Beyond Finance: Why Countries Liberalize Financial Markets

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April 30, 2023

What explains the fragmented liberalization of financial services around the world? Most studies examined either why countries liberalize or why they vary in the level of liberalization, but not both. I present an integrated explanation of governments' dual preferences of liberalization and protection in the financial market that leads to fragmented liberalization. I argue that countries open their financial market so that their domestic industries, in which they *do* have comparative advantages, can access foreign financial services and capital, while also including more restrictions to protect domestic financial firms. I test this argument using new measures of financial linkages in 133 countries and a novel dataset on financial trade restrictions. I show that countries with greater needs for financial services are more likely to join the multilateral Financial Services Agreement at the WTO but also increase the number of restrictions to protect domestic financial firms, thereby leading to fragmented liberalization. Moreover, I show that the effect on restrictions is greater when the country has a high government share of ownership in the financial market. This study advances the business and politics literature by accounting for governments' complex preference of achieving economic growth while maintaining control in the strategically important financial industry.

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1 Introduction

We currently live in a financially globalized world. Financial services, such as banking, insurance, and securities services, are global. Multinational banks are now ubiquitous from Argentina to Zimbabwe. Investment banks, such as Morgan Stanley and Goldman Sachs, advise on mergers and acquisitions around the world, and AIG, an American insurer, brings in more than a third of its revenue from its foreign operations.[1] However, although we now take financial globalization for granted, financial services has not always been global – in fact, it has been local for a long time. Many countries have long erected entry barriers to prevent foreign financial firms from entering their market because they feared losing control in the strategically important financial market to foreigners.

This study is motivated by an empirical puzzle from the Financial Services Agreement (FSA) at the World Trade Organization (WTO), in which 102 countries joined the agreement to liberalize trade in financial services and lowered regulatory barriers to the entry of multinational financial firms in order to comply with the agreement. This agreement not only included developed countries, such as the US, EU, and Japan, but also developing countries, such as Malaysia, Kenya, and Lesotho. However, countries varied their level of liberalization: many of them embedded restrictions in their liberalization schedules, such as what types of firms can enter and what kinds of financial services are allowed. The puzzle is why do countries liberalize their financial market even if they do not have comparative advantages, and what explains variation of liberalization? Why do countries engage in fragmented liberalization?

The existing explanations for countries' decision to liberalize included power asymmetry (i.e., US influence),[2] diffusion,[3] or financial crises[4] that affect countries' voluntary or involuntary decisions to liberalize their financial market. Other studies examined regime types or the

[1] AIG 2019 Form-10K (Annual Report pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934), p.6.

[2] Hirschman (1980); Krasner (1976); Aggarwal (1985); Gilpin (2011); Abdelal and Kirshner (1999).

[3] Simmons and Elkins (2004); Abdelal (2007); Chwieroth (2007); Steinberg et al. (2018).

[4] Haggard and Maxfield (1996); Martinez-Diaz (2009); Walter (2011); Pepinsky (2012); Pempel and Tsunekawa (2015).

preferences of the selectorate to explain why democracies are more likely to liberalize their markets than others,[5] or which interest groups are likely to benefit from liberalization.[6] While these arguments account for some countries' decision to liberalize, they cannot fully explain the concurrent signing and variation in liberalization of the 102 countries in varying stages of economic, financial, and political development.

I argue that governments' complex preferences of liberalization and protection in financial liberalization shapes fragmented liberalization in financial services. Government faces a dilemma in which the entry of foreign financial firms would benefit domestic exporters and businesses access global financial services and capital (benefits of liberalization) but also introduce competition to domestic financial firms (costs of liberalization). Until recently, the demand for protection has traditionally outweighed benefits of liberalization in many countries (especially because many countries had direct or indirect control in the financial sector). However, as technological development accelerates and domestic financial firms fall behind multinational financial firms in terms of technological efficiency, the need for liberalization grew, even in countries with high government control in the financial market.

Therefore, I argue that a country is more likely to liberalize trade in financial services if its industries are heavily dependent on the financial industry for inputs to increase access to international financial services and capital but also include restrictions to protect domestic financial firms. High financial linkages means that domestic financial firms have already been active in providing financial services to industrial firms, and the entry of multinational financial firms would erode the market share of these domestic financial firms. Thus, a country includes a number of restrictions when government control in the financial industry is high in order to protect domestic financial firms from losing market share upon liberalization.

While previous studies examined either protection or liberalization, this study examines how governments weigh the pressure for protection and liberalization. In order to examine the

[5] Quinn and Woolley (2001); Mansfield et al. (2002); Milner and Kubota (2005); Eichengreen and Leblang (2008); Steinberg et al. (2018); Li et al. (2018).

[6] Grossman and Helpman (1994); Milner and Kubota (2005); Baker (2005); Kucik (2012).

demand and supply of liberalization, I advance the novel measure of financial linkages – the degrees to which firms use financial services in their production of goods and services (Acemoglu et al., 2012; Fadinger et al., 2015; Alfaro et al., 2010).[7] Just as goods are intermediate inputs in industrial production (i.e., steel is an intermediate input for automobiles, machines, and airplanes), financial services, such as banking, insurance, and securities services, are also inputs in production of goods and services in an economy. For example, soybean farms use bank loans to purchase land and machines; automobile manufacturers use insurance services to protect their export shipment; and real estate firms use loans to purchase construction materials.[8] Thus, financial linkage represents the financial industry's centrality within the economy vis-a-vis other industries and the extent of financial dependence in the economy.[9]

I analyze the effects of financial linkages on fragmented liberalization in 133 countries in two steps. First, I first examine whether financial linkage increases countries' likelihood of joining an international liberalization agreement on financial services. Second, I examine how financial linkage affects countries' level of liberalization. I create a new dataset that codes the restrictiveness of liberalization in countries' schedules.

I find that countries are more likely to join an international financial services liberalization agreement if they have greater and cross-cutting needs for financial services in their economy, as measured by inter-industry financial linkages. This finding is robust to controlling for alternative explanations, such as US influence, the level of economic and financial development, and regime type. I find that countries with higher financial linkages have more conditions of liberalization and this is more pronounced in countries with high government share in the financial sector,

[7] This study builds on the literature in macroeconomics that examines the effects of inter-sectoral linkages in the economy and examines how financial linkages proxy for the multiplier of the financial sector to the rest of the economy: the larger the multiplier, the more central the sector is in the economy. See Gabaix (2011); Acemoglu et al. (2012); Fadinger et al. (2015).

[8] Previous studies have identified the manufacturing sector's demand for services inputs as the driving force behind services growth (Francois, 1990; Rowthorn and Ramaswamy, 1999). Service inputs account for a large part of the value-added of manufacturing exports (Lodefalk, 2014; Miroudot and Cadestin, 2017; Hoekman and Shepherd, 2017) and this effect is greater for developing countries (Díaz-Mora et al., 2018).

[9] There are other measures of financial dependence, such as a firm's share of assets financed with debt (Cetorelli and Strahan, 2006) or the connectedness between financial institutions (Diebold and Yılmaz, 2015).

thereby resulting in fragmented liberalization in financial services.

This study makes three main contributions. First, it helps us better understand the determinants of market liberalization by disaggregating governments' preferences in financial services and maps these preferences to strategies in liberalization. This study brings governments' objectives in liberalization to the forefront. It uses inter-industry input-output relations and government control in the financial market as determinants of liberalization and shows how such linkages incentivize (and constrain) politicians' preferences across countries. It also highlights the enduring power of state capitalism, which has been considered as a historical artifact, is quietly resurging as the world's top four largest financial firms as of 2023 are all (Chinese) state-owned financial firms.[10]

Second, by analyzing trade in financial services, this study bridges the literatures on international finance and trade, which have been examined separately up until now. Prior studies on international trade have focused largely on trade in goods liberalization.[11] On the other hand, the international finance literature has largely examined policies on capital flows, such as capital account liberalization and capital control policies.[12] While the literature on capital account liberalization takes foreign financial flows as exogenous, the study of trade in financial services *endogenizes* these cross-border capital flows by examining how financial service providers first establish cross-border presences and transact these capital flows as studied in the literature.[13] Thus, this study contributes to the literature on endogenous financial and trade openness.[14]

Third, this paper advances a new measure of linkage that can be applicable beyond the financial industry. The importance of issue linkages in international trade negotiations and international regimes has been well-established (Haas, 1980; Aggarwal, 1998; Abbott and Snidal,

[10]The world's largest financial firms, in terms of assets, is ICBC, followed by Bank of China, Construction Bank of China, and Agricultural Bank of China.
[11]Milner 1988a,b; Melitz 2003; Kim 2017; Osgood 2018.
[12]Quinn 2003; Mosley 2003; Chwieroth 2007; Chinn and Ito 2008; Mosley and Singer 2008; Quinn and Toyoda 2008; Mukherjee and Singer 2010.
[13]Markusen 1989; Francois and Hoekman 2010; Eichengreen and Gupta 2011; Marchetti and Mavroidis 2011; Weymouth 2017; Bernard et al. 2018; Baccini et al. 2019.
[14]Beck 2002; Chinn and Ito 2006; Aizenman and Noy 2009.

1998; Davis, 2004). The concept of inter-industry linkages, or how other industries depend on an industry's production for their inputs, also applies to other service industries that serve as a platform for other sectors, such as in the ICT industry (i.e., Amazon and Facebook). This framework can identify stakeholders beyond the industry under study and preferences of firms that take into account of their input producers (upstream) and their consumers (downstream). Thus, it brings in global value chain to understand the politics of liberalization beyond the sector under discussion.

In the following sections, I explain trade in financial services and the WTO Financial Services Agreement in more detail. I then introduce the theory of financial linkage and the new measure of financial linkages. I discuss my empirical analyses on fragmented liberalization in two parts, first examining the effect of financial linkage on the probability of joining the FSA, and second, on the cross-country variation of financial services liberalization. I conclude with a discussion of this study's implications for the politics of international liberalization of trade in financial services.

2 International Negotiation in Trade in Financial Services

Service, which has traditionally been considered "untradable" due to its intangible nature, began to be traded in the 1970s as technological development, especially in communications technology, enabled fast cross-border information transfer. As service providers were able to provide services across borders and expanded to new markets, it became clear that the traditional governing framework in trade in goods (General Agreement on Tariffs and Trade) that focused on tariffs on goods was insufficient to govern trade in services. Service liberalization often dealt with behind-the-border barriers and domestic regulations due to the localized nature of services and required a new framework for international cooperation on cross-border services provision. Thus, countries began to discuss new rules governing trade in services, the General

Agreement on Trade in Services (GATS), following the conclusion of the Tokyo Round in 1982.[15] However, while countries agreed on the overall GATS framework, they could not reach an agreement in trade in financial services, specifically due to the importance of the financial sector to national governments and the turf battle between trade negotiators and finance ministers. Thus, countries spun it off as a separate single-sector negotiation after the Uruguay Round in 1994.

After years of negotiations, 102 countries finally agreed to liberalize financial services in banking, insurance, security, and other auxiliary financial services on December 12, 1997. These countries accounted for 95% of the world trade in financial services at the time, around "$17.8 trillion in global securities assets; $38 trillion in global (domestic) bank lending; and $2.2 trillion in worldwide annual insurance premiums," which was larger than any country's GDP at the time (or even until recently).[16] Signatories agreed on a set of principles of liberalization, such as transparency and non-discrimination, and to update their domestic regulations in line with the international framework.

Trade in financial services bridges current account liberalization and capital account liberalization (financial flows) that it explains how capital flows were possible in the first place by accounting for the entry of multinational financial firms.[17] Trade in financial services is a part of trade in services and is a growing area of trade, which now accounts for 40% of total world trade.[18] Financial services is the second largest category in trade in services after distribution services and accounts for about 19% of trade in services.[19] *Trade* in financial services measures the commission on cross-border banking, insurance, and securities services and encompasses long-term FDI in the financial sector, such as establishing branches, subsidiaries, and wholly-owned financial firms (i.e., Citibank in China, Credit Suisse in the US).[20] To distinguish between

[15] Financial services were initially negotiated along with other services, such as legal and tourism services, under the GATS.
[16] White House, Statement by Secretary Rubin and Ambassador Barshefsky, Dec. 13, 1997; USITC (1998), 18.
[17] Dobson and Jacquet (1998); Mattoo (1999); Tamirisa et al. (2000); Pepinsky (2013).
[18] WTO. 2019. *World Trade Report 2019: The Future of Services Trade.*
[19] *Ibid*.
[20] Quinn and Inclan (1997); Dobson and Jacquet (1998); Mattoo (1999); Kireyev (2002).

services and capital, first consider a realtor's commission versus house value. A realtor takes an average of 3% of the house value ($300,000) for her commissions ($9,000). Similarly, a financial service provider takes a commission from the loans, insurance products, or securities she transacts;[21] if a cross-border loan commission is 2% on a $2 million loan, financial services would enter the current account as $40,000 and financial flows of $2 million would be captured in the financial account.[22]

Trade in financial services, as a part of the General Agreement on Trade in Services (GATS), distinguishes between four modes of supply: cross-border trade, consumption abroad, commercial presence, and the natural movement of persons. *Cross-border trade* (mode 1) takes place when services are provided across borders, for example, if an insurance company in the Netherlands (i.e., ING) sells insurance services to residents in the US over the phone, via the Internet, or by mail. *Consumption abroad* (mode 2) occurs when a person purchases services when traveling abroad, for instance if a US citizen travels to Italy and buys travel insurance while abroad. *Commercial presence* (mode 3) describes the establishment of business presence in host markets through the acquisition of local firms (mergers and acquisitions) or the establishment of new firms (greenfield investment). For example, if an American financial firm (i.e., Citibank) opens a branch in France or Thailand, it is engaging in trade in financial services. Liberalizing FDI through commercial presence (mode 3) has been the most contentious method of entry because it increases competition in the market. *Natural movement of persons* (mode 4) is work-related migration in which a company's employee moves abroad to work in a subsidiary or branch. If a US citizen moves to France to work for Citibank's French office, she is engaging in trade in financial services. As many people oppose the free movement of persons across borders, this mode of supply is severely restricted in many countries.[23]

[21] Financial services rates are determined by fees that are assessed on a flat rate (per task), fixed rate (per hour), commission (percentage), or transaction profit basis. For more information, see Asmundson (2011).

[22] Under the service categories in UN EBOPS 2010, financial services "may be charged for by: explicit charges, margins on buying and selling transactions, asset management costs deducted from property income receivable, in the case of asset-holding entities, and margins between the interest rate and the reference rate on loans and deposits referred to as financial intermediation services indirectly measured or FISIM." IMF. 2009. Balance of Payments Manual, Sixth Edition, p.172.

[23] According to the 2019 WTO World Trade Report, commercial presence (mode 3) accounts for 58.9% of total

Trade in financial services liberalization through the FSA finally broke down the half-century division of labor between the WTO and the IMF in global economic governance. It represents the first (and remains the only) multilateral agreement on financial services liberalization, in which countries agreed to open up their markets to foreign direct investment (FDI) in the financial sector and cross-border financial services.[24] Moreover, the FSA continues to be relevant in the global governance in trade in financial services. Since its implementation, the FSA has since served as the blueprint for the financial services chapter in the bilateral FTAs that proliferated since the Doha Round.[25] Many FTAs now contain chapters of trade in financial services that are similar to their multilateral FSA schedules, in terms of format and content.

3 Theoretical Argument: Financial Linkages and Liberalization

What explains fragmented liberalization in trade in financial services? One of the most prominent arguments in international relations is that strong countries force open the markets of weak countries for economic or security benefits (Hirschman, 1958; Krasner, 1976; Aggarwal, 1985; Steinberg, 2002). This argument explains most international negotiations, and undoubtedly, US influence was the undercurrent in international financial services liberalization negotiations as well. The US has comparative advantages in financial services and its financial firms wanted to lower entry barriers in the financial industry around the world, so the US strongly pushed for a full worldwide liberalization of trade in financial services. However, not withstanding US influence, countries that were pushed the most by the US, such as Korea, Brazil, and Thailand, embedded the highest number of restrictions. At the same time, some developing countries that were not of interest to the US financial firms joined the agreement. Thus, the power asymmetry

trade in services. Cross-border trade (mode 1) is the second highest at 27.7%, consumption abroad (mode 2) accounts for 10.4%, and the presence of individuals in another country (mode 4) accounts for 2.9% (WTO, 2019).

[24] See Dobson and Jacquet (1998) for country cases of the FSA negotiations. There were four sectoral negotiations in the post-Uruguay Round: information technology, basic telecommunications, financial services, and maritime services. Telecommunications reached an international agreement, the 1996 Basic Telecommunications Agreement. See Aggarwal (1992) for more on sectoral agreements in the services sector.

[25] For the determinants of FTA proliferation, see Mansfield and Reinhardt (2003).

argument does not fully explain why countries engaged in fragmented liberalization instead of full liberalization.

Other studies contribute liberalization to financial crisis or diffusion. For example, crisis-affected countries may voluntarily open in order to attract foreign capital or involuntarily open as a condition of the IMF loan packages (Haggard and Maxfield, 1996; Martinez-Diaz, 2009; Walter, 2011; Pepinsky, 2012). The idea of liberalization may also spread across countries as they emulate rich countries, either regionally, or as they are socialized at international organizations (Simmons and Elkins, 2004; Chwieroth, 2007; Steinberg et al., 2018).

Previous studies have also examined regime type or interest groups that push governments to liberalize their financial markets. A rich literature examined whether and why democracies are more likely to join the international liberalization agreement (Quinn and Woolley, 2001; Milner and Kubota, 2005; Milner and Mukherjee, 2009; Eichengreen and Leblang, 2008; Steinberg et al., 2018). Closely related to this argument is that domestic interest groups that benefit from liberalization push their governments to join international liberalization agreements (Rogowski, 1989; Frieden, 1991; Garrett, 1998; Quinn and Toyoda, 2007; Pinto, 2013; Pepinsky, 2013; Steinberg et al., 2018; Danzman, 2019).

The theory of financial linkages provides insight into why some countries liberalize their financial markets, even those without comparative advantages in financial services, and why they vary in the level of liberalization. The paradox of fragmented liberalization occurs when governments must balance the interests of non-financial firms (for more capital) and domestic financial firms (for protection).[26] Opening the financial sector would bring in foreign firms with technical know-how and organizational skills, helping industrial firms that depend on financial inputs to access a variety of financial services.[27] However, it would also introduce competition to domestic financial firms and inefficient and debt-ridden state-owned financial

[26]Domestic incumbent firms' fear of competing with foreign entrants, often large and more efficient multinational firms, has been well-established in the literature. Claessens et al. 2001; Rajan and Zingales 2003; Micco et al. 2007; Pepinsky 2013.

[27]Rajan and Zingales (2003); Brooks (2004).

firms. The need for financial market liberalization increases as the technological gap, especially in communications technology, widened between foreign financial firms and domestic financial firms.[28] As the world financial market becomes more integrated and as international trade and finance expand, exporters would benefit from seamless cross-border financial transactions and domestic firms from more foreign investment. By allowing multinational financial firms' entry into their markets, governments can help their domestic champions, such as firms in the mining and manufacturing industries in which they have comparative advantages, access external capital and financial services, and introduce technical and management know-hows to domestic financial firms.[29]

I argue that the increasing importance of finance in the economy for economic growth pushes governments to liberalize their long-closed financial market but, at the same time, also include more restrictions while liberalizing. I argue that financial linkages – how the financial industry's outputs (financial services) are used as intermediate inputs by another industry – shapes governments' preferences to engage in fragmented liberalization. My first empirical expectation is that countries with high financial linkages are more likely to join the FSA. Countries with higher financial linkage benefits from liberalization as a large number of industries would be able to access a variety of financial services and capital from the entry of multinational financial firms as in Krugman (1979)'s love-of-variety model (in this case, users of financial services). However, higher financial linkages mean that domestic financial firms have already been providing financial services to these firms, and the entry of multinational financial firms would threaten the market share of domestic financial firms.[30]

However, government ownership of financial firms also presents a dilemma between liberalization and protection. In many countries, governments themselves directly or indirectly control the financial sector. It has been well-known in the literature that state-owned financial firms often have huge debt problems and suffer from technological backwardedness due to

[28] Andrews (1994).
[29] Markusen (1989); Frieden (1991); Deardorff (2001).
[30] For the distributional implications of cross-border capital flows, see Frieden (1991).

their inherent soft budget constraint problems (Roland, 2000; Kornai et al., 2003; Weill, 2003). Liberalization would introduce competition and technical and management know-hows to domestic financial firms. However, they would also have to compete with larger and more efficient multinational financial firms in their markets. If they lose market share, government's control in the financial sector would also erode. Since most governments consider the financial sector politically and economically important, this presents a dilemma for governments. Thus, the more connected the financial industry is to the rest of the economy, countries are more likely to join the multilateral liberalization agreement to allow foreign financial firms to enter and help their domestic businesses but also embed more restrictions, especially as government control in the financial market increases.

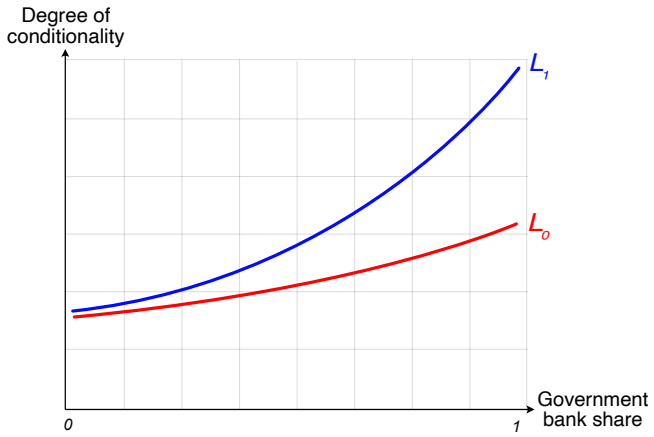


Figure 1: **Government control moderates the effect of financial linkage on the number of conditions imposed in liberalization schedules.**

Figure 1 shows this relationship graphically. Those with higher financial linkages and higher government control in the financial market are likely to have more restrictions than those with lower government bank control. When government control is low, financial linkage has little effects on the degree of conditionality (restrictions). However, as government control in the financial sector increases, the effect of linkage on restrictions increases. In summary, governments liberalize, even if they do not have a comparative advantage in financial services, to help their firms access the global financial network but also embed restrictions in areas of

strategic importance in order to control the speed of liberalization. This political economy argument explains why countries engage in fragmented liberalization when financial linkages are deep and wide in the economy.

This theory of financial linkages has three main implications for (1) our understanding of the strategic considerations of firms and governments in multilateral services liberalization, (2) why developing countries opened their financial markets to foreign entry through a multilateral agreement, and (3) how the separate literatures on international trade and finance can be integrated. First, this paper shows that the diffusion of financial liberalization policies did not happen organically over time,[31] but rather had an institutional root in a global agreement on financial services liberalization, which led to the contemporaneous opening of financial markets around the world. It also predicts why some countries are more likely to allow foreign financial firms to enter and provide services in their previously closed market and maintain control.

Second, this theory explains why the agreement attracted a large number of countries that seemingly do not have comparative advantages in financial services. Developing countries, even those without active financial markets, joined this international agreement in order to help their domestic firms in which they *do* have comparative advantages, from agriculture and manufacturing to tourism services industries, access global financial services and capital. They also sought to further develop their financial market with the entry of foreign financial firms that would bring in their technology and management know-hows. Inter-industry financial linkages enabled wide membership of the new international regime in trade in financial services.

Finally, this study bridges two distinct literatures of international finance and trade, which have been examined separately up until now. Prior studies on international trade have focused largely on trade in goods liberalization,[32] and the international finance literature has largely examined policies on short-term capital flows, such as capital account liberalization.[33] I show

[31] Simmons and Elkins (2004); Abdelal (2007); Chwieroth (2007); Steinberg et al. (2018)
[32] Milner (1988b); Melitz (2003); Kim (2017); Osgood (2018).
[33] Quinn (2003); Mosley (2003); Chwieroth (2007); Chinn and Ito (2008); Mosley and Singer (2008); Quinn and Toyoda (2008); Mukherjee and Singer (2010).

that we can no longer examine trade openness and financial openness separately to understand the patterns of cross-border capital flows and the impact of financial development on economic growth.[34] Trade in financial services liberalization removes barriers to cross-border provision of financial services as well as long-term FDI in the financial sector that facilitates short-term capital flows in the capital account. By examining the agreement on trade in financial services, this study contributes to the literature on endogenous financial and trade openness[35] as well as to the growing literatures on trade in services and global value chains.[36]

4 Data and Measurement

Measuring financial trade openness

I analyze the FSA schedule of liberalization commitments that each country submitted to the WTO. A country's schedule contains detailed information on which areas the government liberalizes or protects. Figure 2 shows an excerpt of the US liberalization schedule under the FSA. The first page of the US schedule shows state-by-state restrictions in market access against government-owned or -controlled insurers in life and non-life insurance (second column).[37] I

[34] Claessens et al. (2001), King and Levine 1993, Levine 1997, Rajan and Zingales 2003.

[35] Beck (2002); Chinn and Ito (2006); Aizenman and Noy (2009).

[36] Markusen (1989); Francois and Hoekman (2010); Eichengreen and Gupta (2011); Marchetti and Mavroidis (2011); Jensen et al. (2015); Johns and Wellhausen (2016); Weymouth (2017); Meckling and Hughes (2017); Bernard et al. (2018); Osgood (2018); Baccini et al. (2019).

[37] A schedule is comprised of an m*n matrix, in which m is a type of financial service business, and n is a type of restriction. Financial services schedules follow the positive-list style of the GATS schedule in which a country lists the (sub)sectors to be liberalized, unlike a negative-list style in which only the (sub)sectors listed are to be excluded from liberalization. Schedules list horizontal restrictions that apply to the financial sector in general as well as specific restrictions that apply to subsectors of the financial services industry. The types of financial services (m) are largely divided into two categories: (1) insurance and banking and (2) other financial services (excluding insurance). These two categories are further divided into subcategories of financial services: the insurance subsector is divided into five subcategories (life insurance, non-life insurance, reinsurance, insurance intermediation (such as agency and brokerage), and auxiliary insurance services such as actuarial services and insurance and pension consultancy services.) and the banking subsector is divided into two subcategories, which are banking (acceptance of deposits, lending of all types, financial leasing, guarantees and commitments, and payment and money transmission services) and non-banking financial services (trading and securities issuance, including securities underwriting, money brokerage, asset management, financial consultancy, and financial information provision). Restrictions are largely divided into two types of limitations: market access (entry barriers for foreign financial service providers) and national treatment (discriminatory treatment between domestic and foreign financial service providers). Each type of limitation contains restrictions based on four

THE UNITED STATES OF AMERICA
SCHEDULE OF SPECIFIC COMMITMENTS

Modes of supply: 1) Cross-border supply 2) Consumption abroad 3) Commercial presence 4) Presence of natural persons

Sector or Sub-sector	Limitations on Market Access	Limitations on National Treatment	Additional Commitments
7. FINANCIAL SERVICES A. INSURANCE: 1. Commitments in this subsector are undertaken in accordance with the Understanding on Commitments in Financial Services (the "Understanding"), subject to the limitations and conditions set forth in these headnotes and the schedule below. 2. The market access commitments in this subsector in respect of mode (1), as described in paragraph 2(a) of Article I of the Agreement, are limited to the services indicated in paragraphs B.3(a) and B.3(b) of the market access section of the Understanding. The market access commitments in this subsector in respect of mode (2), as described in paragraph 2(b) of Article I of the Agreement, are limited to the services indicated in paragraphs B.4(a) and B.4(b) of the market access section of the Understanding. It is understood that paragraph B.4 of the Understanding does not require that non-resident financial service suppliers be permitted to solicit business, and no commitment to such solicitation is undertaken. 3. National treatment commitments in this subsector are subject to the following limitation: national treatment with respect to services and service suppliers will be provided according to a non-U.S. service supplier's state of domicile, where applicable, in the United States. State of domicile is defined by individual states, and is generally the state in which an insurer either is incorporated, is organized or maintains its principal office in the United States. 4. Commitments in this sector do not cover measures set out in the entry applicable to "Insurance" in the United States list of exemptions from Article II.			
Direct Insurance a) Life, Accident, and Health Insurance Services (except workers compensation insurance) b) Non-Life Insurance Services	1) Government-owned or government-controlled insurance companies, whether US or foreign, are not authorized to conduct business in: Alabama, Alaska, Arkansas, California, Colorado, Connecticut, Delaware, Georgia, Hawaii, Idaho, Kansas, Kentucky, Maine, Maryland, Montana, Nevada, New Jersey (only with respect to surplus lines), New York (non-life companies are authorized; life and health companies are not), North Carolina, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Washington, West Virginia, Wyoming.	1) A one per cent federal excise tax is imposed on all life insurance premiums and a four per cent federal excise tax is imposed on all non-life insurance premiums covering US risks that are paid to companies not incorporated under US law, except for premiums that are earned by such companies through an office or dependent agent in the United States. When more than 50 per cent of the value of a maritime vessel whose hull was built under federally guaranteed mortgage funds is insured by a non-US insurer, the insured must demonstrate that the risk was substantially first offered in the US market.	The United States undertakes the obligations contained in Additional Commitments Paper I attached hereto.

Figure 2: An excerpt of the US schedule in the FSA. This page shows US general commitments in the insurance sector as well as specific commitments within the sector such as direct insurance that includes life, accident, and health insurance services and non-life insurance services.

code all final commitment schedules submitted by the final round in 1997.[38]

For each subcategory of financial services, I assign a value of 1 if there is a restriction, and 0 otherwise. For example, if reinsurance services have any restrictions in a mode of supply, I assign 1 for that mode. If a country has one restriction in mode 1, no restrictions in mode 2, three restrictions in mode 3, and is unbound (sector is closed to liberalization) in mode 4 for reinsurance, it would have a total of four restrictions in the reinsurance subsector. I then sum up all subcategories (life insurance, non-life insurance, etc.) for that country. As this measure counts the number of restrictions in all listed business lines, it shows how the government

modes of supply (see Section 2).

[38]If countries updated their 1994 interim schedules, I replaced the old schedules with their updated final schedules in 1997.

carefully controlled foreign entry in specific business areas.

The distribution of the number of financial entry restrictions has a mean of 60 and median of 49, and ranges from 0 in Barbados and 1 in Trinidad and Tobago, to 171 in Brazil and 183 in Mexico. Nearly half of the countries in the sample are in the low-restriction group (0–40 restrictions); the other half is divided between the medium (41–120) and high groups (120–183). The low-restriction group, for example, includes France, Germany, Zimbabwe, and Colombia; the medium group includes the US, Argentina, Indonesia, and Kenya; and the high group includes China, Korea, Brazil, and Singapore. This database complements other existing measures of financial openness, such as restrictions on exchange rates or capital flows, by measuring long-term foreign direct investment (FDI) regulation in the financial industry.

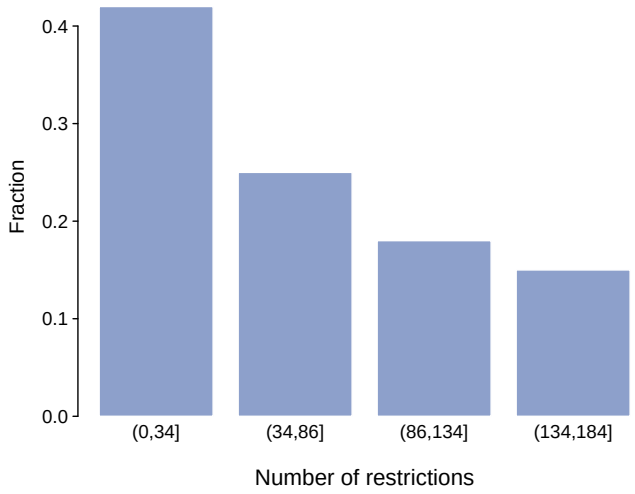


Figure 3: **Distribution of Financial Trade Openness**

Measuring Financial Linkage

The concept of industry linkages was first popularized in Hirschman's 1958 study of economic development, which showed how a rise in demand for an industry's output could lead to a corresponding increase in demand in the industry's backward or forward linkages. Industry linkages are now widely used in international economics and macroeconomics to examine the

interdependence of industries in order to measure productivity differences (Rodriguez-Clare, 1996; Jones, 2011; Bartelme and Gorodnichenko, 2015) and the multiplier effects of economic shocks across industries (Alfaro et al., 2010; Acemoglu et al., 2012; Fadinger et al., 2015). Applying this concept to the financial industry, financial linkages generate network effects: the more connected a network is, the greater the value of joining the network. Connecting more borrowers and lenders increases its value.

I measure countries' financial linkages using the network analysis concept of degree, which is based on the number of links connected to a node.[39] A degree can be further characterized as either an in-degree (the number of links coming into a node) or an out-degree (the number of links going out). Analyses of inter-industry networks use sectors as nodes and the flow of intermediate outputs as links. The weighted out-degree, or simply the degree, of sector i is the weighted share of i's output in the input supply of the entire economy (Acemoglu et al., 2012; Fadinger et al., 2015). I use the Organisation for Economic Co-operation and Development's (OECD) input–output database (OECD, 2015). Each economy has 33 industry categories, ranging from agriculture and manufacturing to services. Within each country, I calculate the weighted out-degree of the financial industry to other 32 sectors in the economy, or the extent to which its output serves as inputs in other industries, as follows:

$$d_i^{out} = \sum_j^n w_{ij}. \tag{1}$$

The measure of financial linkages sums the financial industry's output as a share of other industries' total intermediate inputs: w_{ij} = domestic financial input in sector$_j$/total intermediate and final expenditure at purchasers' prices$_j$, where j=1, 2, ..., n is a sector in the economy, such as agriculture, manufacturing, or information technology. I average this calculation over the 3 years during the final round of FSA negotiations (1995-1997) to obtain smoother estimates.

[39] Network analysis has been widely used in sociology, and is now increasingly employed in political science (Hoff and Ward, 2004; Ward et al., 2011; Jung and Lake, 2011; Kinne, 2013) and economics (Acemoglu et al., 2012; Fadinger et al., 2015). An emerging literature examines financial firms' networks (Diebold and Yılmaz, 2015).

The financial sector's weighted out-degree for each country ranges from 0.7 to 3.6 (Figure 4).

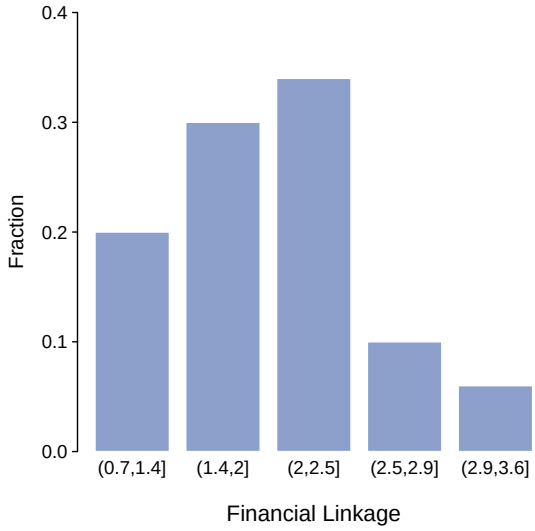
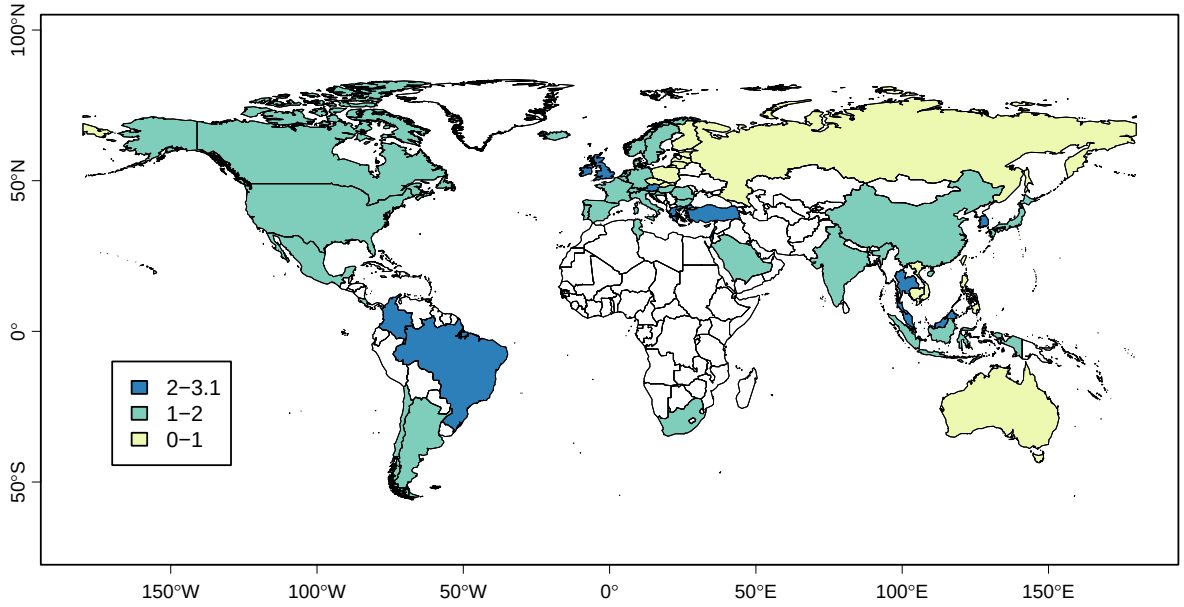


Figure 4: **Distribution of Financial Linkages**

Descriptively, the measure of financial linkage illustrates the share of financial inputs in an industry's total input supply (Appendix Figure 9). For example, applied to the computer industry, it measures the share of financial services (banking, insurance, and securities) used to produce a computer out of total inputs that go into making computers, such as machinery, telecommunications services, and real estate services. Applied to the mining industry, it measures financial services inputs as a share of total inputs into the mining industry. Aggregating the share of financial services in 32 countries' input supply, financial linkages identify a country's industrial dependence on the financial industry. The higher the share of financial inputs in industries' production of goods and services, the higher the financial linkage is for that country. It may be expected that GDP would predict the level of financial linkages. However, Figure 10 in the Appendix shows a highly nonlinear relationship between financial linkages and GDP. This finding indicates that the financial linkages measure does not simply mirror GDP; rather, it demonstrates the independent effects of financial linkages in the economy.

Figure 5 depicts the degree of financial linkages around the world. The highest financial linkages (blue) is found in medium-sized economies, such as Brazil, Colombia, Malaysia, Turkey,

Figure 5: **Financial Linkages around the World**



and Thailand.[40] The next-highest tier (green) includes some rich countries, such as the US and Canada, as well as emerging economies, such as China, India, and South Africa. The third tier of financial linkages (yellow) is found in countries with less diversified economies, such as Taiwan, Luxembourg, Russia, Vietnam, and Australia. Unfortunately, as shown in the map, the dataset is missing input-output data for many countries in Africa, and only South Africa has available data in the dataset.[41]

While this measure is based on detailed and harmonized input-output relations in an economy, it comes with a high cost as it is skewed towards OECD countries and some non-members, all of whom are likely FSA signatories. But even in this selected sample, several countries (10% of the sample) did not join the FSA, including Estonia, Taiwan, and Vietnam. To enable an analysis with a more comprehensive sample, I also use an alternative measure that proxies financial linkages, domestic credit provided by the financial services industry per GDP. It covers much

[40] The highest tier is from 2 to 3.1 because the highest linkage is Malaysia's 3.03.

[41] Appendix Figure 9 indicates the variation of each country's financial services usage and which industries are "clients" of heavy financial services in each country, indicating the share of financial inputs vis-a-vis other inputs that go into an industry's production.

more variation in the dependent variable in 133 countries, in which 43% of the sample did not join the FSA. Conceptually, these variables are similar in that they capture the financial services used by industrial firms. However, the measure of domestic credit, though wide in coverage, is limited in scope because it only covers banking services, while the measure of financial linkage covers all financial services, including banking, insurance, and securities services (i.e., loans, deposits, life insurance, non-life insurance, trading, asset management, and venture capital services).[42] Section 5 presents analyses using both measures.

Government Ownership of Financial Firms

In many countries, governments have direct or indirect share in financial firms. Financial SOEs represent the lion's share of SOEs; they even rank among the world's largest firms, accounting for 40% of the assets among the world's 2,000 largest firms, and are third-largest in terms of revenues.[43] Government ownership in finance is not limited to developing countries. Governments in developed countries, such as France, Germany, and Japan, have used state-owned financial firms or postal services as platforms to deliver banking and insurance services to the public.[44] Even the US, the free market champion, has historically played an outsized role in the mortgage industry through the government-owned Fannie Mae and Freddie Mac, which together now owns over 90% of all mortgages in the US.[45] I measure government ownership in the financial sector using La Porta et al. (2002)'s data, which captures the percentage of government ownership of the 10 largest banks in a country. Figure 6 shows the distribution of government ownership of banks.

[42] The measure of domestic credit captures credit provided to the various sectors by the financial sector, including depository institutions, finance and leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies. Data come from the World Bank World Development Indicator.

[43] IMF. April 2020. Fiscal Monitor: Policies to Support People During the COVID-19 Pandemic, Ch 3. State-Owned Enterprises: The Other Government, p.49. Figure 3.4. SOEs' Share of Assets, by Sector.

[44] Since the 1970s, the French government has sold off its shares in financial firms; it now owns shares in Dexia and CNP Assurances, which is owned by the French Post Office. Japan still owns a majority stake (57%) in the Japan Post.

[45] Federal Housing Finance Agency. About Fannie Mae & Freddie Mac. `https://www.fhfa.gov/about-fannie-mae-freddie-mac`.

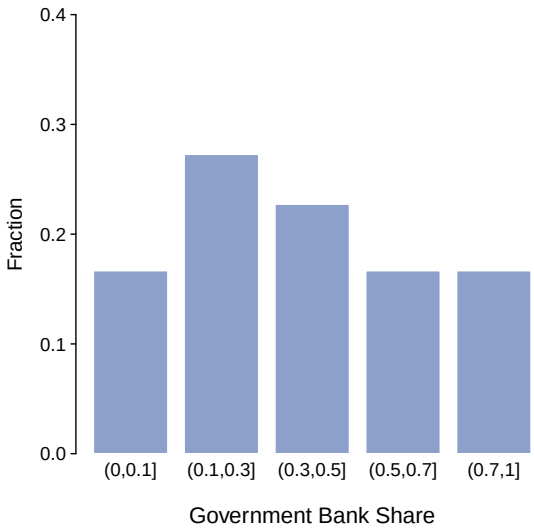


Figure 6: **Distribution of Government Ownership of Banks**

Control Variables

For control variables, I incorporate standard explanations in the literature as to why countries would liberalize their financial market. First, it is expected that rich countries are more likely to liberalize because their financial firms are already doing well internationally. I control for the level of economic development with the measure of GDP per capita.[46] Second, countries that already have a high foreign bank share or foreign direct investment (FDI) inflows are likely to liberalize in order to further increase their foreign capital inflows. I control for these explanations by including data on exports, foreign bank share, and FDI inflows from the World Bank's World Development Indicators database.

I also control for the explanations of regime type and property rights. First, many studies have argued that democracies are more likely to join international agreements than autocracies because of their liberal values or the median voter's preference for liberalization.[47] For these reasons, a country's level of democracy may determine its probability of signing the international agreement. I therefore include the conventional measure of the level of democracy, Polity IV

[46] I also test for total GDP in my robustness test (6) in Appendix Table 5, which does not change results.
[47] Bliss and Russett (1998); Mansfield et al. (2002); Baker (2005).

scores, to measure each country's level of democracy on a scale from -10 (less democratic) to +10 (more democratic). Second, countries that have well-developed property rights may be more likely to liberalize because they may be less concerned about foreign firms taking over domestic firms.[48] I therefore also include a measure of property rights guaranteed by the government, which ranges from 0 (weaker) to 1 (stronger) from La Porta et al. (2002).

Another important confounding variable may be the US influence. One may argue that the US may force countries to join an international liberalization agreement against their will, using their leverage, since the US wanted financial globalization through this agreement. Thus, if the US is a country's main importer or exporter, the country may bend to the US will, in this case, joining the international financial liberalization agreement.[49] Similarly, if the country's exchange rate is anchored to the US dollar, whether in the fixed or managed float system, it would indicate that the country's economy is tied to the US economy.[50] Thus, I create a measure of US influence, using a country's exports to the US as a share of its total exports, share of imports from the US out of its total imports, and its exchange rate relations to the US, through a principal component analysis. I use the IMF Direction of Trade Statistics database for the trade (import and export) data and exchange rate arrangement data from Ilzetzki et al. (2019).

5 Analysis and Results

I conduct two analyses to see how governments' preferences shape trade in financial services liberalization. Before examining *fragmented* liberalization, I first examine the liberalization demands for the multilateral opening of financial markets around the world. I analyze the relationship of financial linkages on the countries' likelihood of joining the Financial Services Agreement. Second, I analyze the relationship of financial linkages on countries' level of liberalization.

[48] Leblang (1996).
[49] Goodman and Pauly (1993).
[50] Broz and Frieden (2001).

5.1 Joining the International Agreement on Trade in Financial Services

To study the relationship between financial linkages and the probability of FSA signing, I estimate a series of logit models while adjusting for different sets of confounders (i.e., making a selection-on-observables assumption for inference). Since dealing with a limited dependent variable and a small sample size (in some of the models), I employ the biased-reduction GLM estimator suggested by Kosmidis and Firth (2009). Appendix Table 4 displays results using a standard logit model and Appendix Table 6 displays results using an optimal matching analysis (Hansen, 2004). All model specifications employ heteroscedasticity-consistent standard errors.

Out of the 133 countries in my sample, 62 countries, or 41% of the sample, did not sign onto the FSA. This variation is the target of the fist analysis below, which models the likelihood of joining the FSA. I use two measures of financial linkages. While the OECD-based measure of financial linkage is the most specific (and based in detailed and harmonized input-output matrices), it comes with a high price: in the sample of OECD countries, only 10% of countries did not join the FSA, including Estonia, Cambodia, Taiwan, and Vietnam.

Thus, the second measure of linkage, domestic credit to the financial sector, is added to Panel B because it retains much more variation in the dependent variable, such that 43% of the sample, or 62 countries, did not join the agreement. Those that joined include Pakistan, Senegal, and Zimbabwe, and those that did not join include Algeria, Ethiopia, and Tanzania.

Nonetheless, the analysis presented below (using both measures) shows remarkably consistent substantive results.

Table 1 shows average marginal effects (and robust standard errors) for different model specifications. In line with my first hypothesis, the analysis reveals that financial linkages have positive and statistically significant effects on countries' likelihood of joining the FSA across all specifications. Specification (1) only adjusts for the level of economic development (GDP per capita adjusted for purchasing power parity)[51] and finds that a standard deviation increase in financial linkages corresponds to a 14.2 percentage points increase in the probability of signing

[51] For robustness checks, Appendix Table 5 uses total GDP.

Table 1: **Marginal Effect of Financial Linkages on FSA signing**

	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A			
Financial Linkage	0.142***	0.146***	0.145***	0.148***	0.128***	0.092***
	(0.035)	(0.037)	(0.022)	(0.022)	(0.016)	(0.009)
N	60	59	58	58	58	57
			Panel B			
Alt. Financial Linkage	0.391***	0.431***	0.453***	0.438***	0.432***	0.324**
	(0.115)	(0.118)	(0.125)	(0.125)	(0.128)	(0.117)
N	133	130	128	126	125	123

Note: Panel A uses financial linkage calculated from the OECD input-output database. Since the OECD input-output database is limited in terms of the number of total number of countries in the sample and the number of countries that did not join (only 10% of the sample did not join the FSA), I use the alternative measure of financial linkage, that only focuses on the banking sector, that contains 133 countries in Panel B. Entries are marginal effects calculated from a series of logit models. Due to data skewness, Panel A models are estimated using the bias-reduced estimator of Kosmidis and Firth (2009), and the Appendix includes regular logit models. Robust standard errors in parentheses. All inputs standardized to mean zero and unit standard deviation.

the FSA. Specification (2) adds controls for additional economic factors, such as the size of FDI inflows and exports as share of GDP, since countries that already receive a large level of FDI inflows or export actively may be more likely to liberalize financial services. Controlling for these do not change the result of a 14.6 percentage points increase. A country's existing share of foreign banks may also make it more likely to join the liberalization agreement to facilitate financial services these foreign banks already provide. Thus, specification (3) controls for the share of foreign banks[52] and finds that foreign bank share is positively associated with a country's likelihood of joining the FSA, and the effect of financial linkage stays about the same at a 14.5 percentage points increase.

In specification (4), I account for the conventional explanation of the revealed comparative advantage that countries with comparative advantages are expected to liberalize. I use Balassa (1965)'s measure of revealed comparative advantages in financial services and find that it does not have a statistically significant effect on countries' likelihood of joining the FSA. However,

[52]Foreign bank share has two countries in the sample that have zero values so I took a square root of the value, instead of dropping them.

when this variable is controlled, the effect of financial linkages jump to a 14.8 percentage points increase and statistically significant at the 99% level. Specification (5) controls for political factors such as regime type and property rights protection. I expect countries that are more democratic (higher Polity scores) and those with strong property rights protection to be more likely to sign the FSA. Indeed, I find that even after accounting for political variables, the effects of financial linkages stay around at a 12.8 percentage points increase in the probability of sining the FSA. Finally, specification (6) includes the measure of US influence, which includes a country's export and import share of the US in its total trade and whether its currency is related to the US dollar.[53] Including US influence reduces the estimate a 9.2 percentage point increase, but it is still statistically significant.

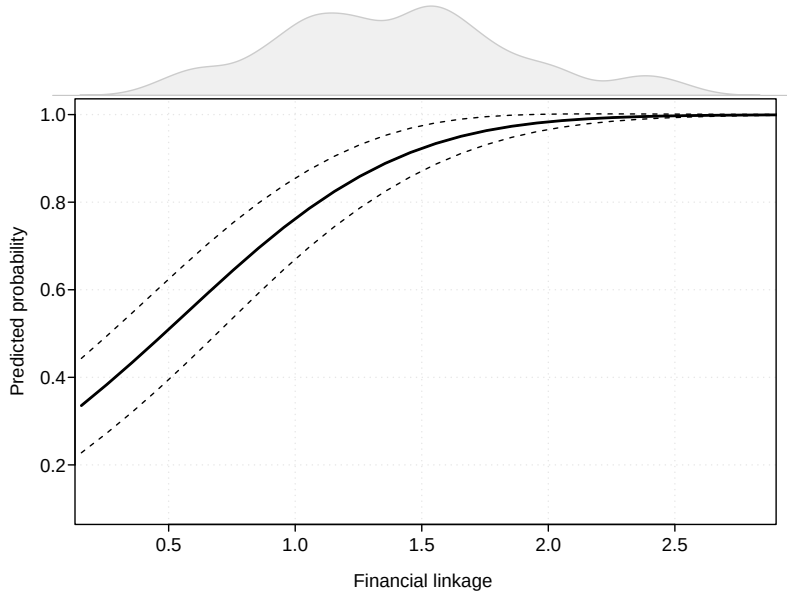


Figure 7: **Probability of FSA signing as function of financial linkages.** Predicted Probabilities with robust 95% CI. All other variables held at observed values. The sample distribution of financial linkages is shown via a kernel density plot (bandwidth 0.15) on top of the plot.

[53]US influence is the first component extracted from a principal component analysis of a country's export share to the US in its total trade, the import share from the US out of total imports, and country's exchange rate relations to the US (whether country's exchange rate moves in tandem with the US, also known as anchor/reference category). The first component has an eigenvalue of 1.95 and explains 65% of the total variance. The data from export and import trade come from the IMF Direction of Trade Statistics database, and the exchange rate arrangement data comes from Ilzetzki et al. (2019). The US drops out for this analysis.

Figure 7 illustrates the relationship between linkages and the likelihood of joining graphically. It plots the probability of FSA signing as function of financial linkages together with robust 95% confidence intervals.[54] It shows that the effect of increasing linkages is steepest for countries with lower financial linkages. Moving from low levels of linkage (0.5) to the median (1.47; akin to South Africa's level of financial linkages) increases the probability of signing the FSA by more than 30 percentage points. Moving from the median to the 75th percentile (akin to Belgium's level of financial linkages) brings the probability of joining the FSA close to 1.

Panel B in Table 1 shows estimates using an alternative measure of financial linkage. As discussed above, the OECD IO database provides the preferred high-quality measure of financial linkages, but it has limited country coverage. As an alternative measure, I use the measure of *Domestic Credit provided by the financial sector (% of GDP)*, which measures credit provided by the financial sector to the various sectors in the economy and can be a proxy measure to show the level of *banking* integration. It increases the sample size to 133 countries.[55] Across models, the alternative financial linkage measure also leads to an increase of 32.4 - 45.3 percentage points, indicating that financial linkages, however measured, increases the probability of countries' joining the multilateral agreement in trade in financial services.

5.2 Understanding fragmented liberalization in Financial Services

I now examine the conditional impact of financial linkage on the liberalization of countries joining the FSA. I argued that governments in countries with high financial linkages are likely to join the multilateral liberalization agreement, but that they are also likely to embed restrictions to protect the financial markets they control. Using the measures and government control of the financial sector and the alternative measure of financial linkage outlined above, I estimate a series of linear models regressing the number of restrictions on financial linkage, government control of banks, and their interaction. If the hypothesis developed in section 3 is correct, I

[54] I use specification 3 in Table 1.

[55] The World Bank gathered this data from the International Monetary Fund's (IMF) International Financial Statistics (Beck, 2002).

expect to find that the effect of linkage on restriction is moderated by government control, such that the effect increases as government control increases (cf. Figure 1).

Table 2: **Regression of number of restrictions on financial linkage and government control of banks.** OLS and Tobit estimates.

	(1)	(2)	(3)	(4)
Government control of banks	41.41*	40.69**	51.44**	51.69**
	(20.91)	(19.91)	(22.65)	(20.76)
Financial linkage	0.486*	0.480*	0.422	0.411
	(0.275)	(0.259)	(0.298)	(0.276)
Linkage × government control	1.629**	1.639**	1.609**	1.613**
	(0.794)	(0.749)	(0.781)	(0.716)
Estimator	OLS	Tobit	OLS	Tobit
Econ. Controls	yes	yes	yes	yes
Pol. Controls	no	no	yes	yes
N	53	53	50	50

Note: All inputs are mean centered. Tobit models censored from below (0) and above (at maximum observed restrictions). Robust standard errors.

While an examination of the interaction is best carried out using a plot of the conditional marginal effects, Table 2 shows coefficient estimates and robust standard errors for the interaction and its constituent terms. Both input variables are mean-centered. Specifications (1) and (2) adjust for the level of economic development (GDP per capita adjusted for purchasing power parity) and other economic factors (i.e., the size of FDI inflows and exports as share of GDP), while specifications (3) and (4) add political controls (i.e., regime type and property rights protection). Specifications (1) and (3) are estimated using OLS, while specifications (2) and (4) are estimated using Tobit models accounting for censoring in the number of restrictions.[56] I find only minor differences between OLS and Tobit models indicating that censoring is not a major concern. The coefficient of the interaction of the mean-centered variables shows a pattern in the expected direction: as government ownership increases, the marginal effects of linkages on the number of restrictions increases.

Figure 8 plots the marginal effect of financial linkage at different levels of government bank

[56]The number of restrictions is clearly censored from below (i.e., they have to be non-negative). I also employ an upper bound equal to the maximum observed number of imposed restrictions.

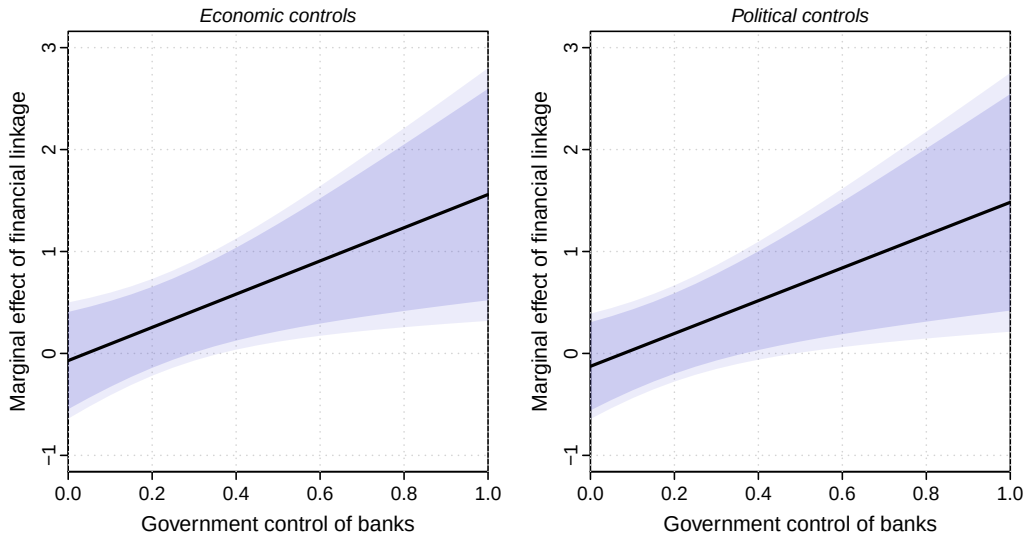


Figure 8: **Conditional marginal effect of financial linkage on number of restrictions.** Marginal effects and 95% confidence intervals of financial linkage conditional on the share of government owned banks. Computed from Tobit models (specifications 2 and 4 of Table 2). The left panel includes economic controls; the right panel adds political controls as well.

ownership. The left panel uses a specification with economic controls only, while the right panel adds political controls. The marginal effects clearly show that when governments have a higher share of ownership in the financial sector, the effect of an increase in financial linkage on the number of restrictions increases. When government control in the financial market is low, the effect of linkage is low. For example, when government ownership is at 25 percent, the effect of linkage is small and not statistically different from zero. In contrast, when government ownership is at 60 percent, the effect of linkage is sizable and significant.

It would be a concern if financial trade openness could also affect financial linkages such that financial trade openness caused higher linkages, instead of the other way around as argued in this paper. However, these multilateral restrictions were bound once in 1997 at the WTO, and there was no feedback between the financial linkages of the previous three years and restrictions that were scheduled in 1997.

In sum, my two sets of analysis have shown that high financial linkage increases the likelihood of countries' joining a multilateral liberalization agreement in trade in financial services and

also the level of fragmented liberalization, especially in countries where governments have a high incentive to protect their financial sector.

6 Discussion and Conclusion

In this paper, I offered a new theory of fragmented liberalization in financial services, specifically how government's dilemma shapes its preferences in financial services liberalization. I show that governments weigh the benefits of liberalization (to their domestic industrial firms that could benefit from accessing a variety of financial services and capital) and costs of liberalization (to domestic financial firms' market share from competing with multinational financial firms) and design their multilateral liberalization according to these concerns. Using the measure of inter-industry financial linkages – financial input-output relations or industries' dependence on financial services as inputs for their production – I show why governments with higher financial linkages, even those without comparative advantages in financial services, join a multilateral liberalization agreement and are likely to include more restrictions. High financial linkages proxy the potential loss of market share of domestic financial firms when multinational financial firms enter, and countries included more restrictions. This effect is more pronounced in countries with high government ownership of financial firms, which shows governments' dilemma of liberalization and protection.

These findings have several important implications for the politics of liberalization. First, the theory of financial linkages suggests why countries without a comparative advantage in financial services joined a multilateral agreement to liberalize this sector. While previous international economic agreements were criticized for being a small club of rich countries, the FSA, with 102 signatories and their voluntary liberalization commitments, shows that a diverse set of countries can reach the common goal of liberalization. Even developing countries joined the FSA because it would not only help develop their financial sector, but ultimately it would help their industrial firms, from the agricultural and manufacturing sectors to the services sector,

access a greater variety of financial services as a result of the entry of foreign financial firms and introduce competition to the domestic financial market.

Second, it explains fragmented liberalization in financial services. Existing studies have examined either why countries liberalize or why countries vary in the level of liberalization. This study integrates these questions as they are related to each other. If governments could not have embedded restrictions, they may not have joined the agreement, and this study examines the determinants of membership, scope, and depth of an international economic liberalization agreement. Thus, it contributes to the literature on institutional design of international agreements as well as the literature of financial services liberalization.

Lastly, the framework of inter-industry linkages can be applied beyond the financial sector, for example, to the IT and telecommunications industries to examine the industrial dependence on these inputs for firms in an economy and how it affects international negotiations. While the previous studies of liberalization examined push and pull factors within the given sector, the framework of inter-industry linkages shows that interests are not limited to the industry under discussion but go beyond. It can also help explain government preferences and strategies in international negotiations. If a number of industries depend on inputs from a particular industry, the government may liberalize that industry, even if it does not have comparative advantages, in order to serve its downstream industries or "user" industries, some of which that the government *does* have comparative advantages, while embedding restrictions to control the speed and extent of liberalization. Thus, the framework of inter-industry linkages can identify groups that demand for liberalization and protection and contributes to the vast literature on the determinants of preferences in international economic negotiations.

References

Abbott, K. W. and D. Snidal (1998). Why states act through formal international organizations. *Journal of conflict resolution 42*(1), 3–32.

Abdelal, R. (2007). *Capital rules: The construction of global finance*. Harvard University Press.

Abdelal, R. and J. Kirshner (1999). Strategy, economic relations, and the definition of national interests. *Security Studies 9*(1-2), 119–156.

Acemoglu, D., V. M. Carvalho, A. Ozdaglar, and A. Tahbaz-Salehi (2012). The network origins of aggregate fluctuations. *Econometrica 80*(5), 1977–2016.

Aggarwal, V. K. (1985). *Liberal protectionism: The international politics of organized textile trade*, Volume 13. Univ of California Press.

Aggarwal, V. K. (1992). The political economy of service sector negotiations in the uruguay round. *The Fletcher Forum of World Affairs 16*, 35.

Aggarwal, V. K. (1998). *Institutional designs for a complex world: Bargaining, linkages, and nesting*. Cornell University Press.

Aizenman, J. and I. Noy (2009). Endogenous financial and trade openness. *Review of Development Economics 13*(2), 175–189.

Alfaro, L., A. Chanda, S. Kalemli-Ozcan, and S. Sayek (2010). Does foreign direct investment promote growth? exploring the role of financial markets on linkages. *Journal of Development Economics 91*(2), 242–256.

Allen, F., R. Herring, et al. (2001). Banking regulation versus securities market regulation. *The Wharton School–University of Pennsylvania 1*, 1–58.

Andrews, D. M. (1994). Capital mobility and state autonomy: toward a structural theory of international monetary relations. *International studies quarterly 38*(2), 193–218.

April, I. (2020). Fiscal monitor,"policies to support people during the covid-19 pandemic". *International Monetary Fund*.

Asmundson, I. (2011). Back to basics: What are financial services?: How consumers and businesses acquire financial goods such as loans and insurance. *Finance & Development 48*(001).

Baccini, L., I. Osgood, and S. Weymouth (2019). The service economy: US trade coalitions in an era of deindustrialization. *The Review of International Organizations 14*(2), 261–296.

Baker, A. (2005). Who wants to globalize? consumer tastes and labor markets in a theory of trade policy beliefs. *American Journal of Political Science 49*(4), 924–938.

Balassa, B. (1965). Trade liberalisation and revealed comparative advantage. *The manchester school 33*(2), 99–123.

Bartelme, D. and Y. Gorodnichenko (2015). Linkages and economic development. *National Bureau of Economic Research*.

Beck, T. (2002). Financial development and international trade: Is there a link? *Journal of International Economics 57*(1), 107–131.

Bernard, A. B., J. B. Jensen, S. J. Redding, and P. K. Schott (2018). Global firms. *Journal of Economic Literature 56*(2), 565–619.

Bliss, H. and B. Russett (1998). Democratic trading partners: The liberal connection, 1962-1989. *Journal of Politics 60*(4), 1126–1147.

Brooks, S. M. (2004). Explaining capital account liberalization in latin america: A transitional cost approach. *World Politics 56*(3), 389–430.

Broz, J. L. and J. A. Frieden (2001). The political economy of international monetary relations. *Annual Review of Political Science 4*(1), 317–343.

Cetorelli, N. and P. E. Strahan (2006). Finance as a barrier to entry: Bank competition and industry structure in local us markets. *The Journal of Finance 61*(1), 437–461.

Chinn, M. D. and H. Ito (2006). What matters for financial development? capital controls, institutions, and interactions. *Journal of Development Economics 81*(1), 163–192.

Chinn, M. D. and H. Ito (2008). A new measure of financial openness. *Journal of Comparative Policy Analysis 10*(3), 309–322.

Chwieroth, J. (2007). Neoliberal economists and capital account liberalization in emerging markets. *International Organization 61*(2), 443–463.

Claessens, S., A. Demirgüç-Kunt, and H. Huizinga (2001). How does foreign entry affect domestic banking markets? *Journal of Banking & Finance 25*(5), 891–911.

Cruz, C., P. Keefer, and C. Scartascini (2018). Database of political institutions 2017. *Inter-American Development Bank. Numbers for Development 10*, 0001027.

Danzman, S. B. (2019). *Merging Interests: When Domestic Firms Shape FDI Policy*. Cambridge University Press.

Davis, C. L. (2004). International institutions and issue linkage: Building support for agricultural trade liberalization. *American Political Science Review 98*(1), 153–169.

Deardorff, A. V. (2001). International provision of trade services, trade, and fragmentation. *Review of International Economics 9*(2), 233–248.

Díaz-Mora, C., R. Gandoy, and B. González-Díaz (2018). Looking into global value chains: influence of foreign services on export performance. *Review of World Economics 154*(4), 785–814.

Diebold, F. X. and K. Yılmaz (2015). *Financial and macroeconomic connectedness: A network approach to measurement and monitoring*. Oxford University Press, USA.

Dobson, W. and P. Jacquet (1998). *Financial Services Liberalization in the World Trade Organization*. Washington DC: Peterson Institute for International Economics.

Eichengreen, B. and P. Gupta (2011). The two waves of service-sector growth. *Oxford Economic Papers 65*(1), 96–123.

Eichengreen, B. and D. Leblang (2008). Democracy and globalization. *Economics & Politics 20*(3), 289–334.

Ellis, H. (1990). Government regulation of insurance companies. *A guide to insurance management*, 277–289.

Fadinger, H., C. Ghiglino, M. Teteryatnikova, et al. (2015). Productivity, networks and input-output structure. In *2015 Meeting Papers*, Number 624. Society for Economic Dynamics.

Firth, D. (1993). Bias reduction of maximum likelihood estimates. *Biometrika 80*(1), 27–38.

Francois, J. and B. Hoekman (2010). Services trade and policy. *Journal of Economic Literature 48*(3), 642–92.

Francois, J. F. (1990). Producer services, scale, and the division of labor. *Oxford Economic Papers 42*(4), 715–729.

Frieden, J. A. (1991). Invested interests: the politics of national economic policies in a world of global finance. *International Organization 45*(4), 425–451.

Gabaix, X. (2011). The granular origins of aggregate fluctuations. *Econometrica 79*(3), 733–772.

Garrett, G. (1998). *Partisan politics in the global economy*. New York, NY: Cambridge University Press.

Gilpin, R. (2011). *Global political economy: Understanding the international economic order*. Princeton University Press.

Goodman, J. B. and L. W. Pauly (1993). The obsolescence of capital controls?: economic management in an age of global markets. *World Politics 46*(1), 50–82.

Grossman, G. M. and E. Helpman (1994). Protection for sale. *American Economie Review 84*(4), 833–850.

Haas, E. B. (1980). Why collaborate? issue-linkage and international regimes. *World Politics 32*(3), 357–405.

Haggard, S. and S. Maxfield (1996). The political economy of financial internationalization in the developing world. *International Organization 50*(1), 35–68.

Hansen, B. B. (2004). Full matching in an observational study of coaching for the sat. *Journal of the American Statistical Association 99*(467), 609–618.

Heinze, G. and M. Schemper (2002). A solution to the problem of separation in logistic regression. *Statistics in medicine 21*(16), 2409–2419.

Hirschman, A. O. (1958). *The strategy of economic development*. New Haven: Yale University Press.

Hirschman, A. O. (1980). *National power and the structure of foreign trade*. Berekeley, CA: University of California Press.

Ho, D. E., K. Imai, G. King, and E. A. Stuart (2007). Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference. *Political analysis 15*(3), 199–236.

Hoekman, B. and B. Shepherd (2017). Services productivity, trade policy and manufacturing exports. *The World Economy 40*(3), 499–516.

Hoff, P. D. and M. D. Ward (2004). Modeling dependencies in international relations networks. *Political Analysis 12*(2), 160–175.

Ilzetzki, E., C. M. Reinhart, and K. S. Rogoff (2019). Exchange arrangements entering the twenty-first century: Which anchor will hold? *The Quarterly Journal of Economics 134*(2), 599–646.

Jensen, J. B., D. P. Quinn, and S. Weymouth (2015). The influence of firm global supply chains and foreign currency undervaluations on us trade disputes. *International Organization 69*(4), 913–947.

Johns, L. and R. L. Wellhausen (2016). Under one roof: Supply chains and the protection of foreign investment. *American Political Science Review 110*(1), 31–51.

Jones, C. I. (2011). Intermediate goods and weak links in the theory of economic development. *American Economic Journal: Macroeconomics 3*(2), 1–28.

Jung, D. F. and D. A. Lake (2011). Markets, hierarchies, and networks: An agent-based organizational ecology. *American Journal of Political Science 55*(4), 972–990.

Kim, I. S. (2017). Political cleavages within industry: Firm-level lobbying for trade liberalization. *American Political Science Review 111*(1), 1–20.

King, R. G. and R. Levine (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics 32*(3), 513–542.

Kinne, B. J. (2013). Network dynamics and the evolution of international cooperation. *American Political Science Review*, 766–785.

Kireyev, M. A. (2002). *Liberalization of Trade in Financial Services and Financial Sector Stability (analytical approach)*. Number 138. International Monetary Fund.

Kornai, J., E. Maskin, and G. Roland (2003). Understanding the soft budget constraint. *Journal of economic literature 41*(4), 1095–1136.

Kosmidis, I. and D. Firth (2009). Bias reduction in exponential family nonlinear models. *Biometrika 96*(4), 793–804.

Krasner, S. D. (1976). State power and the structure of international trade. *World Politics 28*(3), 317–347.

Krugman, P. R. (1979). Increasing returns, monopolistic competition, and international trade. *Journal of international Economics 9*(4), 469–479.

Kucik, J. (2012). The domestic politics of institutional design: Producer preferences over trade agreement rules. *Economics & Politics 24*(2), 95–118.

La Porta, R., F. Lopez-de Silanes, and A. Shleifer (2002). Government ownership of banks. *The Journal of Finance 57*(1), 265–301.

Leblang, D. A. (1996). Property rights, democracy and economic growth. *Political Research Quarterly 49*(1), 5–26.

Lehmann, P., T. Matthieß, N. Merz, S. Regel, and A. Werner (2017). Manifesto corpus. version: 2017–2. *Berlin: WZB Berlin Social Science Center*.

Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of economic literature 35*(2), 688–726.

Li, Q., E. Owen, and A. Mitchell (2018). Why do democracies attract more or less foreign direct investment? a metaregression analysis. *International Studies Quarterly 62*(3), 494–504.

Lodefalk, M. (2014). The role of services for manufacturing firm exports. *Review of world Economics 150*(1), 59–82.

Mansfield, E. D., H. V. Milner, and B. P. Rosendorff (2002). Why democracies cooperate more: Electoral control and international trade agreements. *International Organization 56*(3), 477–513.

Mansfield, E. D. and E. Reinhardt (2003). Multilateral determinants of regionalism: The

effects of gatt/wto on the formation of preferential trading arrangements. *International Organization 57*(4), 829–862.

Marchetti, J. A. and P. C. Mavroidis (2011). The genesis of the gats (general agreement on trade in services). *European Journal of International Law 22*(3), 689–721.

Markusen, J. R. (1989). Trade in producer services and in other specialized intermediate inputs. *The American Economic Review*, 85–95.

Martinez-Diaz, L. (2009). *Globalizing in hard times: The politics of banking-sector opening in the emerging world*. Ithaca, NY: Cornell University Press.

Mattoo, A. (1999). *Financial services and the World Trade Organization: Liberalization commitments of the developing and transition economies*, Volume 2184. World Bank Publications.

Meckling, J. and L. Hughes (2017). Globalizing solar: Global supply chains and trade preferences. *International Studies Quarterly 61*(2), 225–235.

Melitz, M. (2003). The impact of trade on aggregate industry productivity and intra-industry reallocations. *Econometrica 71*(6), 1695–1725.

Micco, A., U. Panizza, and M. Yanez (2007). Bank ownership and performance. does politics matter? *Journal of Banking & Finance 31*(1), 219–241.

Milner, H. (1988a). Trading places: Industries for free trade. *World Politics 40*(3), 350–376.

Milner, H. V. (1988b). *Resisting protectionism: Global industries and the politics of international trade*. Princeton, NJ: Princeton University Press.

Milner, H. V. and B. Judkins (2004). Partisanship, trade policy, and globalization: Is there a left–right divide on trade policy? *International Studies Quarterly 48*(1), 95–119.

Milner, H. V. and K. Kubota (2005). Why the move to free trade? democracy and trade policy in the developing countries. *International Organization 59*(1), 107–143.

Milner, H. V. and B. Mukherjee (2009). Democratization and economic globalization. *Annual Review of Political Science 12*, 163–181.

Miroudot, S. and C. Cadestin (2017). Services in global value chains: From inputs to value-creating activities.

Mosley, L. (2003). *Global capital and national governments*. New York, NY: Cambridge University Press.

Mosley, L. and D. A. Singer (2008). Taking stock seriously: Equity-market performance, government policy, and financial globalization. *International Studies Quarterly 52*(2), 405–425.

Mukherjee, B. and D. A. Singer (2010). International institutions and domestic compensation: The imf and the politics of capital account liberalization. *American Journal of Political Science 54*(1), 45–60.

OECD (2015). OECD Input-Output Database. OECD.stat.

Osgood, I. (2018). Globalizing the supply chain: Firm and industrial support for us trade agreements. *International Organization 72*(02), 455–484.

Pempel, T. J. and K. Tsunekawa (2015). *Two crises, different outcomes: East Asia and global finance*. Ithaca, NY: Cornell University Press.

Pepinsky, T. B. (2012). Do currency crises cause capital account liberalization? *International Studies Quarterly 56*(3), 544–559.

Pepinsky, T. B. (2013). The domestic politics of financial internationalization in the developing world. *Review of International Political Economy 20*(4), 848–880.

Pinto, P. M. (2013). *Partisan investment in the global economy: Why the left loves foreign direct investment and FDI loves the left*. New York, NY: Cambridge University Press.

Quinn, D. P. (2003). Capital account liberalization and financial globalization, 1890–1999: a synoptic view. *International Journal of Finance & Economics 8*(3), 189–204.

Quinn, D. P. and C. Inclan (1997). The origins of financial openness: A study of current and capital account liberalization. *American Journal of Political Science 41*(3), 771–813.

Quinn, D. P. and A. M. Toyoda (2007). Ideology and voter preferences as determinants of financial globalization. *American Journal of Political Science 51*(2), 344–363.

Quinn, D. P. and A. M. Toyoda (2008). Does capital account liberalization lead to growth? *The Review of Financial Studies 21*(3), 1403–1449.

Quinn, D. P. and J. T. Woolley (2001). Democracy and national economic performance: the preference for stability. *American Journal of Political Science 45*(3), 634–657.

Rajan, R. G. and L. Zingales (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics 69*(1), 5–50.

Rodriguez-Clare, A. (1996). Multinationals, linkages, and economic development. *The American Economic Review 86*(4), 852–873.

Rogowski, R. (1989). Commerce and coalitions: How trade affects domestic political alignments. *Princeton, NJ*, 1965–1985.

Roland, G. (2000). *Transition and economics: Politics, markets, and firms*. MIT press.

Rowthorn, R. and R. Ramaswamy (1999). Growth, trade, and deindustrialization. *IMF Staff papers 46*(1), 18–41.

Sekhon, J. S. (2009). Opiates for the matches: Matching methods for causal inference. *Annual Review of Political Science 12*, 487–508.

Simmons, B. A. and Z. Elkins (2004). The globalization of liberalization: Policy diffusion in the international political economy. *American Political Science Review 98*(1), 171–189.

Steinberg, D. A., S. C. Nelson, and C. Nguyen (2018). Does democracy promote capital account liberalization? *Review of International Political Economy 25*(6), 854–883.

Steinberg, R. H. (2002). In the shadow of law or power? consensus-based bargaining and outcomes in the gatt/wto. *International Organization 56*(2), 339–374.

Tamirisa, N. T., P. Sorsa, G. Bannister, B. McDonald, and J. Wieczorek (2000). *Trade Policy in Financial Service*. International Monetary Fund.

USITC (1998). *The Year in Trade: Operation of the Trade Agreements Program during 1997. USITC 49th Report 3103*, Volume 49. Washington DC: USITC Publication.

Walter, A. (2011). *Governing finance: East Asia's adoption of international standards*. Ithaca, NY: Cornell University Press.

Ward, M. D., K. Stovel, and A. Sacks (2011). Network analysis and political science. *Annual Review of Political Science 14*, 245–264.

Weill, L. (2003). Banking efficiency in transition economies: The role of foreign ownership. *Economics of transition 11*(3), 569–592.

Weymouth, S. (2017). Service firms in the politics of us trade policy. *International Studies Quarterly 61*(4), 935–947.

WTO (2019). *World Trade Report: The Future of Services Trade*. WTO.

Appendix

6.1 Summary Statistics

Table 3: Correlation table

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Financial linkages	1.00					
(2) GDP	0.29	1.00				
(3) Exports	0.08	0.71	1.00			
(4) Polity	-0.07	0.04	0.02	1.00		
(5) Corruption	-0.05	0.24	0.38	0.50	1.00	
(6) RCA	-0.04	0.10	0.31	0.30	0.39	1.00

In a selected sample of 25 countries in the OECD Input–Output database during the study period (1995–1997), real estate and telecommunications industries across countries are heavy users of financial services, followed by wholesale trade industry.[57] Beyond the services sector, countries like Japan and South Korea have high financial linkages in the primary sector, such as the agricultural and mining industries. Brazil stands out from the group that most of its industries from agriculture to manufacturing to services have high financial linkages, signifying the central role of financial inputs in its economy.

6.2 Robustness checks for Multilateral Financial Liberalization

I test a set of alternative explanations that may influence liberalization as well as using different measures for control variables for robustness checks. I use the specification (3) in the main analysis, including the same control variables, such as *GDP per capita*, *FDI Inflows per GDP*, *Foreign Bank Share*, and *Exports of Goods and Services*. Table 5 reports the marginal effects as the earlier analysis. I explain each set of robustness tests below.

(1) Political Partisanship. A country's political partisanship may affect its likelihood of joining an international liberalization agreement. In the literature on trade and domestic politics, it has

[57] It excludes intra-industry linkage in the financial industry – financial firms are heavily linked within the industry.

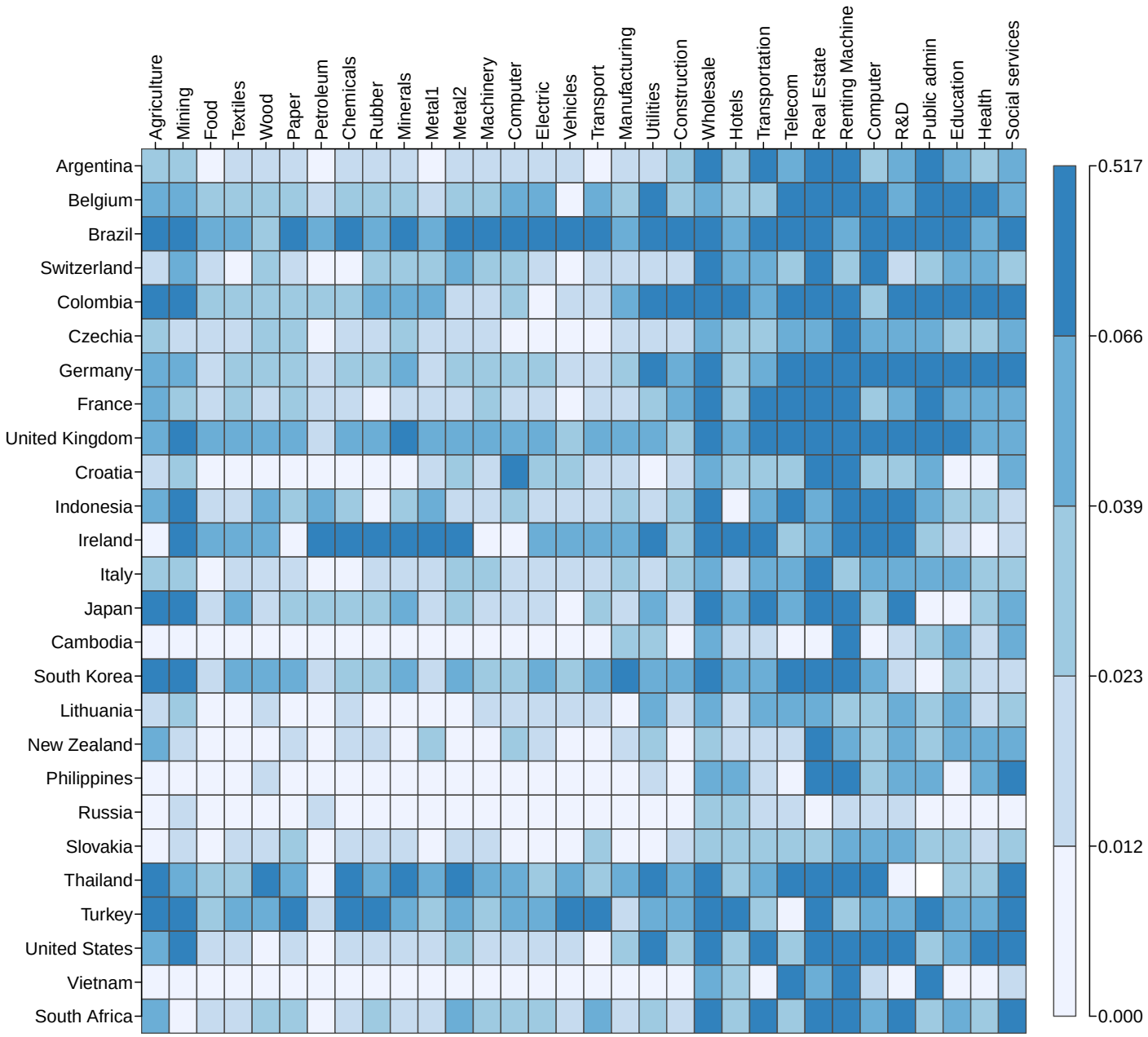


Figure 9: **The Share of Financial Inputs by Industry**

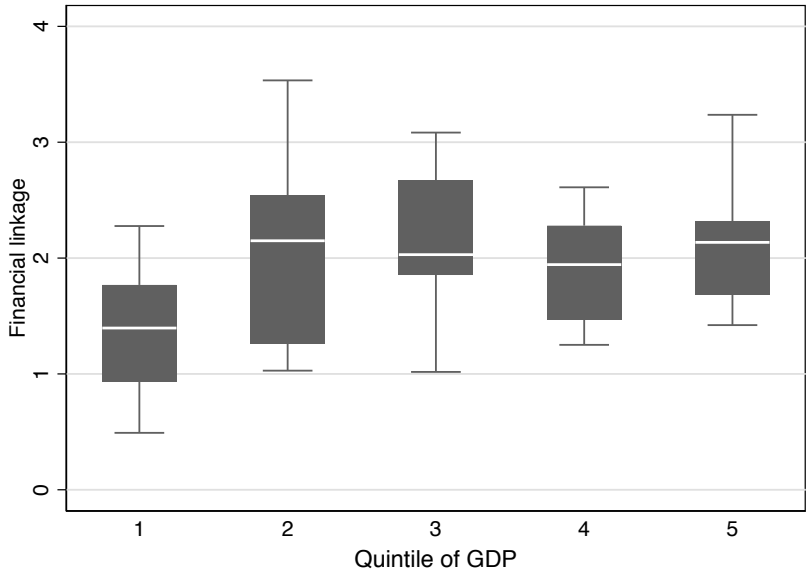


Figure 10: Financial Linkages by GDP quintile. The median stays around 2 from the second quintile to the fifth quintile.

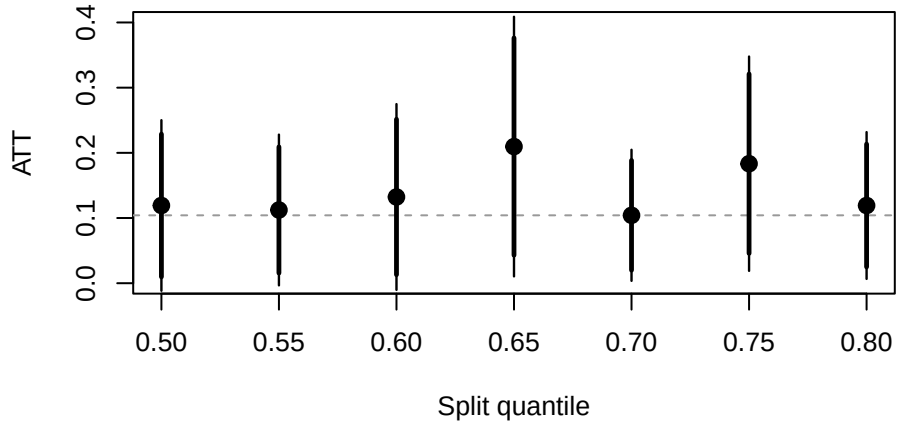


Figure 11: Average Treatment Effects of quantiles from 0.5 to 0.8 with 90% and 95% confidence intervals

Table 4: **Marginal Effect of Financial Linkages on FSA signing (Logit)**

	(1)	(2)	(3)	(4)
Financial Linkages	0.223***	0.261***	0.214**	0.220***
	(0.055)	(0.059)	(0.069)	(0.066)
GDP per capita (PPP)	0.053***	0.051**	0.034*	0.031*
	(0.015)	(0.020)	(0.014)	(0.015)
FDI Inflows		0.011	0.005	0.004
		(0.015)	(0.007)	(0.008)
Exports		-0.000	-0.001	-0.001
		(0.001)	(0.001)	(0.001)
Foreign Bank Share			0.045***	0.044***
			(0.010)	(0.009)
RCA				0.037
				(0.047)
N	60	56	55	51

Note: Entries are marginal effects calculated from a logit model estimated using Maximum Likelihood. Robust standard errors in parentheses. All inputs standardized to mean zero and unit standard deviation. Model 5 is excluded as the outcome is perfectly predicted due to complete separation. The Firth logit model used in the main text addresses this issue (by essentially using a penalized likelihood approach). See Firth (1993); Heinze and Schemper (2002).

Table 5: **Robustness checks**

	Mfx	SE	N
(1) Partisanship of government	0.175	(0.054)	47
(2) Asian Financial Crisis	0.220	(0.033)	50
(3) Tax haven countries	0.214	(0.027)	55
(4) World region FE	0.264	(0.028)	55
(5) Five-year average values	0.216	(0.029)	55
(6) Economy size (total GDP)	0.260	(0.036)	55
(7) Intra-industry financial linkage	0.155	(0.023)	55
(8) Free Market Ideology	0.209	(0.054)	39

Note: Based on Specification (3) in Table 1. Marginal effects with robust standard errors in parentheses.

been argued that left-leaning governments have anti-trade and anti-liberalization attitudes and that right-leaning parties are likely to be open to liberalization.[58] However, prior studies have found mixed effects of political partisanship on financial liberalization (Quinn and Inclan, 1997). Using the Inter-American Bank's Database of Political Institutions 2017,[59] I include indicator variables for left and right governments on economic issues and find that the partisanship of the government does not seem to affect the likelihood of joining the FSA. Even accounting for political partisanship, the effects of financial linkages lead to an increase of 17.5 percentage points.

(2) Asian Financial Crisis. Specification (2) tests to see if the 1997 Asian Financial Crisis, which occurred during the FSA negotiations, influenced the likelihood of countries that were directly and indirectly affected by the crisis joining the agreement. The Asian Financial Crisis could influence the affected countries in both directions: either to not join the agreement to keep out foreign financial firms or join the agreement to attract foreign capital that had fled. I control for the IMF's influence in the negotiations via an indicator of the IMF loan recipients, such as Korea, Indonesia, and Thailand, and countries that were severely affected by the crisis, such as Hong Kong, Malaysia, and the Philippines. Controlling for East Asian countries increases the marginal effects of financial linkages to an increase of 22 percentage points.

(3) Tax Haven countries. Specification (3) controls for a country's status of tax haven, which is more likely to join an international liberalization agreement. Tax havens are territories with favorable tax conditions that allow multinational firms and wealthy individuals to evade taxes in their home countries; these countries generally rely on the financial sector for economic growth. Therefore, financial services is their comparative advantage, and tax haven countries are more likely to join the liberalization agreement. My sample of countries includes six tax haven countries,[60] and including an indicator for tax havens in the model leaves the marginal

[58] Garrett (1998); Milner and Judkins (2004); Pinto (2013).

[59] Cruz et al. (2018).

[60] According to the OECD, six tax haven countries in my sample are: Aruba, Antigua and Barbuda, Barbados, Cyprus, Malta, and Mauritius. OECD. 2012. *The Global Forum on Transparency and Exchange of Information for Tax Purposes*.

effect of financial linkages virtually unchanged from the main model.

(4) Region Fixed Effects. Specification (5) uses region fixed effects in order to control for region-specific differences. Financial linkages lead to an increase of 26.4 percentage points in the likelihood of joining the FSA.

(5) Longer pre-treaty window. I also extend the pre-treaty period from three years to five years. In Specification 5, I extend the pre-treaty window for covariates to five year averages (1993-1997) and find that it makes no substantive difference.

(6) GDP. I also control for total GDP that measures the total economy size, and the effect is essentially unchanged at 26 percentage points increase and is statistically significant at the 99% level.

(7) Intra-Industry Financial Linkage. Financial firms serve other financial firms in the industry. Generally, intra-industry linkage is the highest for any given industry. I have excluded intra-industry financial linkage from the analysis with a concern that it would skew the results for the financially developed countries. I test to see if including the financial industry would change the results and find that it does not meaningfully change the results, leading to a 15.5 percentage increase in likelihood of joining the FSA. The result is statistically significant at 99% level. Financial linkages, when excluding intra-industry financial linkage, has an even stronger effect on the probability of joining the FSA, indicating that financial linkages play a more important role for countries that do not have complex financial markets in the likelihood of joining the multilateral liberalization agreement of trade in financial services.

(8) Free Market Ideology. Countries that have free market ideology may be more likely to affect countries' likelihood of joining the FSA. I use the data from Manifest Project (Lehmann et al., 2017) that examines parties' policy positions in 50 countries. I especially examine parties' preferences for free market economy that mentions laissez-faire economy and private property rights. It is similar to the property rights measure of the country (de facto). In this robustness test, I check the declared free market ideology of parties in countries in the sample. Because the data only covers 50 countries, the overlap is even smaller with the OECD input-output

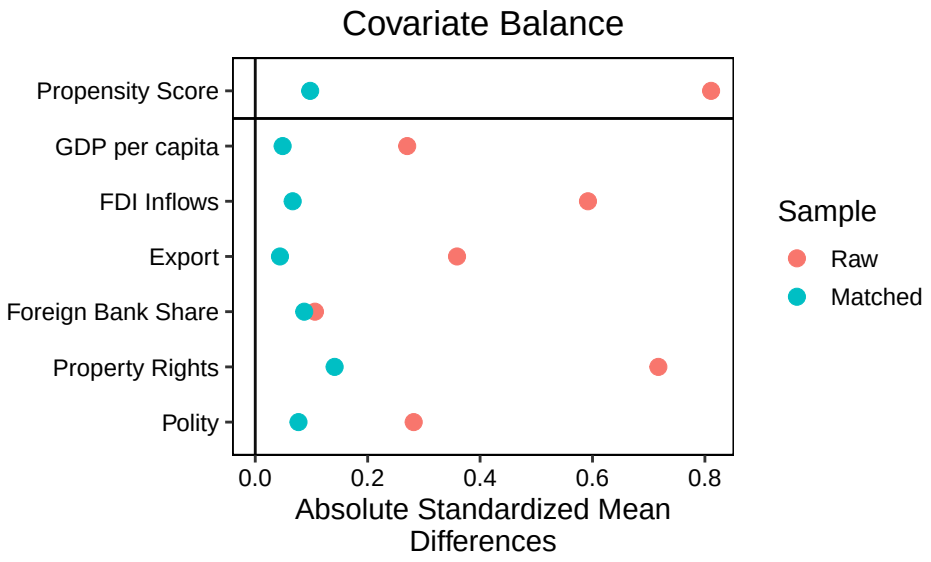


Figure 12: **Covariate Balance Plot of Raw and Matched Sample**

database, and the sample size is reduced to 39 countries. Nevertheless, including the variable for free market ideology does not change the results significantly. It leads to an increase of 20.9 percentage points in the likelihood of joining the FSA.

6.3 Matching analysis

A key issue in trying to determine the effect of financial linkages on FSA signing from observational cross-section data is the role of confounding variables that influence the likelihood of joining but also affect the level of financial linkages in a country. In other words, countries with "high" and "low" levels of linkages may differ systematically in characteristics that also affect the FSA signing, such as GDP, regime type, or export orientation. In order to address this concern, I "pre-process" my data so that countries that are "treated" with high financial linkages are comparable in terms of covariates to the "control" group with low financial linkages (Ho et al., 2007). I define countries as being part of the high-linkage "treatment" group when they are above the 0.7 quantile (or about 1.8 in financial linkages) of the financial linkages

distribution.[61] I employ optimal full matching to balance covariates with smallest absolute mean distance (Hansen, 2004). There are 36 countries in the control group and 16 countries in the treated group. The covariate balance plot (Appendix Figure 12) shows that the balance has improved significantly after matching. The mean difference between treated and untreated countries for FDI inflows and property rights has been halved. Foreign bank share was pretty well-balanced before matching but improved slightly after matching. As a summary measure, the propensity score also became much smaller after matching.

Table 6: **Matching Analysis**

	Mfx	SE	N
(1) Matching (raw)	0.104	(0.051)	52
(2) Matching (with covariates)	0.126	(0.05)	52

Note: Based on Specification (3) in Table 1. Marginal effects with robust standard errors in parentheses.

With these preprocessed matched data, I estimate the average treatment effects on the treated. While matching and regression both make a selection-on-observables assumption, matching relaxes functional form assumptions about the covariates in the matching stage (Sekhon, 2009). Using the matched sample, countries with high financial linkages are 10.4 percentage points more likely to join the FSA. In Specification (1), I include covariates to capture any remaining imbalances after matching. When combined with covariates, financial linkages lead to an increase of 12.6 percentage points of likelihood of joining the FSA. Both results are statistically significant at 99% level.

As seen from the OLS and matching results, high financial linkages increase the probability of countries joining the FSA. Countries that have industries that depend on financial services inputs are more likely to join the international liberalization agreement on trade in financial services so that their domestic firms can access global financial services and capital. The results so far have demonstrated that financial linkages motivate countries to open up their markets to

[61] In Figure 11, I show that different cutoffs do not substantially alter my results.

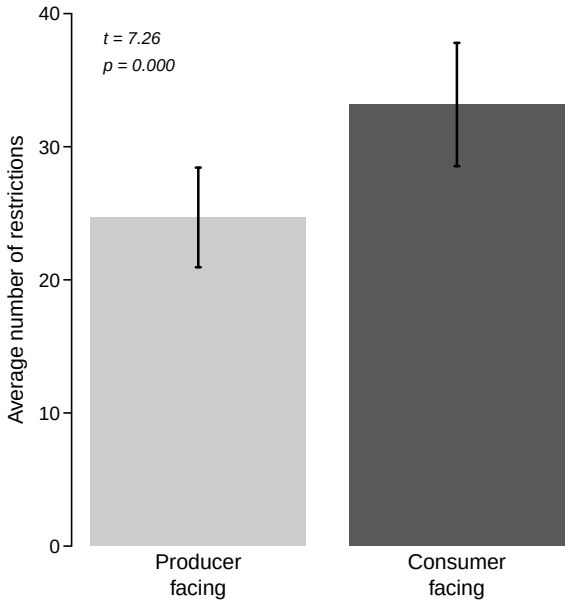


Figure 13: Restrictions based on the main clientele

foreign financial services providers' entry in order to attract foreign capital.

6.4 Types of Restrictions by Business Types

If countries opened their financial market for their businesses, we should see financial services that mostly serve businesses, such as securities services and non-life insurance, to be more open than financial services that mostly serve individuals, such as acceptance of deposits, lending, and life insurance (retail banking is predominantly owned by domestic financial firms, especially state-owned financial firms). I divide the data into consumer-facing financial services (retail banking, loans) and business-facing financial services (securities and non-life insurance) (Ellis, 1990; Allen et al., 2001). Figure 13 shows that indeed restrictions are more focused on consumer-facing financial services, in which domestic financial firms have a large market share in many countries, rather than producer-facing financial services.