advice and consent of Congress. In the 1930's, two legislative events radically changed

[3]Most of these studies have focused on the impact of the Reciprocal Trade Agreements Act (RTAA) of 1934. As discussed in Section 2, this was the first bill in which Congress delegated trade policy to the President. Lohmann and O'Halloran (1994) present a theoretical model of distributive politics in which legislators delegate policymaking to the President to avoid being trapped in inefficient logrolling. Their analysis cannot be applied to understand the implications of fast track authority on trade negotiations, since it focuses only on one country. Bailey and Brady (1998) use a spatial model to show how reciprocity in trade agreements can help to solve the collective action problems of exporters. Notice that in their analytical framework, the preferences of the legislators are simply assumed rather than being derived from a fully microfounded trade model. Similarly to our analysis, Hiscox (1999) models trade policy decisions in Congress as being shaped by differences in the endowments of specific factors across constituencies; however, his analysis is focused only on one country, and thus cannot be applied to examine how trade policy delegation affects the strategic interaction between countries.

[4]In this literature, the paper which is closest to ours is Baldwin and Magee (2000a), who examine the determinants of three votes taken by Congress in 1993-1994 (on NAFTA, the Uruguay Round Agreement, and the most-favored nation status to China).

the shape and conduct of U.S. trade policy. The first was the infamous Smoot-Hawley Act, which raised import duties to record levels and was widely blamed at the time for sharply reducing trade, triggering retaliatory moves by many other countries, and exacerbating the Great Depression (see Irwin, 1997). The second important piece of legislation was the Reciprocal Trade Agreements Act (RTAA) of 1934, which gave the President the authority to undertake tariff-reduction agreements with foreign countries. The crucial feature of the RTAA was that the President could implement trade agreements by proclamation, i.e., with no need for congressional approval, although the RTAA itself required periodic renewal. The idea behind the RTAA was to undo the damage created by Smoot-Hawley, unwinding beggar-thy-neighbor trade policies through negotiated tariff reductions. Under the authority of the RTAA, the executive reached numerous bilateral trade agreements in the late 1930s and negotiated the General Agreement on Tariffs and Trade (GATT) in 1947.

Under the Trade Expansion Act of 1962, Congress granted again RTAA authority for five years. This allowed President Johnson to negotiate the Kennedy Round (1963-1967), in which GATT members reached an agreement on a number of tariff reductions. However, since this agreement also involved interventions in two areas related to non-tariff barriers (customs valuation and antidumping practices), some congressmen argued that the President had overstepped his authority. The outcome of the Kennedy Round made evident that non-tariff barriers would increasingly dominate the agenda of future trade negotiations. As a result, when Congress considered a new grant of authority for the Tokyo Round of GATT negotiations, it decided to maintain final control over non-tariff agreements.

The process ultimately agreed upon in the Trade Act of 1974 is what is known as "fast track". Three key features characterize this institutional procedure. First, the act stipulates that agreements involving non-tariff barriers cannot enter into force by presidential proclamation, but need to be approved by Congress. Second, under fast track authority, Congress cannot amend a trade agreement once it has been submitted for approval.[5] Finally, the Trade Act of 1974 requires Congress to consider trade agreement implementing bills within mandatory deadlines and with a limitation on debate.[6]

[5]During the drafting of the Trade Act of 1974, it was recognized that trading partners would be unwilling to negotiate agreements that would be subject to unlimited congressional debate and amendments. As stated in the Senate Finance Committee report accompanying the legislation: "The Committee recognizes ... that such agreements negotiated by the Executive should be given an up-or-down vote by the Congress. Our negotiators cannot be expected to accomplish the negotiating goals ... if there are no reasonable assurances that the negotiated agreements would be voted up-or-down on their merits. Our trading partners have expressed an unwillingness to negotiate without some assurances that the Congress will consider the agreements within a definite time-frame."

[6]Each house can debate the bill for no more than 20 hours. The entire Congressional consideration can take no longer than 90 legislative days.

Table 1: Votes authorizing or extending FTA

| Bill | Description | Vote in House | Vote in Senate |
|---|---|---|---|
| H.R. 10710 | First approval of FTA | Dec. 11, 1973 | Dec. 20, 1974 |
| Trade Act of 1974 | Other provisions: escape clause, antidumping, countervailing duties, trade adjustment assistance, GSP | (272-140) | (72-4) |
| H.R. 4537 | Extension of FTA | July 11, 1979 | July 23, 1979 |
| Trade Agreements Act of 1979 | Other provisions: implementation of Tokyo Round | (395-7) | (90-4) |
| H.R. 4848 | Approval of FTA | July 13, 1988 | Aug. 3, 1988 |
| Omnibus Trade and Competitiveness Act | Other provisions: strengthening of unilateral trade retaliation instruments, authority of USTR | (376-45) | (85-11) |
| H.Res. 101 | Disapproval of extension of FTA | May 23, 1991 (192-231) | |
| S.Res. 78 | Disapproval of extension of FTA | | May 24, 1991 (36-59) |
| H.R. 1876 | Extension of FTA | June 22, 1993 (295-126) | June 30, 1993 (76-16) |
| H.R. 2621 | Approval of FTA (denied) | Sept. 25, 1998 (180-243) | |
| H.R. 3009 | Approval of FTA | July 27, 2002 | Aug. 1, 2002 |
| Trade Act of 2002 | Other provisions: Andean Trade Preference Act, trade adjustment assistance, GSP | (215-212) | (64-34) |

Sources: Destler (2005) and Smith (2007).

Notes: Only final votes are reported; with the exception of the votes in 1991, the first (second) number in parenthesis refers to votes in favor of the bill (against it). The Senate did not vote on the bill of 1998, since the House had already rejected it.

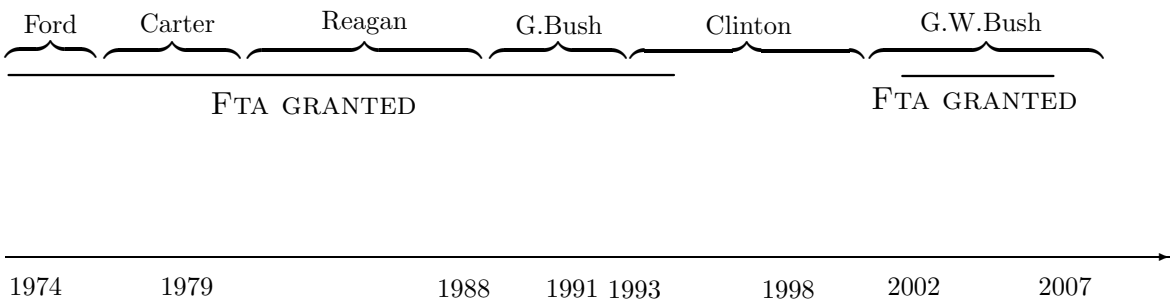


Figure 1: Conferrals of FTA

Additional provisions of the Trade Act of 1974 involve restrictions on the President's powers under FTA. In particular, in his request for trade negotiating authority the executive must specify what types of agreements it will be used for and what his negotiating objectives will be. Furthermore, he has to consult with Congress during the course of the negotiations and during the drafting of the implementing legislation. Finally, Congress sets a deadline by which the negotiations have to be completed if fast-track procedures are to apply.[7]

Table 1 reports the outcome of all the votes which were called in Congress to authorize or extend fast track authority. Notice that some of the listed bills focus solely on fast track negotiating authority, while others include other trade provisions. The only episode of denial of a FTA request is represented by bill H.R. 2621 of September 25, 1998, when the Clinton administration was defeated by a 243 to 180 majority.

Figure 1 above illustrates the periods in which FTA has been granted since the Trade Act of 1974. As it can be seen, every President has enjoyed FTA, with the exception of Bill Clinton, who failed to obtain it between 1994 and 2001. Notice also that FTA has been granted for periods of different length and has often spanned more than one presidency.

From Table 2 below, we can see that all the most important multilateral and preferential trade agreements signed by the United States have been negotiated under fast track procedures. Presidential fast track trade negotiating authority, renamed "trade promotion authority" by the George W. Bush administration, was last renewed with the Trade Act of 2002. This allowed the United Stated to implement several free trade agreements with countries such as Australia and Chile and to negotiate additional bilateral trade deals with Panama, South Korea and Colombia.

FTA expired on July 1, 2007. Without renewal of fast track, it has been argued that the current administration has "diminished leverage to pursue additional trade deals, and the prospects for completion of the Doha Round of global trade talks, as well as several proposed bilateral

[7]See Destler (1997), Brainard and Shapiro (2001), and Smith (2007) for more details on fast track procedures.

U.S. trade deals, remain bleak" (*Wall Street Journal*, June 29, 2007).[8]

Table 2: Bills negotiated under FTA

| Bill | Status | Votes/Signature Date |
|---|---|---|
| Trade Agreement Act of 1979 | Approved Tokyo Round Agreements | July 1979 |
| U.S.-Israel Free Trade Area | Approved free trade area | May 1985 |
| U.S.-Canada Free Trade Area | Approved free trade area | Aug./Sept. 1988 |
| NAFTA | Approved free trade area between United States, Canada and Mexico | Nov. 1993 |
| Uruguay Round | Approved Uruguay Round Agreements | Nov./Dec. 1994 |
| U.S.-Chile Free Trade Area | Approved free trade area | July 2003 |
| U.S.-Singapore Free Trade Area | Approved free trade area | July 2003 |
| U.S.-Australia Free Trade Area | Approved free trade area | July 2004 |
| U.S.-Morocco Free Trade Area | Approved free trade area | July 2004 |
| U.S.-Dominican Republic-Central America Free Trade Area | Approved free trade area between United States, Dominican Republic, Costa Rica, El Salvador, Honduras, Guatemala, and Nicaragua | July 2005 |
| U.S.-Bahrain Free Trade Area | Approved free trade area | Dec. 2005 |
| U.S.-Oman Free Trade Area | Approved free trade area | July/Sept. 2006 |
| U.S.-Peru Free Trade Area | Approved free trade area | Nov./Dec. 2007 |
| U.S.-Colombia Free Trade Area | Awaiting congressional approval | November 2006 |
| U.S.-Panama Free Trade Area | Awaiting congressional approval | June 2007 |
| U.S.-South Korea Free Trade Area | Awaiting congressional approval | June 2007 |

# 3 A Simple Model of Trade Negotiations

To analyze the working of FTA, we introduce a standard model of trade relations between two large countries , "home" and "foreign" (represented by a "*"), in which trade is the result of differences in factor endowments. Each country is made up of several electoral constituencies, which are heterogeneous with respect to their stakes in import-competing and export industries. Elected officials represent the interests of their own constituencies: legislators stand for their own electoral districts, while the executive stands for the entire country. Our analysis thus emphasizes the role played by the size of the congressmen's and the President's constituencies, and the geographic heterogeneity in the distribution of economic activities. This implies that the President has generally different preferences than the majority of Congress and is more attuned

[8]It is still not clear how the expiration of fast track will affect the outstanding bilateral trade pacts with Panama, South Korea and Colombia. Some claim that, since these agreements have been negotiated before the expiration deadline, they should be considered by Congress under fast track procedures. Others argue instead that a renewal of FTA is necessary (see Smith, 2007).

to "the public interest" compared to individual legislators, as suggested by Baldwin (1985) and Lohmann and O'Halloran (1994), among others.

In this section, we examine international negotiations between the benevolent executives of the two countries.[9] The core of our analysis is presented in the following section, in which we allow legislators in the home country to choose whether or not to delegate trade negotiating authority to the President.

Each economy is characterized by three sectors, $i = 0, 1, 2$, where 0 denotes a numeraire good. The numeraire good is traded freely across countries and is produced using labor alone. We choose units so that the international and domestic price of good 0 are both equal to one. We assume that aggregate labor supply, $L = L^*$, is large enough to sustain production of a positive amount of good 0. This implies that in a competitive equilibrium the wage rate equals unity in each country. Goods 1 and 2 are manufactured using labor and a sector-specific input, which is available in fixed supply. Home is abundant in sector-specific input 2, while foreign is abundant in sector-specific input 1. As a result, home imports good 1, while foreign imports good 2. We will assume perfect symmetry in the factor endowments between the two countries. The domestic and international price of a nonnumeraire good $i$ are denoted by $p_i$ and $\pi_i$, respectively. With a wage rate equal to unity, the total rent $R_i$ accruing to the specific factor in sector $i$ depends only on the producer price of the good, and can thus be expressed as $R_i(p_i)$. Industry supply is given by $Q_i(p_i) = \partial R_i/\partial p_i$.

Trade policies in the two countries consist of ad valorem import tariffs or subsidies, denoted by $\tau$ and $\tau^*$, which drive a wedge between domestic and international prices. In the home country, the domestic price of good 1 is thus equal to $p_1 = (1 + \tau)\pi_1$, with $\tau > 0$ ($\tau < 0$) representing an import tariff (subsidy); the domestic price of the export good is instead equal to $p_2 = \pi_2$. In the foreign country, domestic prices are given by $p_1^* = \pi_1$ and $p_2^* = (1 + \tau^*)\pi_2$.[10]

The economy is populated by a continuum of agents, and the size of the population is normalized to one. Each agent in $[0, 1]$ shares the same, quasi-linear and additively separable preferences, which can be written as

$$u(c_0, c_1, c_2) \equiv c_0 + \sum_{i=1}^{2} u_i(c_i), \tag{1}$$

[9]To isolate the role of geography, similarly to Grossman and Helpman (2005), we do not model the role of interest groups in shaping trade policy. Explicitly modeling the role of lobbies would require examining how pressure groups interact with different branches of government. As long as the preferences of the executive and the legislators are not perfectly aligned, the main thrust of our analysis would not be affected.

[10]Following Johnson (1953-4) and Mayer (1981), we restrict the set of policy tools available to import tariffs and subsidies. This allows us to describe the preferences of the two countries in the tariff space $(\tau, \tau^*)$ and to easily characterize trade negotiations between them. Levy (1999), in his model of lobbying and international cooperation, has convincingly argued that export subsidies and taxes are rarely used, the only exception being probably agriculture (see also Hoeckman and Kostecki, 2001).

where $c_0$ represents the consumption of the numeraire good, and $c_1$ and $c_2$ represent the consumption of nonnumeraire goods. The utility functions are assumed to be twice differentiable, increasing, and strictly concave.

Provided that income always exceeds the expenditure on the numeraire good, the domestic demand for good $i \in \{1, 2\}$ can be expressed as a function of price alone, $D_i(p_i)$. Net imports of good 1 by the home country can then be written as $M_1(p_1) = D_1(p_1) - Q_1(p_1) > 0$, while foreign net imports are given by $M_1^*(p_1^*) = D_1^*(p_1^*) - Q_1^*(p_1^*) < 0$. World product markets of goods 1 and 2 clear when

$$M_1\Big((1+\tau)\pi_1\Big) + M_1^*(\pi_1) = 0, \tag{2}$$

$$M_2(\pi_2) + M_2^*\Big((1+\tau^*)\pi_2\Big) = 0. \tag{3}$$

From (2) and (3) we can derive an expression for world equilibrium prices as a function of the policies in the two countries, i.e., $\pi_1(\tau)$, $\pi_2(\tau^*)$. Tariff revenues in home are given by

$$T(t) = \tau\pi_1(\tau)M_1(\tau) \tag{4}$$

and are assumed to be redistributed uniformly to all individuals. The same is true for foreign.

Individuals derive income from various sources: they all own a unit of labor and earn wages as workers; they also receive the same lump sum transfer (possibly negative) of trade policy revenues from the government; in addition, some individuals own a share of the specific inputs used in the production of goods 1 and 2. Aggregate welfare is defined as the sum of the income of all citizens (total labor income, industry rents and government revenues), plus consumer surplus, and for the case of home it can then be written as

$$W(\tau, \tau^*) = 1 + R_1(\tau) + R_2(\tau^*) + T(\tau) + \Omega(\tau, \tau^*), \tag{5}$$

where $\Omega(\tau, \tau^*) \equiv u\Big(D_1(\tau)\Big) - p_1 D_1(\tau) + u\Big(D_2(\tau^*)\Big) - p_2 D_2(\tau^*)$ denotes total consumer surplus. The welfare of the foreign country can be defined symmetrically.

Dropping the sectoral subscript for notational simplification, the first-order condition for the maximization of (5) can be written as[11]

$$-M\frac{d\pi}{d\tau} + \tau\pi\frac{dM}{d\tau} = 0. \tag{6}$$

Substituting the expression for $(d\pi/d\tau)$ into (6) yields the standard formula for the home coun-

[11] This is found by substituting $-D(dp/d\tau)$ and $Q(dp/d\tau)$ for the derivatives of consumer surplus and industry rents, respectively, and by substituting $(dp/d\tau) = (1+\tau)(d\pi/d\tau) + \pi$.

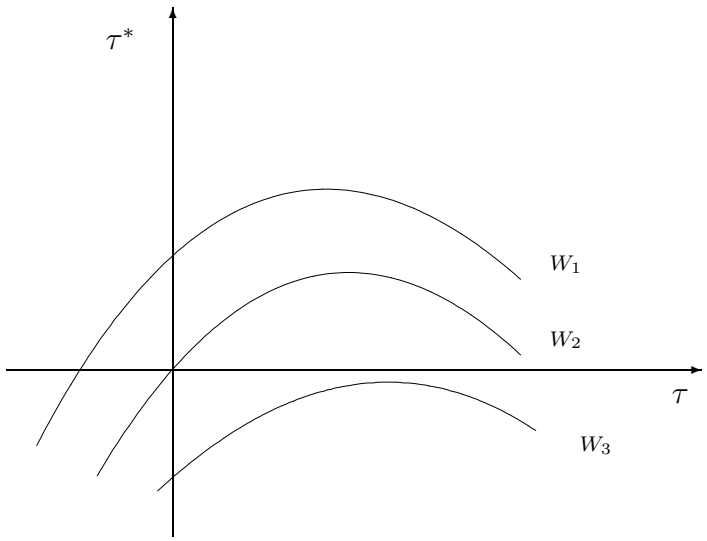


Figure 2: Home's indifference map

try's optimal import tariff:[12]

$$\hat{\tau} = \frac{1}{\varepsilon^*}, \tag{7}$$

where $\varepsilon^* \equiv (dM^*/dp^*)(p^*/M^*)$ is the elasticity of foreign export supply.

Figure 2 illustrates the home country's indifference map in the tariff plane $(\tau, \tau^*)$. Each indifference curve represents the combinations of domestic $(\tau)$ and foreign $(\tau^*)$ tariffs among which the home country is indifferent. These tariff indifference curves are denoted by $W_U$, with welfare increasing as subscript $U$ rises in value. An expression for the slope of the tariff indifference curves is derived in the Appendix (see equation (A.2)). There we show analytically that, for non-negative values of $\tau$, the slope of the home country's indifference curves is positive, zero or negative depending on the home country's actual tariff rate being less than, equal to, or larger than its optimal tariff.

Similarly, we can characterize the indifference curves of the foreign country (see Appendix for the derivation). Combining information on the preferences of the two countries, we can examine the scope for trade agreements between them. In what follows, we examine trade negotiations between home and foreign, which are represented by their benevolent executives.

In Figure 3 below, we illustrate the scope for trade agreements between the two executives,

[12]The expression for $(d\pi/d\tau)$ is derived applying the implicit function theorem to the market-clearing condition:

$$\frac{d\pi}{d\tau} = -\frac{\pi \frac{dM}{dp}}{\frac{dM}{dp}(1+\tau) + \frac{dM^*}{dp^*}}.$$

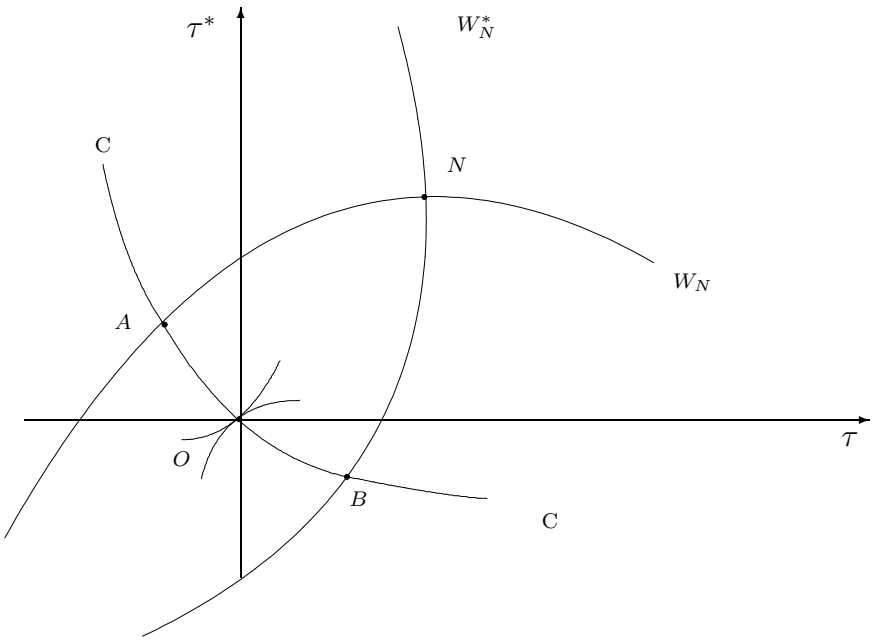


Figure 3: Trade negotiations between the two Presidents

taking the noncooperative Nash tariff equilibrium point $N$ as the status quo point for the negotiations. Graphically, the tariff war outcome lies at the intersection point between two indifference curves of the home and foreign executives, such that both indifference curves reach a maximum at that point.[13]

We make the following standard assumptions about trade agreements:

**Assumption 1** *The negotiating parties can only agree to tariff combinations that make each of them at least as well off as they would be in a tariff war.*

Graphically, this assumption implies that trade agreements must be in the lens comprised between the two indifference curves going through the Nash equilibrium, $W_N$ and $W_N^*$. We also require trade deals to be efficient:

**Assumption 2** *The negotiating parties can only agree to tariff combinations such that no further welfare gains can be achieved by one party without the other one losing.*

This assumption implies that agreed tariff combinations must lie on the contract curve ($CC$ in Figure 3), the locus of all tangency points between the indifference curves of the two countries.

[13]The diagram shows a unique Nash equilibrium, which is given by the tariff pair $(\tau_N, \tau_N^*)$ such that $\tau_N$ is a best response to $\tau_N^*$, and vice versa. In general, multiple equilibria cannot be excluded. See Johnson (1953-4) for a full characterization of Nash equilibria in tariff games.

In the Appendix, we show that efficient trade deals between the home and foreign country are characterized by the following condition:

$$(1 - \tau\epsilon^*)(1 - \tau^*\epsilon) - 1 = 0. \tag{8}$$

Equation (8) states that there exists an infinite number of tariff-subsidy combinations for the two countries satisfying Assumption 2, which share the feature that if one country imposes a tariff, the other must offer a subsidy. Tariffs in both countries cannot be the outcome of efficient trade negotiations between the two countries. Free trade is the symmetric, efficient outcome.[14]

Together, the two assumptions above imply that the two parties agree to combinations of import tariffs (subsidies) which lie on the arc $AB$ of the contract curve in Figure 3. This segment identifies all possible trade agreements which satisfy the above two assumptions, i.e., they are in the set of Pareto-improving deals compared to the status quo and are efficient.

We can summarize the information in Figure 3 and derive trade negotiation outcomes by drawing the utility possibility frontier. This is done in Figure 4, where the origin is point $N$, which corresponds to the utility levels in a tariff war, $W_N$ and $W_N^*$ in Figure 3. The curve $AB$ in Figure 4 represents the utility possibility frontier, which traces the utilities of the two countries as we move along the corresponding curve $AB$ in Figure 3.

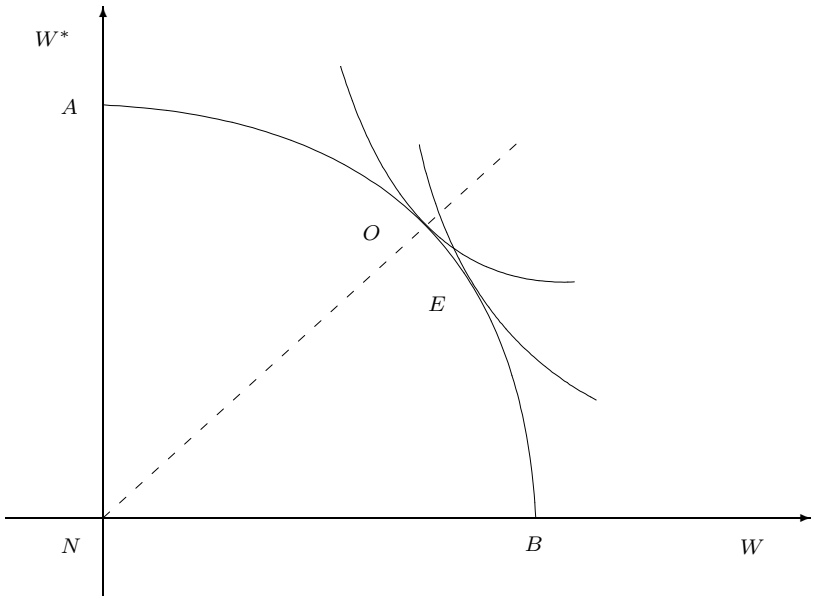


Figure 4: Bargaining between the two Presidents

In order to derive the equilibrium outcome of the trade negotiations, we employ the general-

[14]See Mayer (1981) for a similar result.

ized Nash bargaining solution. This implies that the domestic and foreign tariffs $\tau$ and $\tau^*$ must be chosen as the solution to the following maximization problem:

$$\max_{W,W^*}(W - W_N)^{\gamma}(W^* - W_N^*)^{1-\gamma}, \tag{9}$$

where $\gamma \in [0,1]$ captures the relative bargaining strength of the home government.[15] If we consider the case of two symmetric countries, for which $\gamma = \frac{1}{2}$, the outcome of the negotiations will be point $O$ in Figure 4, which corresponds to the free trade point $O$ in Figure 3.[16] If instead we increase the bargaining power of the home country, the solution will be a point like $E$ where, as expected, the stronger bargainer does relatively better than its trading partner. In the limit, when $\gamma = 1$ ($\gamma = 0$), the equilibrium utility levels are given by point $B$ ($A$), where the home (foreign) country gets the maximum level of utility and the foreign (home) country achieves the same level of utility as in the Nash equilibrium.

# 4 FTA and Trade Negotiations

In the analysis developed in the previous section, we have assumed that trade negotiations between home and foreign were carried out by the two executives, who represent the interests of the nation at large, i.e., one large district made up by all electoral constituencies. In this section, we introduce a crucial asymmetry between the negotiating countries: for foreign, we retain the assumption that trade policy is set by the President; for home, we assume instead that legislators in Congress must decide whether or not to delegate trade negotiating authority to the President by granting FTA. This allows us to focus on the impact of FTA on the outcomes of trade negotiations. Later, in Section 8, we discuss the implications of allowing Congress in both countries to retain amendment power.

The starting point of the political economy model described below is the uneven geographical distribution of industries across constituencies. This implies that the trade policy preferences of the members of Congress will be heterogeneous, as they reflect the interests of their electoral districts, which depend on the specific industries located there.[17]

[15] Notice that the parameter $\gamma$ does not reflect the countries' market power or their costs in case of trade negotiation failure, which are already captured by the utility possibility frontier; as argued by Binmore *et al.* (1986), $\gamma$ could be interpreted instead as reflecting differences in discount rates.

[16] It should be stressed that free trade would arise as the outcome of the negotiations between two symmetric countries even if we used alternative bargaining solutions (e.g., under utilitarian or egalitarian bargaining).

[17] There is substantial evidence on the importance of geographical industry concentration in shaping trade policy. See, for example, Hansen (1990) and Busch and Reinhardt (1999). Grossman and Helpman (2005) and Willmann (2005) show in a small-country trade model how asymmetries in the distribution of industries across constituencies may lead to a protectionist bias in national legislators.

It should be stressed that our analysis does not rely on the specific preferences we have assumed for the President and the legislators, but rather on the fact that the executive's preferences do not coincide with those of the majority of Congress.

## 4.1 Congressional Preferences in the Home Country

In the home country, there are $D$ districts, each populated by $h = 1/D$ individuals and represented in Congress by one legislator. Consumers in all districts share identical preferences (equation (1) above) and receive the same transfer from the government. Crucially, districts differ with respect to their stakes in the production of import-competing and export goods, implying different trade policy preferences. In particular, we distinguish between three types of districts/congressmen:

- *Import districts* ($M$): a fraction $\beta^M$ of the $D$ districts is relatively specialized in the production of the import-competing good. Each of these districts is characterized by a share $\alpha_1^M$ ($\alpha_2^M$) of rents in the production of import (export) goods, with $\alpha_1^M > \alpha_2^M$. The utility function of a representative of one of these districts is thus given by

$$W^M(\tau, \tau^*) = h + \alpha_1^M R_1(\tau) + \alpha_2^M R_2(\tau_k^*) + h\left[T(\tau) + \Omega(\tau, \tau^*)\right]. \tag{10}$$

- *Export districts*($S$): a fraction $\beta^S$ of districts is relatively specialized in the production of export goods. Each of these districts is characterized by a share $\alpha_1^S$ ($\alpha_2^S$) of the rents associated with import (export) production, with $\alpha_1^S < \alpha_2^S$. The utility function of a representative of one of these districts is given by

$$W^S(\tau, \tau^*) = h + \alpha_1^S R_1(\tau) + \alpha_2^S R_2(\tau_k^*) + h\left[T(\tau) + \Omega(\tau, \tau^*)\right]. \tag{11}$$

- *Neutral districts (C)*: the remaining fraction $\beta^C = 1 - \beta^M - \beta^S$ of districts has equal stakes in the production of all goods, i.e., $\alpha_1^C = \alpha_2^C = h$. The utility function of a representative of one of these districts can thus be written as

$$W^C(\tau, \tau^*) = h + hR_1(\tau) + hR_2(\tau_k^*) + h\left[T(\tau) + \Omega(\tau, \tau^*)\right], \tag{12}$$

  implying that a $C$ district is just a scaled-down representation of the country's economy.

Equations (10)-(12) above imply that congressional districts have different preferences only due to the asymmetric distribution of industry rents across them.[18] Our formulation assumes homo-

[18]This implies an interaction between the size of a group of districts in Congress and the policy preferences of this group. For example, if we increase the share of $M$ districts in Congress by increasing $\beta^M$, we must have

geneous trade preferences within each type of districts ($M$, $S$ or $C$), implying no coordination failure in voting and no role for logrolling. It can be shown, however, that the results of our analysis would still hold if we allowed for asymmetries within each type of districts.[19]

More importantly, asymmetries with respect to the geographic location of production activities across various districts imply different preferences over trade policy: $M$, $S$ and $C$ districts will have different indifference curves, reflecting different trade offs between domestic and foreign protection.[20]

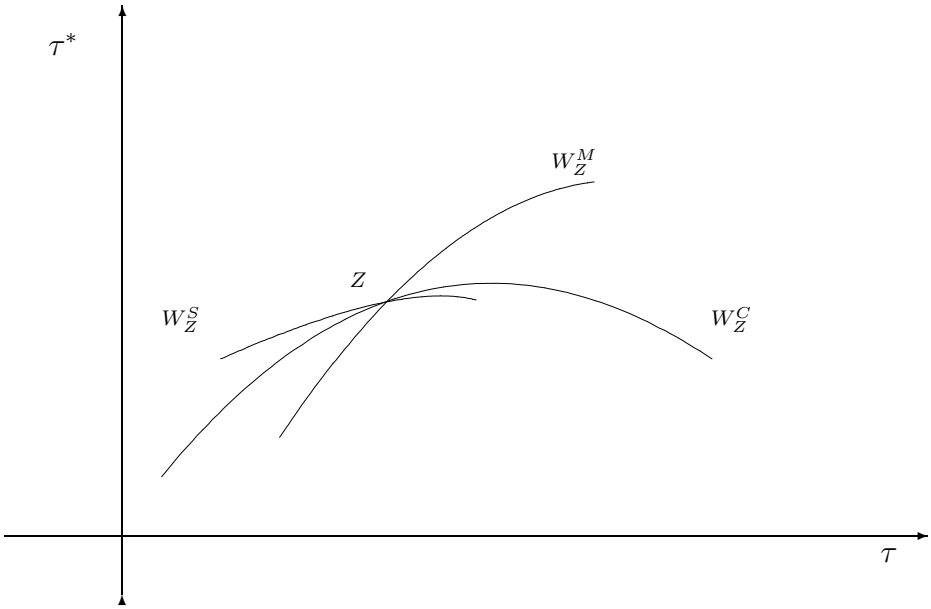


Figure 5: Preferences of home congressmen

In Figure 5 above we plot the indifference curves of the three types of districts going through a generic point $Z$ in the tariff space $(\tau, \tau^*)$. Notice that the indifference curves of the neutral $C$ districts have the same shape as those of the benevolent home executive (represented in Figure 2 above). Furthermore, the indifference curves of the representative of an import (export) district $M$ ($S$) are steeper (flatter) than the indifference curves of the President (and the $C$ districts). This reflects the fact that districts that are relatively specialized in the production of import-

that each of these districts enjoys a smaller proportion of the rents from the production of the import-competing good 1. To see this, notice that we must have $\alpha_1^M \beta^M + \alpha_1^S \beta^S + h(1 - \beta^M - \beta^S) = 1/D$, implying $\frac{\partial \alpha_1^M}{\partial \beta^M} < 0$.

[19]We could extend our trade model to a setting with $N$ nonnumeraire goods, in which each $M$ ($S$) district is relatively specialized in the production of one import-competing (export) good. In this setting, different $M$ ($S$) districts would have different trade policy preferences across sectors, but would gain by coordinating their votes through logrolling.

[20]Differences in trade policy stances across legislators could be attenuated in the presence of compensation mechanisms like the Trade Adjustment Assistance program. The analysis of the role of transfers is beyond the scope of this paper (see Magee (2001) and Drazen and Limão (forthcoming) on this point).

competing (export) goods are less (more) willing to trade off a reduction in domestic import tariffs with a reduction in foreign import taxes. See Appendix for a formal derivation.

## 4.2 Timing

In the home country, Congress must decide whether or not to delegate trade negotiating authority to the President (granting FTA) or to retain amendment power (not granting FTA). Each legislator votes to maximize his expected utility, anticipating the impact that FTA (or lack thereof) will have on the outcome of the negotiations with the foreign country.[21] This implies that the game involves five stages and is illustrated in Figure 6 below.

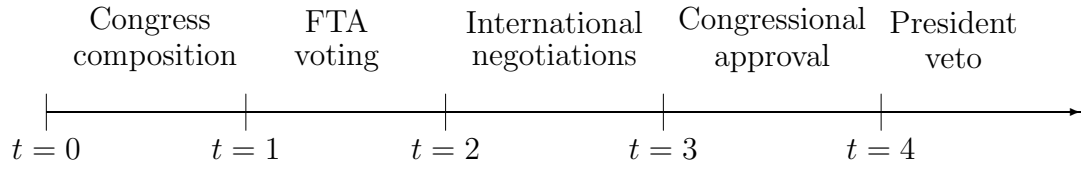


Figure 6: Timeline of the game

In stage zero, Nature chooses the composition of home Congress, i.e., the share of elected members of each district type $i$ (captured by the parameters $\beta^i, i \in \{M, S, C\}$), as well as their trade policy preferences (captured by the parameters $\alpha_1^i$ and $\alpha_2^i$, $i \in \{M, S, C\}$).

In stage 1, a vote is called by simple majority whereby the home Congress decides whether or not to grant FTA to the President. If FTA is approved, Congress retains the power to accept or reject negotiated trade deals, but cannot amend them. Therefore, this stage involves a decision by Congress between partial delegation of trade negotiation authority to the President and no delegation at all.

In stage 2, the home and foreign executives carry out the negotiations to reach an agreement involving a reduction in domestic and foreign tariffs compared to the status quo (point $N$ in Figure 3 above).

In stage 3, if FTA has been approved in stage 1, the home Congress reviews the agreement reached by the two Presidents in stage 2 and accepts or rejects the proposal by simple majority voting, without the possibility of modifying its content. If instead in stage 1 FTA has not been granted, Congress retains the possibility of amending any agreement reached by the two executives in stage 2 by simple majority voting.

[21] Notice that asymmetries across foreign constituencies will play no role in the negotiations, since we assume that in the foreign country trade negotiation authority is always fully delegated to the President, who represents the interests of all constituencies.

Finally, in stage 4, the President signs or vetoes the agreement into law.[22]

Before discussing in detail the equilibrium outcome of the game, a few observations are in order. Firstly, if Congress does not grant FTA to the President in stage 1 of the game and thus any deal agreed by the two executives in stage 2 can be amended, the game's outcome is the same as if the foreign President negotiated a trade deal directly with the majority of the home Congress.[23] Secondly, the fact that the home President retains veto power in stage 4 implies that, in the absence of FTA, Congress cannot put forward trade deals which would make the home country worse off than the status quo. Graphically, this rules out trade agreements that lie above the indifference curve $W_N$ in Figure 3.[24]

In what follows, we derive predictions about congressmen's voting behavior and the outcome of trade negotiations, under alternative scenarios corresponding to different compositions of Congress in stage zero of the game.

## 4.3 Congress Composition and Voting Behavior

### 4.3.1 Majority of $M$ Districts

Consider first a situation in which the majority of Congress is made up by representatives of import districts (i.e., $\beta^M > \frac{1}{2}$). To analyze this scenario, we will use Figure 7 below, where we have replicated the set of feasible agreements that can be reached by the two executives, lying on the $AB$ portion of the $CC$ curve. We have also drawn the indifference curve of an $M$ district representative going through the status quo point, $W_N^M$. This allows us to construct the set of feasible agreements—satisfying assumptions 1 and 2 above—that can be reached in the absence of FTA, when Congress majority negotiates directly with the foreign executive. This set is identified by the arc $A'B'$ on the $C'C'$ curve.

Notice that the set of feasible agreements between the Congress majority and the foreign executive is smaller than the corresponding set for the two executives. Moreover, the $C'C'$ curve lies above the $CC$ curve.[25] As a result, in the absence of FTA, free trade cannot be a negotiation

[22] Article I, section 7 of the U.S. Constitution describes the working of the Presidential veto.

[23] Note that, in the absence of FTA, any deal negotiated between the Presidents in stage 2 and amended by the home Congress in stage 3 can be further amended by the foreign executive. The above description of the timing of the game implicitly assumes that it is too costly to start a new round of trade negotiations between the two executives once an agreement negotiated under FTA is rejected by the home Congress; renegotiation is only possible during the amendment phase in stage 3, if the home President has not been granted fast track authority in stage 1. Notice, however, that in equilibrium there will be no amendments and no renegotiation. This is because, when the home President lacks FTA, the two executives will negotiate in stage 2 anticipating Congress' behavior in the following stage.

[24] In the absence of FTA, the President't veto power imposes a different constraint on the negotiation outcomes than Assumption 1 above, since agreements reached between the majority of home Congress and the foreign President could imply a welfare loss from the point of view of the home country (see discussion below).

[25] To see this, notice that the indifference curve of the $M$ representative through point $B$ is steeper than the

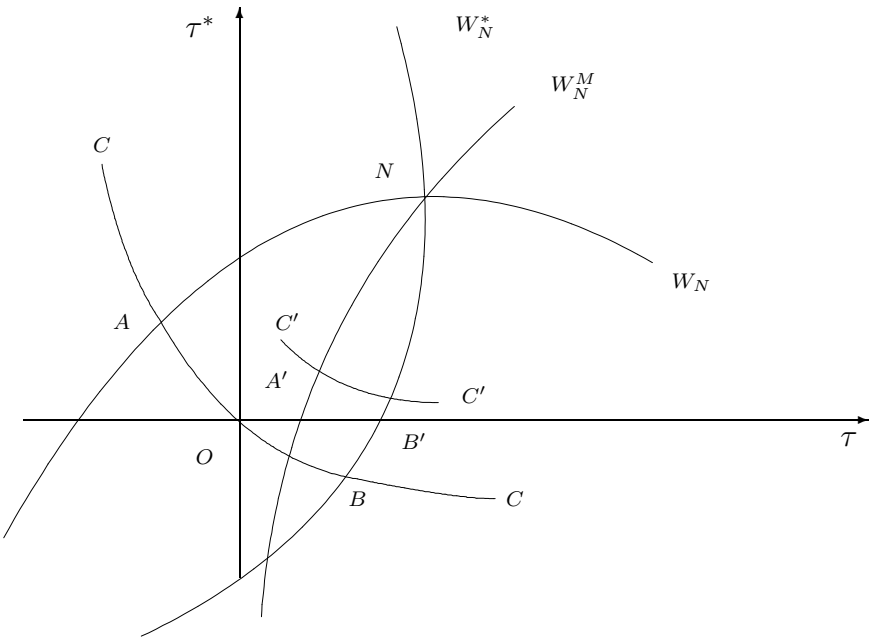


Figure 7: Trade negotiation between foreign President and $M$ majority

outcome. Also, unlike the case of trade negotiations between the two benevolent executives, outcomes in which both countries set positive import tariffs are now possible.

We can show that the $M$ district representatives will never vote in favor of FTA. To this end, we need to compare the welfare of these agents when they negotiate directly with the foreign President and when they instead delegate trade negotiation authority to the executive. Using the generalized Nash bargaining solution described by equation (9) above, we can establish the following: first, if the foreign party enjoys all the bargaining power (i.e., $\gamma = 0$) the outcome $A'$ always yields a higher utility to the $M$ district than the outcome $A$; analogously, if home enjoys all the bargaining power (i.e., $\gamma = 1$) the $M$ districts are always better off at $B'$ than at $B$; the same applies for any given $\gamma \in [0, 1]$. The intuition behind this result is as follows: from the point of view of the $M$ districts, granting FTA implies delegating trade negotiation authority to an agent, the President, who does not share their trade preferences. Furthermore, this agent is less protectionist than the $M$ districts, i.e., more willing to reduce domestic tariffs in exchange for a reduction in foreign tariffs and granting FTA would thus weaken home's bargaining position vis-à-vis the foreign country.

To examine the voting behavior of the $C$ and $S$ representatives in this scenario, consider Figure 8.[26] Let us start by focusing on the preferences of the $C$ district, which have the same

one of home's executive. Thus the tangency between the indifference curves of the $M$ representatives and of the executive must lie to the right and above point $B$. The same argument applies to any point on the $CC$ arc.

[26]Notice that, given the behavior of the $M$ majority, voting by $C$ and $S$ representatives will not affect whether

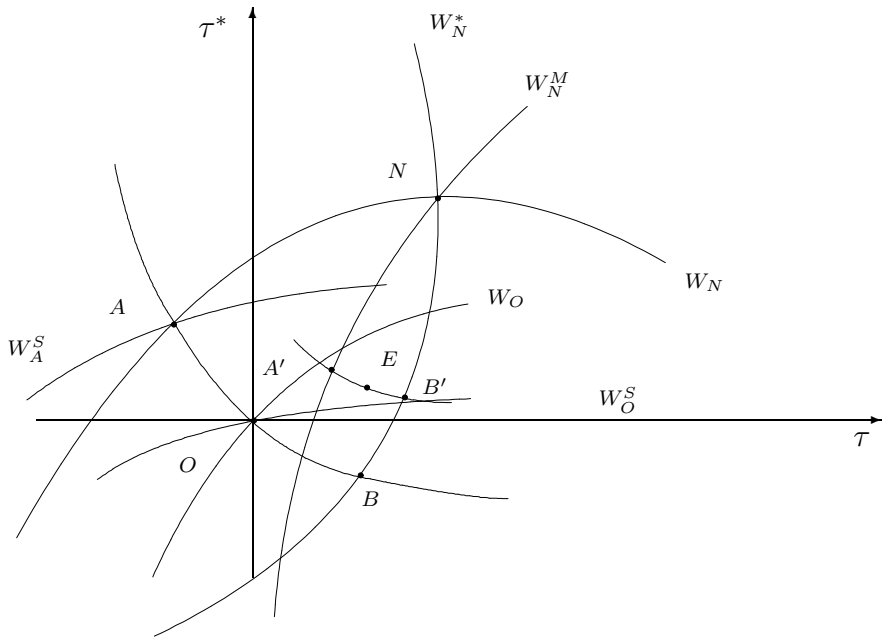


Figure 8: Trade negotiation between foreign President and $M$ majority

shape as those of the home country as a whole. Comparing points $A$ and $A'$, we can see immediately that when foreign has all the bargaining power, $C$ prefers to vote against FTA. If instead home has all the bargaining power, $C$ prefers the outcome $B$ to the outcome $B'$ and would thus vote in favor of FTA. In the case of identical bargaining power, if $M$ preferences are as represented in Figure 8, $C$ prefers outcome $E$ to the free trade outcome $O$.[27] This implies that the neutral representatives may prefer to vote against FTA and thus to delegate the trade negotiation authority to the protectionist majority of Congress rather than to the President. This is true even if the $C$ districts and the President share the same trade preferences. This result is in line with findings of the literature on strategic delegation, which shows how principals may gain by delegating policymaking to status-quo biased agents, to increase their bargaining power in negotiations with other parties (e.g., Schelling, 1956; Jones, 1989; Segendorff, 1998).

Turning now to the $S$ representatives, in the case illustrated in Figure 8, they will also prefer $A'$ to $A$ and $B$ to $B'$. Hence, the more export-oriented $S$ districts may also in some cases prefer to vote against FTA, strategically delegating trade negotiation authority to a protectionist majority in Congress. However, the likelihood of this happening is lower than for the $C$ districts, since the trade preferences of the $S$ export districts differ more from those of the $M$ import districts,

FTA is granted or not. We will assume that, whenever the outcome is independent of a legislator's vote, he will still cast his vote according to his preferences.

[27]For generic $M$ preferences, this will be the case: $W_{A'} > W_A$, $W_{B'} < W_B$ and $W_{E'} \gtreqless W_E$, where $E$ and $E'$ are the outcomes of the negotiations for intermediate bargaining weights (i.e., $\gamma \in [0, 1]$).

making delegation more costly. For example, in the case of identical bargaining power, if $M$ preferences are as represented in Figure 8, $S$ representatives prefer outcome $O$ to outcome $E$.[28]

### 4.3.2 Majority of $S$ Districts

Next, consider a scenario in which the representatives of the $S$ export districts are the majority in Congress (i.e., $\beta^S > \frac{1}{2}$). To analyze this case, we will use Figure 9 below. Again, the set of feasible agreements that can be reached under FTA is represented by the $AB$ segment of the $CC$ curve. Feasible agreements that can be reached in the absence of FTA, when Congress majority negotiates directly with the foreign executive, are instead identified by the portion $A'B'$ of the $C'C'$ curve. Point $V$ represents the trade agreement that is efficient from the point of view of the $S$ majority and the foreign executive and gives the same level of utility to the home country than the status quo. Notice that the President's veto power in the last stage of the game rules out agreements lying between $V$ and $A'$.

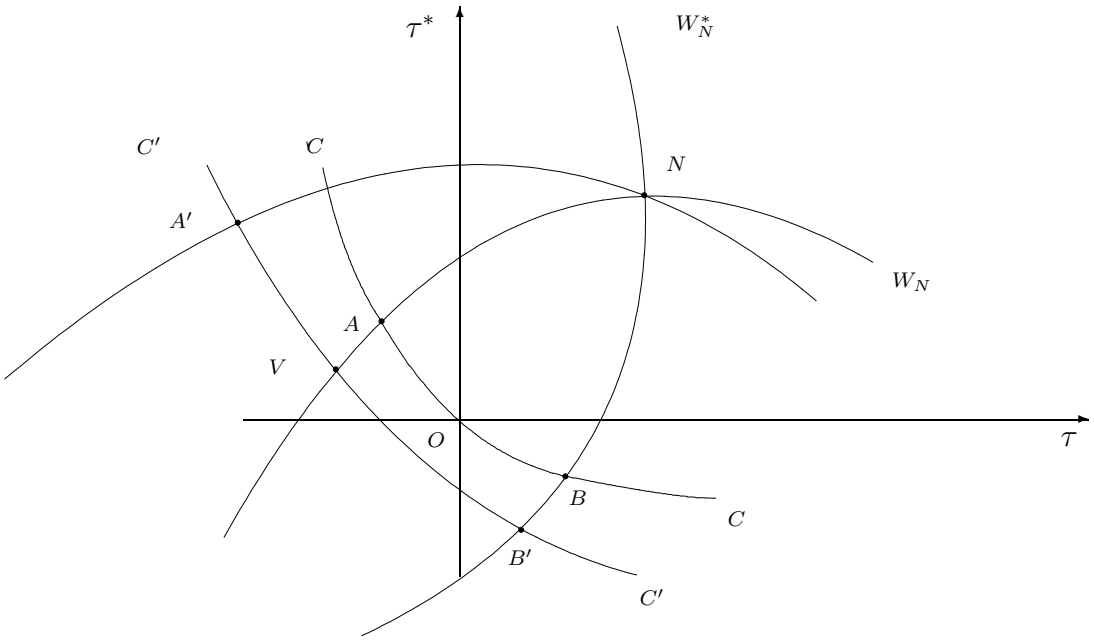


Figure 9: Trade negotiation between foreign President and $S$ majority

In contrast to the case of a majority of $M$ districts discussed above, in this scenario, the set of feasible agreements between the Congress majority and the foreign executive is larger than the corresponding set for the two executives. Moreover, the $C'C'$ curve now lies below the $CC$

[28]For generic $M$ preferences, the following holds: $W^S_{A'} \lesseqgtr W^S_A$, $W_{B'} < W_B$ and $W^S_{E'} \lesseqgtr W^S_E$, where $E$ and $E'$ are the outcomes of the negotiations for $\gamma \in [0, 1]$.

curve.[29] Notice that, like in the $M$ majority case, in the absence of FTA, free trade is not a possible negotiation outcome.

It is easy to verify that in this scenario $M$ and $C$ representatives will always vote in favor of FTA. This is because, when negotiating with the foreign country, they will always prefer to be represented by the President than by the $S$ majority, since the executive is less eager to reach an agreement and is thus able to achieve a more favorable deal.[30] This establishes that it cannot be beneficial for a home legislator to delegate trade negotiation authority to an agent who is keener than himself to reach an agreement with the foreign country.

Next, we turn to the voting behavior of $S$ representatives. In line with our previous discussion about strategic delegation, we can show that, although these representatives have a majority in Congress, they might still prefer to vote in favor of FTA and delegate trade negotiation authority to the executive.[31]

### 4.3.3 Majority of $C$ Districts

Consider now the scenario in which the majority of Congress is made up of representatives of the neutral $C$ districts (i.e., $\beta^C > \frac{1}{2}$). Since the preferences of these districts coincide with those of the entire country and thus of the President, negotiations between the majority of home Congress and the foreign executive can be described using Figure 3 above. This implies that fast track procedures will not affect the outcome of the negotiations.

In this case, there would be no reason to grant fast track authority to prevent amendments of trade agreements by the majority of Congress. However, if legislators are impatient, they might still prefer to vote in favor of FTA, so as to speed up the implementation of trade agreements (see our discussion in Section 2 concerning the mandatory deadlines and limitations on congressional debate imposed by fast track procedures). We should thus expect $C$ and $S$ representatives to always vote in favor of FTA, while $M$ representatives may vote in favor or against it. To verify this, notice from Figure 3 that any outcome on the $AB$ segment of the $CC$ contract curve is always weakly (strongly) preferred by the $C$ ($S$) district representatives to the status quo $N$.[32]

[29] See footnote 25 for the argument.

[30] It can be easily shown that, for any given $\gamma$, an outcome on the $AB$ curve is always preferred to the corresponding outcome on the $A'B'$ curve. Only in the limit case in which $\gamma = 0$, $C$ districts would be indifferent between granting FTA or not. In this case, because of the President's veto power, both negotiation procedures would yield a level of utility $W_N$ for the $C$ districts.

[31] This is the case when the two countries have similar bargaining strength. Note that in the extreme case in which foreign has all the bargaining power ($\gamma = 0$), $S$ representatives would be in favor of FTA if the President had no veto power ($W^S_{A'} < W^S_A$) but are against FTA when the President has veto power ($W^S_V > W^S_A$). In the opposite extreme ($\gamma = 1$), $S$ representatives always oppose FTA ($W^S_{B'} > W^S_B$). For intermediate values of $\gamma$, we have $W^S_E \lesseqgtr W^S_{E'}$, where $E$ and $E'$ are the negotiation outcomes achieved with or without FTA.

[32] As discussed above, these congressmen may actually prefer to be represented in the negotiations by a more protectionist majority. However, this is not an option when $\beta^C > \frac{1}{2}$.

Representatives of the $M$ districts, on the other hand, may or may not be better off in a trade agreement compared to the status quo of Nash tariffs.

### 4.3.4 No Majority

Finally, let us examine the scenario in which none of the district types enjoys a majority in Congress, i.e., $\beta^i < \frac{1}{2}$ for all $i \in \{M, S, C\}$. This implies that in the absence of FTA, amendments in stage 3 of the game can only be passed by a coalition of district representatives.

For simplicity, we assume that, if a coalition is formed between two groups in Congress, its preferences are given by a weighted sum of the preferences of their members, where the weights are given by each group's share in Congress.

In line with our analysis of the previous scenario, we can show that it will never be in the interest of the $C$ or $M$ congressmen to form a coalition with the $S$ representatives. The intuition behind this result is that, relative to a scenario in which trade negotiation authority is delegated to the President, forming this coalition would always weaken home's bargaining position vis-à-vis the foreign country. Given this, the only possible coalition in the amendment phase is between the $C$ and $M$ districts. While for the $M$ representatives being in such coalition will always be preferable than supporting FTA, the same is not always true for $C$. Below we show that the voting behavior of the $C$ representative depends crucially on how protectionist the resulting coalition would be.

The trade preferences of the coalition of $C$ and $M$ districts are described by

$$W^{C,M} = \beta^C W^C + \beta^M W^M. \tag{13}$$

Negotiations between the coalition and the foreign executive in case of no FTA can be captured by Figure 7 above, where now $W_N^M$ should be interpreted as representing $W_N^{C,M}$. Notice that, the steeper is $W_N^{C,M}$, the more likely it is that the $C$ districts will vote for FTA rather than joining the coalition. The intuition is that when the coalition becomes too protectionist, delegation to a more status-quo biased agent becomes too costly.

The degree of protectionism of the coalition of $C$ and $M$ districts is captured by the slope of $W^{C,M}$, which is given by

$$\left(\frac{d\tau^*}{d\tau}\right)^{C,M} = -\frac{\left[(\beta^M \alpha_1^M + \beta^C h)\frac{\partial R_1}{\partial \tau} + (\beta^M + \beta^C)h\left(\frac{\partial T}{\partial \tau} + \frac{\partial \Omega}{\partial \tau}\right)\right]}{\left[(\beta^M \alpha_2^M + \beta^C h)\frac{\partial R_2}{\partial \tau^*} + (\beta^M + \beta^C)h\frac{\partial \Omega}{\partial \tau^*}\right]}. \tag{14}$$

Comparing (14) with equations (A.1) and (A.6) in the Appendix, we can easily show that the coalition's indifference curves are flatter than the indifference curves of the $M$ representatives, but steeper than those of the $C$ representatives. It is also straightforward to verify that an

increase in $\beta^C$ will make the indifference curves of the coalition flatter; in turn, this will make $C$ representatives more likely to vote against FTA.

As far as $S$ representatives are concerned, they will tend to vote in favor of FTA, preferring the negotiation outcomes that would emerge when home is represented by the President to those that would arise when home is represented by the coalition of $C$ and $M$ districts. However, if this coalition is not too protectionist, the opposite might be true, particularly if the foreign country enjoys a larger bargaining power (i.e., $\gamma \to 1$). This is in line with our discussion of the voting behavior of $S$ representatives in the case of $M$ majority.

## 4.4 FTA and International Trade Agreements

The analysis carried out in the previous sections allows us to formulate two main results concerning the impact of fast track procedures on the outcome of trade negotiations between home and foreign.

**Proposition 1** *Unless $\beta^C > \frac{1}{2}$, free trade can only be achieved under FTA.*

To verify this, notice that under fast track authority the set of efficient trade agreements is identified by the $CC$ contract curve in Figure 3 above, which goes through the free trade point 0. In the absence of FTA, the contract curve will be either above the $CC$ curve ($C'C'$ in Figure 7) or below it ($C'C'$ in Figure 9), depending on the type of Congress composition, and will thus not pass through point 0.[33]

**Proposition 2** *Unless $\beta^S > \frac{1}{2}$, foreign prefers to negotiate with home under FTA.*

In the absence of FTA, it is as if the foreign executive negotiates directly with the majority in the home Congress. Except for the case in which the export-oriented $S$ representatives hold a majority of seats in Congress ($\beta^S > \frac{1}{2}$), this leads to worse negotiation outcomes from the point of view of the foreign country than those that could be achieved under FTA. The intuition behind this result is that lack of FTA strengthens home's bargaining positions in the negotiations with foreign.[34] This result can explain why foreign countries are often reluctant to negotiate trade agreements with the United States in the absence of FTA. For example, during the Uruguay Round, U.S. trade officials were subject to strong pressures from other GATT members to come

[33] As discussed above, in the absence of FTA, free trade can only be achieved if $C$ representatives hold a majority of seats in Congress. In this case, the contract curve identifying efficient agreements between the foreign executive and the majority of home Congress would coincide with the $CC$ curve in Figure 3.

[34] This is true for scenarios in which $M$ districts hold a majority of seats in Congress and for scenarios in which none of the district types enjoys a majority in Congress. For the case of $C$ majority, FTA should not affect negotiation outcomes; however, foreign should still prefer to negotiate under FTA on the ground that it allows a faster implementation of trade agreements.

to the negotiating table with fast track authority. Similarly, Proposition 2 can explain why Chile only negotiated a free trade agreement with the U.S. in 2003, after the latest renewal of FTA, rather than during the period between 1994 and 2002, when the executive lacked fast track authority.

## 4.5 FTA and Voting Behavior

In what follows, we outline the main findings concerning the voting behavior of elected congressmen, which we will then bring to the data in Section 6. Our analysis of Section 4.3 shows that, when voting for or against fast track procedures, home legislators must implicitly decide who should represent the country in the negotiations with the foreign executive. The choice is either between oneself and the President (in the case of legislators who control the majority in Congress); or between the majority in Congress and the President (in the case of legislators who do not hold a majority).

Strategic delegation concerns crucially affect this choice, since home legislators take into account the implications of their FTA voting decisions on the outcome of trade negotiations. The general result that emerges from our analysis is that congressmen will never delegate trade negotiating authority to the agent who is keener to reach an agreement with the foreign country, as this will weaken their country's bargaining position. For example, $M$ representatives will vote against FTA if they hold a majority in Congress—since in this case the President is the weaker representative—but will vote in favor of FTA if the $S$ districts hold a majority—since in this case the President is the tougher bargainer. Similarly, $C$ representatives might decide to vote against FTA if the majority of Congress is more protectionist than the President, but would always vote in favor of FTA otherwise.

Furthermore, in our discussion of the four possible scenarios of Congress composition, we have established that, except for the case in which $S$ districts are a majority in Congress, $M$ representatives will never vote in favor of FTA, $S$ representatives will be unlikely to vote against, while $C$ representatives might vote in favor or against. The likelihood that legislator $i$ will vote in favor of FTA should thus increase in the extent to which his constituency is relatively specialized in the production of the export good. This implies

**Proposition 3** *Unless $\beta^S > \frac{1}{2}$, the likelihood that a home legislator votes for FTA increases with the degree to which his district is export-oriented compared to the country as a whole.*

Our analysis in Section 4.3.4 also suggests that, if none of the district types has the majority in Congress, representatives of the neutral $C$ districts will only vote against FTA in stage 2 of the game if they can reach more favorable negotiation outcomes by forming a coalition with the $M$

representatives in stage 4; in turn, this can only happen if such coalition is not too protectionist, which is more likely to be the case the larger is $\beta^C$. This implies

**Proposition 4** *If $\beta^i < \frac{1}{2}$ for all $i \in \{M, S, C\}$, the likelihood of $C$ representatives voting in favor of FTA decreases with $\beta^C$.*

For the purpose of our empirical analysis, we can restate the above two results as follows:

> The likelihood of U.S. congressmen voting in favor of FTA increases with the degree to which their own constituency is relatively export-oriented compared to the U.S. as a whole.
>
> When no legislator type has a majority, the likelihood that representatives from neutral constituencies vote in favor of FTA decreases with their relative share in Congress.

In Section 4.3, we have examined legislators' voting behavior in all possible scenarios in terms of Congress composition: 1) majority of $M$ districts; 2) majority of $S$ districts; 3) majority of $C$ districts; and 4) no majority. Before describing the details of our empirical investigation, two remarks are in order concerning the link between our theoretical analysis and its empirical counterpart. First, as shown in the next section, in our dataset only scenarios 3) and 4) are verified. However, this does not pose a problem for our empirical analysis, since the predictions of Propositions 3 and 4 are valid in those scenarios. Second, we are unlikely to observe votes on fast track when the majority of Congress is against granting it.[35] Again, this is not a concern for our empirical analysis, which concerns FTA voting *behavior* of individual U.S. congressmen, rather than the *outcomes* of FTA decisions.

# 5 Data

In the empirical analysis presented below, we examine the determinants of FTA voting decisions by U.S. congressmen. The objective of our analysis is to verify whether the legislators' voting behavior reflects the trade policy interests of their constituencies in the way predicted by our theoretical model. To do so, we isolate congressmen's trade policy interests from other factors which might affect their FTA voting decisions. These include legislators' party affiliation and ideological preferences, whether they belong to the same party as the President, whether they are members of the House or the Senate, and whether they have been elected in swing states.

[35]Indeed, as it can be seen from Table 1, with the exception of House Resolution 2621 of September 25 1998, all votes ended up with Congress granting FTA. In some situations, the President may decide not to request a vote on FTA, anticipating that the outcome will be negative. For example, this is what happened in November 1997, when President Clinton agreed to hold off on the floor vote in the House, after House Speaker Gingrich had reportedly said that the vote was 5-25 votes short of passage (see Shoch, 2002).

Table 3 below provides details of the definitions and sources for all the variables used in our regressions (top panel) and in the construction of the regressors (bottom panel).

Table 1 in Section 2 above describes all the votes granting or extending FTA that occurred in Congress, from the first one in 1973 till the last one in 2002. In our theoretical analysis, we used the words constituency and district interchangeably. Empirically, however, we distinguish between the 50 states of the U.S.—electing two representatives each for the Senate—and the 435 congressional districts—electing each one member of the House of Representatives.[36] Overall, thirteen votes on FTA have been held in Congress, including the House and Senate resolutions of disapproval that were rejected in 1991. Seven of them took place in the House, and six in the Senate. For each vote, the identity of congressmen, their party affiliation, their state or district and their vote (in favor or against FTA) has been collected from roll call voting records.

From our theoretical model, we know that the main determinant of a congressman's FTA vote is his constituency's trade position with respect to the United States at large. To capture the trade policy interests of a state or congressional district, we collect information on employment in import and export industries in that constituency. Such variables are relatively easy to construct for the Senate, since state-level series are readily available. For the House of representatives, on the other hand, we encountered two main difficulties. The first problem is that district-specific data is not readily available, but must be constructed by aggregating county-level data using the County Business Patterns (CBP), a survey collected by the Bureau of the Census. Notice also that a county may be split into different districts. For example, as can be seen from Figure 10 below, Santa Clara County in California encompasses four congressional districts, some of which cover parts of neighboring counties. The second issue is that the geographic definition of districts changes overtime, following each decennial Census.

We have addressed these concerns as follows. To obtain district-level date from county level information, we first extract county-level data from the CBP and then aggregate them at the district level. For those counties split across more than one district, we follow Baldwin and Magee (2000a,b), among others, imputing employees proportionally to the share of population of a county assigned to that district. To deal with the problem of redistricting, we have kept track of changes in the boundaries of the electoral districts that occurred after the Censuses of 1970, 1980 and 1990. For example, Alaska has always had only one Congressional District; between the first FTA vote in 1973 and the last one in 2002, California went instead from 43 to 52 districts, while New York went from 39 to 31.

[36] As it can be seen from Table 1, for each decision in the House and Senate less than 435 and 100 votes, are respectively reported. This is because some congressmen may not be present or may decide to abstain. Moreover, a seat in Congress may be vacant at any point in time because of special circumstances (e.g., resignation, death).

Table 3: Definition of variables and sources

| Variable | Definition | Source |
|---|---|---|
| $Vote_t^i$ | Vote cast by congressman $i$ in year $t$ | Up to 1996: ICPSR Study number 4 |
| | Dummy equal to 1 if 'yea' and 0 if 'nay' | From 1997: http://www.voteview.com |
| Trade exposure$_t^i$ | Ratio $\Lambda_t^i \equiv \lambda_t^i / \lambda_t^{US}$ | As for $\lambda_t^i$ |
| Share$_t^C$ | Share of $C$ legislators in Congress in year $t$ | As for $\lambda_t^i$ |
| Senate$^i$ | Dummy equal to 1 if congressman $i$ is a senator | As for Vote$_t^i$ |
| Democrat$_t^i$ | Dummy equal to 1 if congressman $i$ is a Democrat in year $t$ | As for Vote$_t^i$ |
| Conservative rating$_t^i$ | Rating (0–100) of congressman $i$ in year $t$ by American Conservative Union | http://www.acuratings.org/ |
| Party as President$_t^i$ | Dummy equal to 1 if congressman $i$ and President belong to same party in year $t$ | As for Vote$_t^i$ |
| Swing state$_i^t$ | Dummy equal to 1 if congressman $i$ is from a state in which the margin of victory in the last Presidential election was less than 10% | Leip (2008) |
| President's state$_t^i$ | Dummy equal to 1 if congressman $i$ is from a state won by the President in the last Presidential election | As for Swing state |
| Unified government$_t$ | Dummy equal to 1 if in year $t$ the majority of both chambers and the President belong to the same party | U.S. Congress |
| $\lambda_t^i$ | Employees in year $t$ of district $i$ in export industries divided by employees of district $i$ in import industries | County Business Patterns |
| $\lambda_t^{US}$ | U.S. employees in year $t$ in export industries divided by U.S. employees in import industries | As for $\lambda_t^i$ |
| $S_t^i$, $M_t^i$, $C_t^i$ districts | Dummy equal to 1 if in year $t$ district $i$ is of type $S$, $M$, or $C$ | As for $\lambda_t^i$ |
| Congressional Districts | Aggregate of counties included in each district | 1973-1982: ICSPR dataset 8258; 1983-2012: provided by Christopher Magee |
| Import/export industries | Industries in which the U.S. is a net importer/exporter (annual basis) | Feenstra (1996, 1997), Feenstra et al. (2002), and U.S. ITC, IMF BoP Statistics |

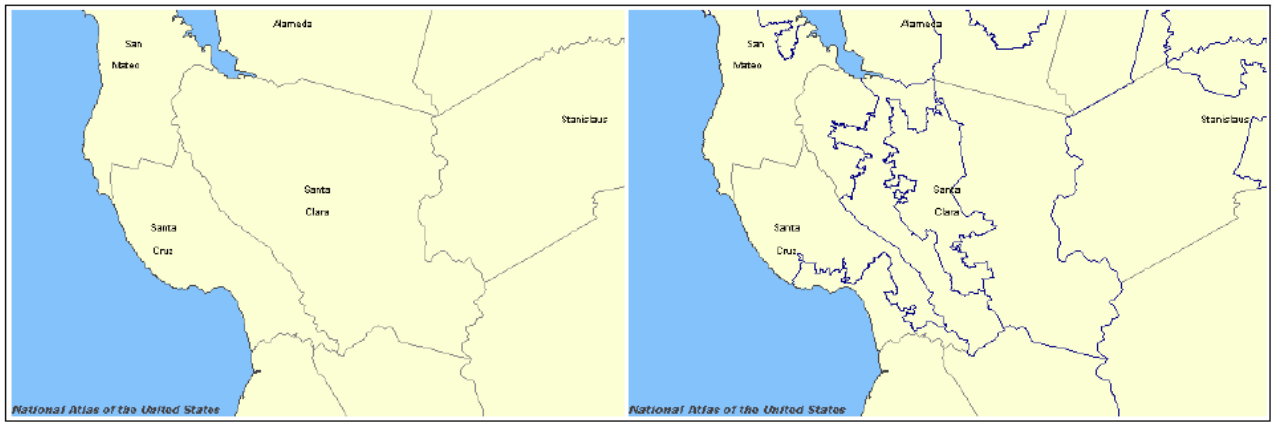


Figure 10: Santa Clara County: Congressional Districts

The CBP report annual data on employment by SIC manufacturing industries up to 1997 and by NAICS manufacturing industries from 1998.[37] Notice that employment data in the CBP are withheld when their disclosure would allow researchers to identify firms. In such cases, a flag gives the interval where the actual data belongs to (e.g., between 0 and 19 employees, between 20 and 99 employees and so on). These flags have been used to input values (i.e., the mid point of each interval) for the missing observations. In order to minimize the problem of undisclosed data, we use CBP employment data at the 2-digit SIC and 3-digit NAICS levels rather than at more disaggregated levels. Unfortunately, the CBP do not provide any flag for the data withheld in 1973. Treating these observations as missing results in a substantial underestimate of the employment in each county and, consequently, congressional district, which is why we have decided to omit the House vote of 1973 from our main estimations. Thus, we are left with 3,068 observations (i.e., all the votes from 1974 until 2002, as reported in Table 1).

Table A.1 in the Appendix reports the list of manufacturing industries included in our analysis. For each year, we define an industry as being import (export), if the U.S. as a whole is a net importer (exporter) for that industry in that year. Using employment data by congressional district—constructed from county-level data as discussed above—and by state, we compute the number of employees in import and export industries for all constituencies. Our theoretical model suggests that FTA voting decisions should be driven by the extent to which the trade policy interests of the legislators—who are assumed to stand for their own constituencies—differ from those of the President—who is supposed to represent all constituencies. For each con-

[37]The CBP series mostly contains data on employment in manufacturing industries, with very little detailed information for the agricultural sector. However, manufacturing industries represent the lion's share of total imports and exports of the United States (i.e., at least 70 percent in each year from 1970 until today). Moreover, many agriculture-related activities are classified as manufacturing and are thus included in our dataset (e.g., dairy products, grain mill products, and sugar are included in SIC 20 and NAICS 311). In Section 7, where we report the results of various robustness checks, we include information on agriculture employment, as well as on employment in the service sector.

stituency $i$ at time $t$, we then define the ratio of employees in export industries (indexed by $x$) relative to import-competing industries (indexed by $m$) and then we construct the same ratio for the United States as a whole (indexed by $US$):

$$\lambda_t^i = \frac{\sum\limits_x L_{x,t}^i}{\sum\limits_m L_{m,t}^i}, \tag{15}$$

$$\lambda_t^{US} = \frac{\sum\limits_x L_{x,t}^{US}}{\sum\limits_m L_{m,t}^{US}}. \tag{16}$$

Our main regressor of interest, $\Lambda_t^i$, captures a constituency's *Trade exposure* relative to the United States at large and is defined as

$$\Lambda_t^i \equiv \frac{\lambda_t^i}{\lambda_t^{US}}. \tag{17}$$

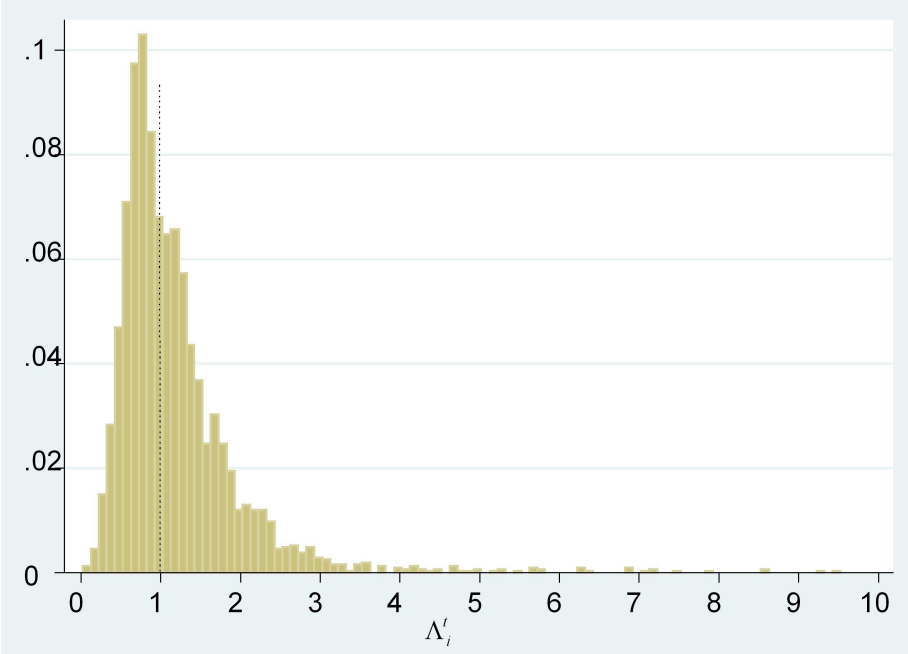


Figure 11: Trade exposure

Figure 11 above plots the empirical distribution of $\Lambda_i^t$ for the full sample of $3,068$ votes. Based on this, following our theoretical model, we can classify congressmen as representatives

of $M$, $C$, or $S$ districts. We define the identity of district $i$ at time $t$ as follows:

$$I_t^i = \begin{cases} M & if\ \Lambda_t^i \in [0, 1-g) \\ C & if\ \Lambda_t^i \in [1-g, 1+g] \\ S & if\ \Lambda_t^i \in (1+g, \infty]\,. \end{cases} \tag{18}$$

Notice that $g = 0$ would provide the exact theoretical definition of the neutral $C$ districts, which are assumed to share the same trade policy interests as the entire country. However, this methodology has no empirical content, since in the data none of the constituencies is characterized by a value of $\Lambda_t^i$ that is exactly equal to unity. To ensure that the empirical analysis captures the spirit of our theoretical model, we have thus experimented with alternative small values of $g$, defined as a fraction (0.20, 0.25, and 0.30) of the standard deviation of $\Lambda_t^i$. As it is shown in Figure 12, alternative cut-off values of $g$ give rise to different classifications of the legislators' identity and, correspondingly, of Congress composition. However, it is important to stress that, independently on the chosen value of $g$, there is never a situation in which $M$ or $S$ representatives have a majority in Congress.[38] This is not surprising given that Figure 11 shows a relatively symmetric distribution of the trade orientation of the districts, with a median value of 0.99. Therefore, out of the four theoretical scenarios of Section 4.3, only those characterized by a majority of $C$ representatives or by no majority of any district type are empirically relevant.

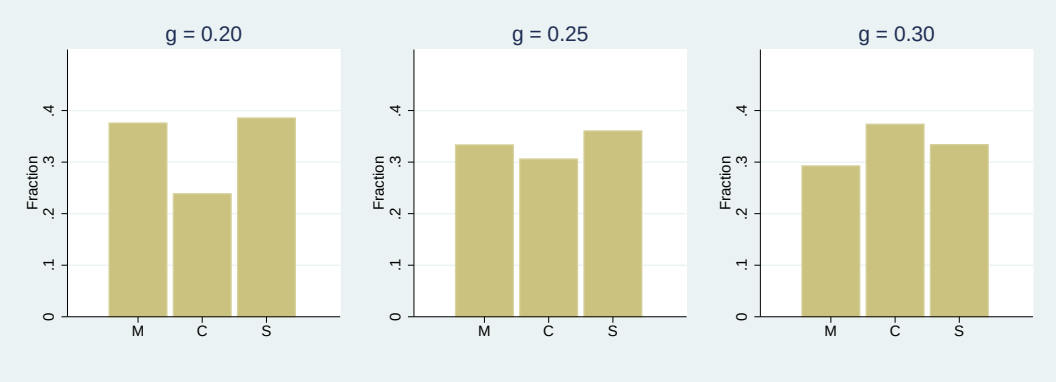


Figure 12: Congress composition for alternative values of $g$

Based on the definition of the legislators' types in (18), we can construct the variable $Share_t^C$, which captures the share of Congress controlled by representatives on non-specialized constituencies in a given year (corresponding to the parameter $\beta^C$ in our theoretical model).

[38] This is true even for very small values of $g$. In the limit case of $g = 0$, $M$ and $S$ legislators have nearly identical shares in Congress. The same description applies when we look at the distribution of $\Lambda_i^t$ year by year.

Table 4: Summary statistics

| Variable | Observations | Mean | Std. dev. |
|---|---|---|---|
| $\text{Vote}_t^i$ | 3,068 | 0.697 | 0.460 |
| $\text{Trade exposure}_t^i$ | 3,068 | 1.194 | 0.829 |
| $\text{Senate}^i$ | 3,068 | 0.207 | 0.405 |
| $\text{Democrat}_t^i$ | 3,068 | 0.559 | 0.497 |
| $\text{Conservative rating}_t^i$ | 3,065 | 46.70 | 37.45 |
| $\text{Party as President}_t^i$ | 3,068 | 0.495 | 0.500 |
| $\text{Swing state}_t^i$ | 3,068 | 0.513 | 0.500 |
| $\text{President's state}_t^i$ | 3,068 | 0.705 | 0.456 |
| $\text{Unified government}_t$ | 3,068 | 0.328 | 0.470 |

Summary statistics for the main variables of interest are reported in Table 4. In terms of trade exposure of each district relative to the U.S. at large, notice that the mean of our *Trade exposure* measure is slightly higher than 1; this is because, as it is apparent looking at Figure 11, some districts are outliers with respect to their high shares of employees in export industries. Table 4 also reports summary statistics for all the other variables used as controls in our regressions. Although the theoretical model is silent on their role, they have been used in other studies of the determinants of congressional votes on trade policy. To uncover possible differences between the two chambers of Congress, we include a *Senate* dummy. To proxy for congressmen's ideology, we use the *Democrat* dummy and the *Conservative rating* index provided by the American Conservative Union (ACU), which ranks congressmen on a scale from 0 to 100, with higher scores assigned to more conservative politicians. We also include the following dummy variables: *Party as President*, which is equal to one for congressmen belonging to the same party as the executive, and zero otherwise; *Swing state*, which identifies battleground states, in which no Presidential candidate had an overwhelming majority in the previous election;[39] *President's state*, which is equal to one for states which were carried by the incumbent President in the previous election; and *Unified government*, which captures scenarios in which the majority in both chambers and the President belong to the same political party.[40]

# 6 Empirical Methodology and Results

The dependent variable in our empirical analysis, $Vote_t^i$, is dichotomous and equals one if the congressman has voted in favor of granting or extending FTA and zero otherwise. Our baseline

[39] We follow Glaeser and Ward (2006) in defining swing states as those with a margin of victory less than 10 percent in the last presidential election. The results are unchanged when we use a 5 percent threshold.

[40] Other political economy variables could not be included, such as the degree of protectionism of the President (since there is no measure of the executive's trade policy stance) or the influence of interest groups (since it is not possible to collect data on trade-related campaign contributions for the entire period of our analysis).

specification is thus given by

$$Prob(Vote_t^i = 1) = \Phi\left(\alpha + \beta_1 \mathbf{X}_t^i + \beta_2 \mathbf{Z}\right) \tag{19}$$

where $\Phi(\cdot)$ is the cumulative normal distribution (i.e., probit model); $\mathbf{X}_t^i$ is a matrix of district-specific variables, which are defined for each constituency $i$; $\mathbf{Z}$ is a matrix of additional controls, which may or may not be time-invariant and district specific (e.g., time or state fixed effects); and $\alpha$, $\beta_1$, and $\beta_2$ are the vectors of parameters to be estimated. Depending on the specification, the main variable of interest is a district's *Trade exposure*$_t^i$, $\Lambda_t^i$, or the share of neutral district representatives in Congress, $Share_t^C$. In order to facilitate the interpretation of the estimated coefficients, in the tables we report marginal effects (calculated at the mean of each regressor).

Moving to the results, we first want to assess the validity of the voting prediction contained in Proposition 3, according to which the likelihood that a legislator will vote in favor of FTA should increase with the degree to which his constituency is relatively export-oriented compared to the U.S. as a whole. To capture the trade policy preferences of the legislators' constituencies we employ the continuous variable $\Lambda_t^i$. The results for this specification are presented in Table 5 below.

In column (1) we report a specification where the only explanatory variable are the districts' *Trade exposure* and the set of year effects. The prediction of the theoretical model is clearly confirmed by the data, as the estimated coefficient of *Trade exposure* is positive and significant at the 1 percent level.[41] In other words, a congressman is more likely to vote in favor of granting or extending FTA the more export oriented his district is compared to the U.S. as a whole. The set of year fixed effects is jointly significant and their coefficients indicate a decreasing likelihood over time of voting in favor of FTA, suggesting an erosion of the consensus in favor of trade liberalization.[42]

The remainder of the table contains a series of robustness checks, to investigate the role played by the additional drivers of FTA voting decisions identified by the existing literature. In all specifications reported in columns (2)-(11) the congressman's district trade exposure continues to be positively and significantly correlated with FTA voting.

[41] In the simplest possible specification, in which we drop the year fixed effects, the coefficient for *Trade Exposure* is also positive and significant at 1 percent. The estimates of various fixed effects are not reported to save on space. All the results and tests not reported in the text are available upon requests.

[42] Such trend may be due to various factors, including a strong increase in trade volumes, which may have lead to larger adjustment costs associated with trade liberalization, and increasing concerns over non-trade issues such as labor and environmental standards (see Elliot, 2000).

Table 5: Empirical results for all constituencies

| Regressor | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | House (10) | Senate (11) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Trade exposure$_t^i$ | 0.032*** | 0.059*** | 0.059*** | 0.053*** | 0.053*** | 0.057*** | 0.053*** | 0.053*** | 0.051*** | 0.055*** | 0.075*** |
| | (0.011) | (0.013) | (0.013) | (0.013) | (0.013) | (0.013) | (0.013) | (0.013) | (0.013) | (0.016) | (0.026) |
| Senate$^i$ | | | 0.063*** | 0.073*** | 0.073*** | 0.073*** | 0.090*** | 0.090*** | 0.091*** | | |
| | | | (0.023) | (0.024) | (0.024) | (0.024) | (0.023) | (0.023) | (0.023) | | |
| Democrat$_t^i$ | | | | -0.286*** | | -0.288*** | -0.297*** | -0.297*** | -0.299*** | -0.328*** | -0.148*** |
| | | | | (0.015) | | (0.015) | (0.016) | (0.016) | (0.016) | (0.017) | (0.039) |
| Conservative rating$_t^i$ | | | | | 0.004*** | | | | | | |
| | | | | | (0.0002) | | | | | | |
| Party as President$_t^i$ | | | | | | -0.013 | | | | | |
| | | | | | | (0.019) | | | | | |
| Swing state$_t^i$ | | | | | | | -0.016 | | | | |
| | | | | | | | (0.019) | | | | |
| President's state$_t^i$ | | | | | | | | 0.010 | | | |
| | | | | | | | | (0.020) | | | |
| Unified government$_t^i$ | | | | | | | | | 0.102*** | | |
| | | | | | | | | | (0.019) | | |
| Trend | | | | | | | -0.029*** | -0.029*** | -0.027*** | | |
| | | | | | | | (0.001) | (0.001) | (0.001) | | |
| Year effects | included | included | included | included | included | included | | | | included | included |
| State effects | | included | included | included | included | included | included | included | included | included | included |
| Observations | 3,068 | 3,051 | 3,051 | 3,051 | 3,048 | 3,051 | 3,051 | 3,051 | 3,051 | 2,506 | 476 |
| Log likel. | -1,550.18 | -1,442.63 | -1,419.35 | -1,269.48 | -1,294.37 | -1,269.24 | -1,353.52 | -1,353.75 | -1,340.63 | -1,049.34 | -174.50 |
| Pseudo R$^2$ | 0.18 | 0.24 | 0.24 | 0.32 | 0.31 | 0.32 | 0.28 | 0.28 | 0.29 | 0.34 | 0.31 |
| $\chi^2$ | 478.35*** | 570.05*** | 566.90*** | 546.11*** | 541.67*** | 540.46*** | 592.91*** | 593.65*** | 622.31*** | 454.25*** | 147.63*** |
| Pred. Prob. | 0.75 | 0.77 | 0.77 | 0.78 | 0.78 | 0.78 | 0.77 | 0.77 | 0.77 | 0.76 | 0.86 |

Notes: Dependent variable, $Vote_t^i$, equal to 1 if congressman votes in favor of FTA, 0 otherwise. Marginal effects reported for all regressors, calculated as discrete changes from 0 to 1 for dummy variables. Robust standard errors in parenthesis; *** denotes significance at 1% level; ** 5% level; * 10% level.

We start in column (2) by controlling for unobservable, additive state-specific effects, which we will retain throughout the remainder of the table.[43] We then investigate the role of Senate membership in explaining FTA voting decision (column (3)). Interestingly, senators turn out to be in general more likely to favor FTA.[44] This result holds also when we control for the role played by the ideological position of the congressman, and for whether or not he belongs to the party of the President (columns (4)-(6)). The same is true also when we account for political characteristics of the state (columns (7) and (8)) and for the alignment of the executive and the legislative branches (column (9)).

As for the various controls we have introduced in our analysis, ideology, measured both as party affiliation (column (4)) as well as conservative rating (column (5)), influences FTA voting decisions. In particular, our results show that Republicans and more conservative members of Congress are significantly more likely to vote in favor of granting fast track authority to the executive. These findings are in line with previous evidence showing that, for the period we are considering, Republican congressmen tend to be more pro trade (see Hiscox, 1999, and Karol, 2000). Alignment with the party of the President (column (6)) instead does not seem to play a significant role, once we control for the congressman's party affiliation. This is consistent with the fact that Republicans are more likely to vote in favor of FTA and most FTA votes occurred under a Republican President: only three rounds of the votes listed in Table 1 occurred under a Democrat President (i.e., the Trade Agreement of Act of 1979 under President Carter; the extension of FTA in 1993 for completing the Uruguay Round, and the failed extension of FTA in 1998 under President Clinton).

Political features of the states where the congressman was elected do not seem to play a role. In particular, legislators elected in swing states (column (7)) or in states won by the President in the last election (column (8)) are no more/less likely to vote in favor of FTA. On the other hand, the likelihood of a vote in favor of FTA is higher when the majority of both the House and the Senate belongs to the political party of the President (column (9)).[45] Notice that, since the year fixed effects cannot be introduced in the specifications of columns (7)-(9),[46] we have

[43]The state fixed effects are jointly significant. Notice also that the inclusion of state effects forces us to drop the 17 observations for the congressmen from Wyoming, since they all and always voted in favor of FTA.

[44]The marginal effect in column (3) tells us that a Senator is on average 6.3 percentage points more likely to vote for FTA than a House representative, implying an 8 percent increase over the average predicted probability of a positive vote reported at the bottom of the table. Interpreting the marginal effects of the *Trade exposure* variable is more difficult, since they measure the impact of a marginal change in the trade exposure ratio as defined in (17).

[45]We have also investigated the effects of presidential term limits by including a dummy variable for votes casted during the second term of a presidential mandate, but the estimated coefficients for this variable were never significant. The only votes which took place during a second mandate were the Senate and House votes in 1988 (Reagan administration) and the House vote in 1998 (Clinton administration).

[46]*Swing state* and *President's state* cannot be included with year and state fixed effects, since there is no variation within states for a given year. For the variable *Unified government*, there is no within-year variation.

replaced them with a linear trend. Consistently with the decreasing support for FTA over time, the estimated coefficient for this trend is significant at 1 percent and negative.

Finally, in the last two columns of Table 5 we separately investigate FTA voting behavior of members of the House and the Senate.[47] In both cases, the marginal effects for the *Trade exposure* variable are positive and significant. The estimated coefficient for the *Democract* dummy is negative and significant for both chambers, though their magnitude suggests that ideology plays a bigger role in the voting behavior of House representatives.

We then turn to evaluate the prediction of Proposition 4, according to which, when no group of district representatives holds a majority, the likelihood that representatives of non-specialized constituencies vote in favor of FTA should decrease with their relative share in Congress. To assess the validity of this prediction, we examine the voting behavior of congressmen from $C$ constituencies, as a function of their share of seats, $Share_t^C$.

To define $C$ districts, our benchmark analysis reported in Table 6 is based on setting $g$ in equation (18) equal to 0.25 of the standard deviation of the trade orientation variable, $\Lambda_t^i$. In Section 7, we will carry out a series of robustness checks using alternative values of $g$ and obtain similar results. Notice that, since our main regressor of interest, $Share_t^C$, is year-specific, we have included a linear time trend rather than year fixed effects. In line with our findings in Table 5, the estimated coefficient for this variable is always significant at 1 percent and negative, suggesting that voting for FTA becomes less likely over time.[48]

Table 6 contains six different specifications where only the votes of representatives from $C$ constituencies are included as the dependent variable. In all cases, our results are consistent with Proposition 4: the estimated coefficient for $Share_t^C$ is always negative and significant at 1 percent, indicating that representatives of neutral constituencies are less likely to vote in favor of fast track the higher their share of seats in Congress. This suggests that the strategic delegation mechanisms outlined in our theoretical analysis play indeed a role in the FTA voting behavior of U.S. congressmen.

As for the effect of the additional controls, their impact is very similar to the results reported in Table 5: senators are also more likely to vote in favor of FTA; Republican and more conservative legislators are more favorable; the fact that a congressman is from a swing state or from a state that was won by the President in the last election has no effect on FTA voting behavior; the likelihood of a vote in favor of FTA is higher when the executive and the majority in both chambers are aligned in terms of party affiliation. The only noticeable difference with the results of Table 5 is that the dummy variable for the alignment between a legislator and the President

[47] Some more observations are lost because of no variation in the dependent variable within the House and/or the Senate for some States.

[48] Notice that, if we exclude the variable $Trend$ from the set of controls, the coefficient for $Share_t^C$ remains negative and significant at 1 percent.

is now significant and positive when included along with the Democrat dummy.

Table 6: Empirical results for $C$ constituencies

| Regressor | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| $\text{Share}_t^C$ | -0.023*** | -0.025*** | -0.022*** | -0.024*** | -0.023*** | -0.022*** |
| | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) | (0.007) |
| $\text{Senate}^i$ | 0.126** | 0.126** | 0.124** | 0.128** | 0.126** | 0.121** |
| | (0.045) | (0.045) | (0.046) | (0.045) | (0.045) | (0.045) |
| $\text{Democrat}_t^i$ | -0.352*** | | -0.343*** | -0.351*** | -0.353*** | -0.351*** |
| | (0.031) | | (0.031) | (0.031) | (0.031) | (0.030) |
| $\text{Conservative rating}_t^i$ | | 0.005*** | | | 0.005*** | |
| | | (0.001) | | | (0.0002) | |
| $\text{Party as President}_t^i$ | | | 0.075** | | | |
| | | | (0.034) | | | |
| $\text{Swing State}_t^i$ | | | | 0.031 | | |
| | | | | (0.040) | | |
| $\text{President's State}_t^i$ | | | | | 0.029 | |
| | | | | | (0.046) | |
| $\text{Unified government}_t$ | | | | | | 0.113** |
| | | | | | | (0.043) |
| Trend | -0.021*** | -0.020*** | -0.022*** | -0.021*** | -0.021*** | -0.019*** |
| | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) | (0.004) |
| State effects | included | included | included | included | included | included |
| Observations | 849 | 848 | 849 | 849 | 849 | 849 |
| Log likelihood | -371.37 | -374.11 | -369.18 | -371.06 | -371.17 | -368.00 |
| Pseudo $R^2$ | 0.31 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 |
| $\chi^2$ | 213.04*** | 209.10*** | 209.83*** | 216.51*** | 216.14*** | 219.66*** |
| Predicted Prob. | 0.73 | 0.73 | 0.73 | 0.73 | 0.74 | 0.74 |

Notes: Dependent variable, $Vote_t^i$, equal to 1 if congressman votes in favor of FTA, 0 otherwise. Marginal effects reported for all regressors, calculated as discrete changes from 0 to 1 for dummy variables. Only congressmen from $C$ constituencies (based on $g = 0.25$) are included. Robust standard errors in parenthesis; *** denotes significance at 1% level; ** 5% level; * 10% level.

# 7 Robustness Checks

In this section, we carry out a series of additional estimations to assess the robustness of our empirical results. All the specifications not explicitly reported are available upon request.

We have first undertaken some experiments to evaluate the robustness of our results with respect to alternative *definitions of congressmen's identity*. In particular, for our baseline regressions of Table 6, we have classified legislators as being representatives of non-specialized $C$

constituencies by setting $g$ in equation (18) equal to 0.20 of the standard deviation of $\Lambda_t^i$. In Table 7 below, we report the results of specifications based on alternative cut-off values of $g$, which still correspond to scenarios in which none of the legislator types has a majority in Congress (see Figure 12). In all the specifications, in line with the prediction of Proposition 4, an increase in the share of $C$ representatives leads to a decline in the probability that these legislators will vote in favor of granting fast track authority to the executive.

Table 7: Robustness checks based on alternative definitions of $C$ districts

| | $g = 0.20$ | | | $g = 0.30$ | | |
|---|---|---|---|---|---|---|
| Regressor | (1) | (2) | (3) | (4) | (5) | (6) |
| $\text{Share}_t^C$ | -0.038*** | -0.038*** | -0.038*** | -0.015** | -0.018*** | -0.016** |
| | (0.012) | (0.012) | (0.012) | (0.006) | (0.006) | (0.007) |
| $\text{Senate}^i$ | 0.099* | 0.103* | 0.095 | 0.122*** | 0.122*** | 0.122** |
| | (0.054) | (0.053) | (0.055) | (0.043) | (0.042) | (0.044) |
| $\text{Democrat}_t^i$ | -0.340*** | | -0.334*** | -0.351*** | | -0.343*** |
| | (0.036) | | (0.035) | (0.029) | | (0.029) |
| $\text{Conservative rating}_t^i$ | | 0.005*** | | | 0.005*** | |
| | | (0.001) | | | (0.001) | |
| $\text{Party as President}_t^i$ | | | 0.052 | | | 0.088*** |
| | | | (0.038) | | | (0.032) |
| Trend | -0.16*** | -0.015*** | -0.016*** | -0.028*** | -0.026*** | -0.028*** |
| | (0.005) | (0.005) | (0.005) | (0.004) | (0.004) | (0.004) |
| State effects | included | included | included | included | included | included |
| Observations | 658 | 657 | 658 | 1,061 | 1,059 | 1,061 |
| Log likelihood | -280.65 | -282.27 | -279.84 | -452.92 | -457.47 | -449.29 |
| Pseudo $R^2$ | 0.33 | 0.33 | 0.33 | 0.34 | 0.33 | 0.34 |
| $\chi^2$ | 186.94*** | 193.76*** | 184.31*** | 295.23*** | 457.47*** | 288.48*** |
| Predicted Prob. | 0.74 | 0.74 | 0.74 | 0.72 | 0.72 | 0.72 |

Notes: Dependent variable, $Vote_t^i$, equal to 1 if congressman votes in favor of FTA, 0 otherwise. Marginal effects reported for all regressors, calculated as discrete changes from 0 to 1 for dummy variables. Only congressmen from $C$ constituencies are included. Robust standard errors in parenthesis; *** denotes significance at 1% level; ** 5% level; * 10% level.

The second set of robustness checks are related to our measure of *Trade exposure*. As mentioned above, the CBP series mostly contains data on employment in manufacturing industries, with very little detailed information about employment in agriculture. To separately assess the role of agriculture in shaping individual congressmen behavior, we have thus tried to include as an additional control in all our regressions the share of population employed in agriculture in each congressional district, which can be obtained from the Census of Agriculture. In all cases, the estimated coefficient was negative but not significant, and there was no qualitative or quantitative change for the other explanatory variables.

The definition of *Trade exposure* that was used in our baseline regressions also excluded data on services, even if the CBP series do include information on employment in some service sectors. This is because there is no available data on trade in services by the same SIC or NAICS codes used by the CBP, which prevents us from directly classifying various activities as being import-competing or export oriented. Trade data on services can be derived from the IMF balance of payments (BoP) statistics, but is only available in large groupings (e.g., transportation, travel, construction).

We have manually matched SIC and NAICS codes to the categories of services available from the BoP statistics. Detailed service data by major categories are only available from 1986 onwards (e.g., the categories 'Construction' and 'Computer and information services' were not reported in earlier years). Thus, when using service data we had to restrict our sample to the votes that occurred from 1988 onward. Table A.2 in the Appendix reports the correspondences that we created in order to use CBP data on employment for service-related sectors. Unfortunately, we could not match some service sectors to specific SIC or NAICS code. The included sectors account on average for more than 70 percent of the value of services exports and imports for the years included in our empirical analysis. Constructing our measure of *Trade exposure* including service data, we obtain a distribution of this variable which is characterized by fewer extreme values (i.e., the maximum value is 6.3 compared to 9.5 in Figure 11) and a smaller standard deviation (i.e., 0.74 versus 0.83).[49]

The results of two of our main specifications are reported in Table 8. Columns (1) and (3) replicate the earlier results with data only on manufacturing on the shorter sample period for which service data are available (i.e., votes from 1988) in order to allow a direct comparison of the effect of including employment in the service sectors. The reported marginal effects show that the qualitative results are unchanged although the point estimates are somewhat larger than in the benchmark specifications of Tables 5 and 6. When we also include service data, all the results continue to hold. In column (2), the coefficient on *Trade exposure* is positive and significant at 1 percent. The estimate for $\text{Share}_t^C$ in specification (4) is also in line with column (3), though the results reported in these two columns are based on different observations, since the identity of $C$ constituencies is influenced by the inclusion of employment in service sectors. Thus, our main findings concerning the FTA voting behavior of U.S. congressmen are robust to the inclusion of services, even if the use of service data presents various problems, not least that our sample period is reduced.

[49] This is likely to be the result of the lower geographic concentration of services compared to manufacturing.

Table 8: Robustness checks including services

| Regressor | (1) | Including services (2) | (3) | Including services (4) |
|---|---|---|---|---|
| Trade exposure$_t^i$ | 0.086*** | 0.071*** | | |
| | (0.019) | (0.022) | | |
| Share$_t^C$ | | | -0.033*** | -0.017** |
| | | | (0.008) | (0.008) |
| Senate$^i$ | 0.110*** | 0.110*** | 0.159*** | 0.162*** |
| | (0.031) | (0.031) | (0.051) | (0.053) |
| Democrat$_t^i$ | -0.367*** | -0.374*** | -0.420*** | -0.424*** |
| | (0.019) | (0.019) | (0.032) | (0.037) |
| Trend | | | -0.013** | -0.020*** |
| | | | (0.006) | (0.005) |
| Year effects | included | included | | |
| State effects | included | included | included | included |
| Observations | 2,484 | 2,484 | 877 | 693 |
| Log likelihood | -1,550.18 | -1,193.51 | -418.48 | -336.11 |
| Pseudo $R^2$ | 0.27 | 0.27 | 0.29 | 0.26 |
| $\chi^2$ | 493.67*** | 488.05*** | 236.73*** | 166.11*** |
| Predicted Prob. | 0.68 | 0.68 | 0.64 | 0.68 |

Notes: Dependent variable, $Vote_t^i$, equal to 1 if congressman votes in favor of FTA, 0 otherwise. Marginal effects reported for all regressors, calculated as discrete changes from 0 to 1 for dummy variables. Data are from the period 1988-2002. Only congressmen from $C$ constituencies (based on $g = 0.30$) are included in columns (3) and (4). Robust standard errors in parenthesis; *** denotes significance at 1% level; ** 5% level; * 10% level.

A final check concerning our measure of *Trade exposure* focuses on within-county heterogeneity. Recall that we have constructed employment variables for congressional districts by aggregating county-level data. For those counties which are split between different districts, we have imputed employees proportionally to the share of the population of a county assigned to that district. This procedure may lead to an imprecise measurement of *Trade exposure* for those counties that span many districts, if they are very diverse in terms of the geographic distribution of production activities. To deal with this issue, we have performed our estimations leaving out those counties which are split in more than ten districts, i.e., Los Angeles county in California (17 congressional districts) and Cook county in Illinois (12 congressional districts). The results were not affected.

A third set of robustness checks concerns our *methodology*. Instead of using robust standard errors, we have clustered the errors by constituency, thus allowing for intra-group correlation over time. Notice that standard errors can only be clustered by state and not by congressional

districts. This is because, as discussed in section 5, congressional districts are redefined by the Census every ten years, implying that the clusters would change over time. When we follow this approach, the sign and significance levels of our main variables of interest in all the specifications presented in Section 6 are unchanged.

As an additional robustness check, we have estimated our main specifications by decades in order to put more emphasis on cross-sectional variation instead of the time dimension. To this end, we have defined three subsamples following each decennial Census starting with the first year for which the new districts were defined, i.e., 1973-1982, 1983-1992, and 1993-2002. The results for the two more recent decades are qualitatively similar to the ones reported earlier for the full sample, while this is not the true for the first subsample. However, analyzing the first decade in isolation is not very meaningful since the data do not exhibit much variation as the votes in 1974 and 1979 passed with an overwhelming majority (see Table 1) and the vote of 1973 is not included because of data problems (see discussion in Section 2).

We have also experimented with a series of minor variations of our main specifications. For example, we have tried substituting the year fixed effects with U.S. wide macroeconomic variables, such as GDP growth and unemployment rates. While the coefficients of these regressors were mostly significant and positive, the qualitative results of our analysis remained unchanged. We have also performed estimations using only the sample of congressional votes on FTA, excluding votes which also included other trade provisions. This subset includes only the votes which took place in 1991, 1993 and 1998 (see Table 1 above). The results showed no substantial qualitative change when restricting the sample in this way.

In general, our empirical analysis provides strong support for the theoretical predictions of our model concerning legislators' FTA voting behavior (Propositions 3 and 4 above). Other control variables, even when significant, do not affect this result.

# 8 Conclusions

In this paper, we have developed a simple two-country trade model to examine the determinants of the decision of U.S. congressmen to grant fast track authority to the President, which entails giving up the possibility to amend negotiated trade deals. Our model emphasizes the role played by the size of the constituencies represented by the executive and the legislators, as well as the geographic heterogeneity in the distribution of economic activities across constituencies. In line with the predictions of our theoretical model, our analysis of all FTA votes taken between 1974 and 2002 shows that the legislators' voting behavior depends on the trade policy interests of their own constituencies, as well as on the composition of the majority of Congress.

We conclude by discussing the implications of our analysis for institution design. Our theo-

retical model is focused on trade negotiations between two countries, in the presence of a crucial asymmetry between them: in the home country, Congress can decide whether or not to delegate trade negotiating authority to the President (granting FTA) or to retain amendment power (not granting FTA). This modeling choice is motivated by the observation that the United States is the only country in which Congress can decide whether or not to retain the power to amend trade agreements. Our analysis shows that this institutional asymmetry can generate an advantage for the home country, skewing negotiated tariff outcomes in its favor. This is because, by being represented by a protectionist Congress majority, the home country can be a "tougher bargainer" in trade negotiations, thus obtaining larger concessions from the foreign country.[50]

More generally, depending on the extent to which Congress is involved in the negotiations, we can distinguish three possible institutional arrangements on which basis a country can negotiate international trade deals:

> *Full delegation*: a scenario in which the President retains complete decision-making power over trade policy and trade agreements are not subject to congressional approval;
>
> *Partial delegation*: a scenario in which Congress retains the power to reject trade agreements negotiated by the executive;
>
> *No delegation*: a scenario in which Congress retains the power to shape trade deals through amendments.

The current U.S. institutional setting rules out the first possibility and involves the recurrent choice between the last two arrangements, i.e., partial delegation (FTA) and no delegation. While our analysis has focused on the determinants of fast track voting decisions in the United States and their implications for trade negotiations, our model can help to shed light on broader institutional design questions that can arise in the context of international negotiations. For example, our theoretical framework could be used to examine the implications of the three possible institutional arrangements from the point of view of world welfare.

Our model could be easily extended in two directions, which would both tend to make granting fast track more desirable. The first extension involves moving to a multi-country setting. Our two-country setup shows that home (the U.S.) can gain if Congress retains amendment power. This conclusion may be reversed if there are more negotiating partners. This is because, in the absence of FTA, U.S. trading partners may decide to negotiate with other countries instead. As pointed out by Bhagwati in a recent interview with the Council of Foreign relations, "if we

[50]In line with this view, during the period in which President Clinton lacked FTA, it was argued that U.S. "trading partners are negotiating with the US Congress through the administration ( ...) In effect, the administration appears to be intent on taking advantage of the anxiety of other trading partners, by asking them to pay a price now before going to the Congress" (see www.sunsonline.org).

don't have fast track, we are going to lose out in the race for bilaterals. When the Europeans try for bilaterals, we've sort of stopped them in their tracks by joining in and pushing for these things ourselves. Now, we could get handicapped, because we're the only country in the world that requires fast track. But I'm optimistic, for a perverse reason, which is that in our own self interest we will have to pass some form of fast track. Otherwise we'll be big sore losers in the world trade system" (see www.cfr.org).

The second extension involves making the model symmetric, i.e., allowing the foreign country to have a similar institutional arrangement as the home country. This would be the case, for example, if the EU Council of Ministers was allowed to retain the power to amend negotiated trade agreements. In this scenario, both countries might be tempted to leave trade negotiations in the hands of protectionist legislators, so as to attempt to skew trade agreements in their favor. However, as suggested by the theoretical literature on strategic delegation in bargaining (see Jones, 1989), if they both did so, they would end up being worse off than if they could commit to delegate trade negotiations to their executives.

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# Appendix

## Indifference Curves for the Home Country

In this section, we characterize the shape of the indifference curves of the various agents in our home economy. We start by considering the preferences of the President and then turn to the preferences of the representatives of the $M$, $S$ and $C$ constituencies.

As in Mayer (1981), we draw the indifference curves in the $(\tau, \tau^*)$ space. Totally differentiating equation (5) and setting $dW = 0$ the slope of the executive's indifference curve is given by

$$\frac{d\tau^*}{d\tau} = -\frac{\left[\frac{\partial R_1}{\partial \tau} + \frac{\partial T}{\partial \tau} + \frac{\partial \Omega}{\partial \tau}\right]}{\left[\frac{\partial R_2}{\partial \tau^*} + \frac{\partial \Omega}{\partial \tau^*}\right]} \tag{A.1}$$

and substituting we obtain

$$\frac{d\tau^*}{d\tau} = \frac{M_1 \frac{d\pi_1}{d\tau}(1 - \tau\epsilon^*)}{M_2 \frac{d\pi_2}{d\tau^*}}, \tag{A.2}$$

where $\epsilon^* = \frac{dM_1^*}{dp_1^*}\frac{p_1^*}{M_1^*} > 0$.

Notice that, since the home country imports good 1 and exports good 2, we must have $M_1 > 0$ and $M_2 < 0$. Also, as long as goods 1 and 2 are normal, an increase in their price will decrease overall consumption, implying

$$\frac{d\pi_1}{d\tau} = -\frac{\pi_1 \frac{dM_1}{dp_1}}{\frac{dM_1}{dp_1}(1+\tau) + \frac{dM^*}{dp_1^*}} < 0, \tag{A.3}$$

$$\frac{d\pi_2}{d\tau^*} = -\frac{\pi_2 \frac{dM_2}{dp_2^*}}{\frac{dM_2^*}{dp_2^*}(1+\tau^*) + \frac{dM}{dp_2}} < 0. \tag{A.4}$$

This implies that the denominator of the term on the right hand side of equation (A.2) is positive. Turning now to the numerator, its sign depends on the the sign of $(1 - \tau\epsilon^*)$. It follows immediately that

$$\frac{d\tau^*}{dt} \geq (<)0 \Leftrightarrow \tau \leq (>), \frac{1}{\epsilon^*} \tag{A.5}$$

where $\hat{\tau} = \frac{1}{\epsilon^*}$ is the home country's optimal tariff as derived in (7). Therefore, for non-negative values of $\tau$, the slope of the home country's indifference curves is positive, zero or negative depending on the home country's actual tariff rate being less than, equal to, or larger than its optimal tariff.

We turn now to the indifference curves of the representatives of the various constituencies, which determine FTA voting decisions in Congress. From equation (12) we know that the shape of the indifference curves of the representative of constituency $C$ is identical to the one of the President. Consider instead the representative of the import competing $M$ constituency. Totally differentiating equation (10), and setting $dW^M = 0$, we obtain that

$$\left(\frac{d\tau^*}{d\tau}\right)^M = -\frac{\left[\alpha_1^M \frac{\partial R_1}{\partial \tau} + h\left(\frac{\partial T}{\partial \tau} + \frac{\partial \Omega}{\partial \tau}\right)\right]}{\left[\alpha_2^M \frac{\partial R_2}{\partial \tau^*} + h\frac{\partial \Omega}{\partial \tau^*}\right]}. \tag{A.6}$$

Notice that, compared to the right hand side of equation (A.1), the numerator is bigger and the

denominator is smaller in absolute value, since $\alpha_1^M > h > \alpha_2^M$. Thus, as shown in Figure 5, the indifference curves of the representatives of $M$ import constituencies are *steeper* than those of the $C$ representative and/or of the home country as a whole. From this, it immediately follows that $M$ representative's most preferred domestic tariff $\hat{t}^M$ is larger than the tariff most preferred by the executive, i.e.,

$$\hat{\tau}^M > \hat{\tau} = \hat{\tau}^C. \tag{A.7}$$

Consider now the representative of the $S$ constituency. Totally differentiating equation (11) and setting $dW^S = 0$, we obtain

$$\left(\frac{d\tau^*}{d\tau}\right)^S = -\frac{\left[\alpha_1^S \frac{\partial R_1}{\partial \tau} + h\left(\frac{\partial T}{\partial \tau} + \frac{\partial \Omega}{\partial \tau}\right)\right]}{\left[\alpha_2^S \frac{\partial R_2}{\partial \tau^*} + h\frac{\partial \Omega}{\partial \tau^*}\right]} \tag{A.8}$$

Notice that, compared to the right hand side of equation (A.1), the numerator is smaller and the denominator is bigger in absolute value as $\alpha_2^S > h > \alpha_1^S$. Thus, for each $\tau$, the indifference curve of the representative of the $S$ constituency is *flatter* than the indifference curve of the President and/or representative $C$. As a result, representative $S$ most preferred tariff $\hat{\tau}^S$ is smaller than the tariff most preferred by the executive. Thus, we have established the following ranking of optimal domestic tariffs for the legislators in the home country:

$$\hat{\tau}^M > \hat{\tau} = \hat{\tau}^C = \frac{1}{\epsilon^*} > \hat{\tau}^S. \tag{A.9}$$

## Characterization of the Contract Curve ($CC$ locus)

We can now proceed to characterize the set of efficient agreements between the home and foreign country. We start by considering the set of efficient agreements that could be signed by the Presidents of the two trading partners. This set is represented by the combinations of tariff levels $(\tau, \tau^*)$ for the two countries such that their indifference curves are tangent to each other. The slope of foreign's executive indifference curve is given by

$$\left(\frac{d\tau^*}{d\tau}\right)^* = \frac{M_1 \frac{d\pi_1}{d\tau}}{M_2^* \frac{d\pi_2}{d\tau^*}(1 - \tau^*\epsilon)}. \tag{A.10}$$

To characterize the contract curve between the two welfare-maximizing executives, we simply impose tangency of their indifference curve by setting

$$\left(\frac{d\tau^*}{d\tau}\right)^* = \frac{d\tau^*}{d\tau} \tag{A.11}$$

and recalling that $M_1 = -M_1^*$ and that $M_2^* = -M_2$, the set of efficient agreements between the two Presidents must then satisfy the condition

$$(1 - \tau\epsilon^*)(1 - \tau^*\epsilon) - 1 = 0 \tag{A.12}$$

This condition implies that the set of efficient agreements goes through the origin, i.e., through the free trade point.

Table A.1: List of SIC and NAICS industries

| SIC | Description |
|---|---|
| 20 | Food and Kindred Products |
| 21 | Tobacco Products |
| 22 | Textile Mill Products |
| 23 | Apparel and Other Finished Products Made From Fabrics and Similar Materials |
| 24 | Lumber and Wood Products, Except Furniture |
| 25 | Furniture and Fixtures |
| 26 | Paper and Allied Products |
| 27 | Printing, Publishing, and Allied Industries |
| 28 | Chemicals and Allied Products |
| 29 | Petroleum Refining and Related Industries |
| 30 | Rubber and Miscellaneous Plastics Products |
| 31 | Leather and Leather Products |
| 32 | Stone, Clay, Glass, and Concrete Products |
| 33 | Primary Metal Industries |
| 34 | Fabricated Metal Products, Except Machinery and Transportation Equipment |
| 35 | Industrial and Commercial Machinery And Computer Equipment |
| 36 | Electronic and Other Electrical Equipment and Components, Except Computer Equipment |
| 37 | Transportation Equipment |
| 38 | Measuring, Analyzing, And Controlling Instruments; Photographic, Medical and Optical Goods; Watches And Clocks |
| 39 | Miscellaneous Manufacturing Industries |
| NAICS | Description |
| 311 | Food Manufacturing |
| 312 | Beverage and Tobacco Product Manufacturing |
| 313 | Textile Mills |
| 314 | Textile Product Mills |
| 315 | Apparel Manufacturing |
| 316 | Leather and Allied Product Manufacturing |
| 321 | Wood Product Manufacturing |
| 322 | Paper Manufacturing |
| 323 | Printing and Related Support Activities |
| 324 | Petroleum and Coal Products Manufacturing |
| 325 | Chemical Manufacturing |
| 326 | Plastics and Rubber Products Manufacturing |
| 327 | Nonmetallic Mineral Product Manufacturing |
| 331 | Primary Metal Manufacturing |
| 332 | Fabricated Metal Product Manufacturing |
| 333 | Machinery Manufacturing |
| 334 | Computer and Electronic Product Manufacturing |
| 335 | Electrical Equipment, Appliance, and Component Manufacturing |
| 336 | Transportation Equipment Manufacturing |
| 337 | Furniture and Related Product Manufacturing |
| 339 | Miscellaneous Manufacturing |

Table A.2: Correspondences used for service data

| BoP definition | SIC categories | NAICS categories |
|---|---|---|
| Transportation and Travel | 44: Water transportation | 481: Air Transportation |
| | 45: Transportation by air | 483: Water transportation |
| | 46: Pipelines, except natural gas | 484: Truck transportation |
| | | 485: Transit and ground passenger transportation |
| | | 486: Pipeline transportation |
| | | 487: Scenic and sightseeing transportation |
| | | 488: Support activities for transportation |
| Telecommunications services | 48: Communications | 513: Broadcasting and telecommunications |
| Construction services | 15: Building construction general contractors and operative builders | 233: Building, developing, and general contracting |
| | 16: Heavy construction other than building construction contractors | 234: Heavy construction |
| | 17: Construction special trade contractors | 235: Special trade contractors |
| Computer and information services & Other business services | 73: Business services | 514: Information services and data processing services |
| | 81: Legal services | 541: Professional, scientific, and technical services |
| | 87: Engineering, accounting, research, management, and related services | 551: Management of companies and enterprises |
| | | 561: Administrative and support services |

Note: We excluded the sectors 'Postal and courier services', 'Royalties and license fees', 'Insurance services', 'Financial services', 'Personal, cultural, and recreational services', and 'Government services', for which IMF BoP data could not be matched to SIC/NAICS categories.