The Impact of Liberalizing International Trade in Professional Services

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Abstract

We analyze trade in services using the economic model in Helpman, Melitz, and Yeaple (2004), which features multiple modes of supply and firm heterogeneity. We calibrate the model to the U.S. markets for architectural and engineering services and legal services, and then we estimate the economic impact of reducing fixed costs of supplying U.S. markets for these two types of professional services through cross-border trade and, alternatively, through affiliate transactions. Among other results, we estimate that reducing the fixed costs of trade in these professional services by half would have large effects on the value of cross-border imports into the U.S. market and on foreign affiliate sales in the U.S. market, but would have only small effects on the sales of domestic producers and on overall prices of the services in the U.S. market.

1. Introduction

The economic model of cross-border trade and horizontal foreign direct investment in Helpman, Melitz, and Yeaple (2004) is well suited for analyzing trade liberalization in services industries.[1] This relatively complex model captures many of the distinctive characteristics of trade in services. First, the international provision of services occurs through several alternative modes of supply, including cross-border trade and foreign affiliate transactions.[2] Second, there are often significant fixed costs for entering different national markets.[3] Third, the services of each provider are usually highly differentiated products. And, finally, although there are no tariffs or freight charges on cross-border trade in services, there can be significant nontariff barriers to trade.

We used the model to simulate the impact of trade liberalization in two professional services industries that supply services in foreign markets through multiple modes of delivery: architectural and engineering services, and legal services. In our specific applications, we estimate the effect of 50 percent reductions in the fixed costs to a foreign firm of exporting to the United States and in the incremental fixed costs to a foreign firm of providing services via a U.S.-based affiliate ("foreign affiliate sales") on trade in the two categories of professional services in the United States.[4]

We estimate that reducing the fixed costs of trade in these professional services by half would have large effects on the value of cross-border imports into the U.S. market and on foreign affiliate sales in the U.S. market, but would have only small effects on the sales of domestic producers and on the overall prices of the services in the U.S. market.[5] Holding the incremental fixed costs of foreign affiliate provision constant, a 50 percent reduction in the fixed costs of exporting to the U.S. market would increase cross-border imports by approximately 52 percent (architectural and engineering services) and 28 percent (legal services), and would reduce average prices prevailing in the respective industries by 0.19 and 0.04 percent. Holding the fixed costs of exporting to the United States constant, we estimate that a 50 percent reduction in the

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[1] Helpman, Melitz, and Yeaple did not originally apply their model to services industries. Their empirical analysis only includes manufacturing industries. Riker (2015) applies the HMY framework to services industries, but his data are not disaggregated by category of service. There is a large literature that empirically tests—and generally supports—the predictions of the Helpman, Melitz, and Yeaple model, including Girma, Kneller, and Pisu (2005) for U.K. firms, Tomiura (2007) for Japanese firms, Yeaple (2008) for U.S. firms, and Engel and Procher (2012) for French firms.

[2] In the General Agreement on Trade in Services (GATS) framework for services trade, cross-border trade roughly corresponds to mode 1 (cross-border supply), mode 2 (consumption abroad), and mode 4 (temporary movement of natural persons), while foreign affiliate transactions roughly correspond to mode 3 (commercial presence). Francois and Hoekman (2010) discuss the differences between the modes. Van der Marel and Shepherd (2013) provide evidence of intermodal switching in trade in services.

[3] In economic modeling, fixed costs refer to costs of participating in a market, regardless of the quantity of services provided. In contrast, variable costs increase with the quantity of services provided.

[4] This is arguably a realistic scenario to consider: there is a lot of room for reductions in these costs, but they are not all policy-actionable.

[5] The hypothetical 50 percent reductions in the fixed costs of trade are meant to illustrate the potential effects of liberalization and are not associated with specific policy changes that have occurred or are proposed.

incremental fixed costs of foreign affiliate provision would increase foreign affiliate sales in the U.S. by 26 percent (architectural and engineering services) and 28 percent (legal services), and would reduce average prices prevailing in the respective industries by 0.18 and .007 percent.

The rest of the paper is organized into five sections. Section 2 provides an overview of the international supply of the two types of professional services. Section 3 provides a brief summary of the economic modeling approach and the data that we use. Section 4 reports estimates of the impact of reducing fixed costs associated with trade in architectural and engineering services. Section 5 reports estimates of the impact of reducing fixed costs associated with trade in legal services. Section 6 draws conclusions and recommends directions for future research.

2. Trade in Architectural and Engineering Services and Legal Services

The economic models in this paper focus on U.S. inbound trade in professional services. The models are based on information from the International Services database of the U.S. Bureau of Economic Analysis (BEA) on U.S. foreign affiliate transactions and cross-border trade in 2012, by category of service and by partner country, and data from the 2012 Economic Census on total U.S. revenues of service providers in the United States, by category of service.[6] Table 1 summarizes these data for 2012.

Table 1: U.S. trade in certain professional services in 2012 (in billions of US dollars)

Category of services	Cross-border exports	Cross-border imports	Outbound FAS	Inbound FAS
Architectural and Engineering Services	13.411	4.807	35.780	12.874
Legal Services	8.280	2.033	5.125	0.134

Source: BEA International Services Database.

Note: FAS = foreign affiliate sales.

In addition to the information summarized in table 1, there is considerable evidence that there are substantial barriers to the foreign provision of these services in the U.S. market and abroad, as described below. This evidence is based on the Services Trade Restrictiveness Index (STRI) of the Organisation for Economic Co-operation and Development (OECD).[7] We expect that partial or complete elimination of these barriers will have economically significant effects on both modes of supply.

2.1   Architectural and Engineering Services

Architects and engineers provide services related to the construction and design of buildings and other infrastructure, as well as the design of industrial procedures and production processes. In

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[6] Grimm and Krishnan (2014) describe the BEA data.
[7] The OECD STRI reflects policies in place in 2013.

foreign markets, these services are supplied through multiple modes of delivery.[8] Due to technological advances, cross-border supply (or mode 1 supply), and specifically the digital delivery of services (for example, supplying architectural designs or engineering plans abroad via email), is a growing area of trade: U.S. cross-border exports and imports of architectural and engineering services respectively experienced 8.7 and 10 percent average yearly growth from 2006 to 2014.[9] Cross-border supply is often complemented by trade in the form of "movement of persons" or mode 4 trade, when architects and engineers travel to provide services in foreign markets. For example, architectural designs provided through cross-border delivery might also warrant the architect visiting the project site to implement and manage the project.

Finally, mode 3 trade, the supply of architectural and engineering services through the establishment of a commercial presence (e.g., a foreign affiliate), is an alternative and possibly complementary mode of supply, allowing companies to provide services throughout various phases of projects in host countries. Architectural and engineering services supplied by U.S.-owned foreign affiliates (foreign affiliate sales) grew by 14.7 percent between 2006 and 2012, while sales of U.S. affiliates of foreign firms (U.S. affiliate sales) grew by 6.1 percent between 2006 and 2012.[10] In 2012, the year of the data used in the model calibration, foreign affiliate sales ($35.8 billion) were more than double cross-border exports ($13.4 billion), and U.S. affiliate sales ($12.9 billion) far exceeded cross-border imports ($4.8 billion).[11]

Although policies related to the foreign provision of architectural and engineering services tend to be less restrictive than in other areas of professional services, countries' regulations on the entry or operation of foreign or foreign-owned service providers are still likely to impede trade in architectural and engineering services. The most notable examples of such regulations are discriminatory qualification and licensing requirements. The OECD STRI for architectural and engineering services divides trade restrictions into five groups: restrictions on foreign entry, restrictions to movement of people, barriers to competition, other discriminatory measures, and lack of regulatory transparency.[12]

In architectural and engineering services, the most prevalent restrictions are restrictions on movement of people (this category affects either all modes of trade or specifically mode 4 trade) and restrictions on foreign entry (this category affects mode 3 trade). In the former category, quotas and labor market tests—for example, work permits that depend on proving that the vacancy could not be filled by a local employee or that the work by the foreign employee will benefit the local economy—are prevalent; these restrict or limit foreign architects and engineers

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[8] Unless otherwise noted, this paragraph is based on Geloso Grosso et al. (2014a), 10–12.

[9] BEA, Interactive Data table 2.1 (accessed September 15, 2016). These are all available years of data. BEA data on cross-border trade roughly corresponds to modes 1, 2, and 4 (cross-border supply, consumption abroad, and the presence of natural persons) while BEA data on foreign affiliate transactions roughly corresponds to mode 3 (commercial presence) in the General Agreement on Trade in Services' modes of supply framework for services trade. See Koncz, Mann, and Nephew (2006), 39–40.

[10] BEA Interactive Data tables 3.1 and 4.1 (accessed September 15, 2016). These are all available years of data.

[11] BEA Interactive Data tables 2.1, 3.1, and 4.1 (accessed September 15, 2016).

[12] The following paragraph is based on Geloso Grosso et al. (2014a), 24–25.

from traveling to host countries on a temporary basis. Also in this category, restrictions on recognition of foreign qualifications (for example, local practice or examination requirements) and licensing (residency and, in a few cases, nationality requirements) are also widespread and affect all modes of trade.[13]

Restrictions that affect the entry of foreign firms include specific requirements on the composition of boards of directors or the management of engineering and architecture firms (such as residency), restrictions on acquiring land (which affects construction services directly and the architectural and engineering services indirectly). Also in this category are some cases of foreign equity restrictions for non-locally licensed architects. The remaining restrictions affect the use of professional titles (e.g., titles of "architect" or "engineer"), prices, and advertising of architectural services.[14]

Table 2 summarizes the most restrictive measures that apply to select countries with above-average architectural and engineering services STRI scores, as well as the United States. (The higher the score, the more restrictive the country in a given sector.) For example, Poland restricts allowable legal forms for architecture and engineering firms; conditions employment and residency permits on either proving positive local impacts or showing that the vacancy could not be filled locally; and maintains that providers of architectural and engineering services must be members of national associations that, in turn, require EU citizenship. The STRI scores for the United States are much lower than their counterparts in the other countries, suggesting that it places fewer or less intense restrictions on trade in these services.

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[13] Temporary licensing systems are often available and some countries recognize foreign degrees with some additional local criteria.

[14] For architectural, engineering, and legal services, the OECD STRI scores for the United States are based on policies in effect in the state of New York and may not reflect policies of other states.

Table 2: Architectural and engineering services restrictions for selected countries

Country and score	Restrictions on foreign entry	Restrictions on movement of people	Other
India Architecture: 0.626 Engineering: 0.273	Equity restrictions applying to non-locally licensed individuals or firms (architecture); legal form; residency (engineering) and nationality/licensing (architecture) for board of directors; acquisition and use of land and real estate by foreigners; repatriation of capital; mergers and acquisitions	Labor market tests; limitations on stay; requirements related to employment visas (engineering); nationality or citizenship requirement for license to practice (architecture)	Fee setting (architecture); advertising (architecture); minimum capital requirements
Poland Architecture: 0.435 Engineering: 0.427	Legal form; acquisition and use of land and real estate by foreigners	Labor market tests; limitations on stay; nationality or citizenship requirements for license to practice	Fee setting (architecture); minimum capital requirements
Slovakia Architecture: 0.471 Engineering: 0.484	Equity restrictions applying to non-locally licensed individuals or firms; licensing for board of directors; residency for management	Labor market tests; limitations on stay; nationality or citizenship requirements for license to practice	Fee setting (engineering); minimum capital requirements; advertising
United States Architecture: 0.15 Engineering: 0.18	Foreign investment screening	Quotas (contractual/independent service suppliers); local exam and practice requirements; permanent residency/domicile required for practice (engineering)	

Source: OECD Services Trade Restrictiveness Index Simulator (accessed September 21, 2016). http://sim.oecd.org/default.ashx.
Note: Most of the restrictive policies in the "Foreign Entry" and "Movement of People" categories are listed (excluding those which may be scored greater than 0 but are subsumed by a binding restriction). Selected restrictions in the remaining categories are listed. Worldwide, the average STRI score in architecture is 0.23 and in engineering is 0.20.

2.2 Legal Services

International trade in legal services typically involves foreign lawyers providing legal services in their home-country law, international law, or third-country law. Host-country law is normally subject to local requalification or restricted from trade.[15] However, growing numbers of foreign affiliates of law firms established abroad supply multi-jurisdictional advice for their local clients' international business dealings. As a result, providing services in host-country law is an increasingly important area of international trade.

It is reported that supplying legal services via the establishment of a commercial presence (mode 3) and via the movement of people (mode 4) are the preferred modes of delivery in foreign markets.[16] In 2012, U.S. cross-border exports ($8.3 billion) substantially exceeded foreign affiliate sales ($5.1 billion) of legal services; similarly, cross-border imports ($2 billion) greatly

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[15] Geloso Grosso et al. (2014b), 7–8.

[16] As indicated above, part of mode 4 is captured in the data on cross-border trade.

exceeded U.S. affiliate sales ($0.13 billion) of legal services. Cross-border imports have also grown at a faster average annual rate than U.S. affiliate sales (7.7 percent from 2006 to 2014, versus 1.8 percent from 2006 to 2013). However, foreign affiliate sales have grown at a faster average annual rate than cross-border exports of legal services in recent years (11.9 percent from 2006 to 2013 versus 7.4 percent from 2006 to 2014).[17]

Policies related to the foreign provision of legal services tend to be the most restrictive of all those affecting professional services.[18] The STRI for legal services is categorized into the same five groups as architectural and engineering services. Also like architectural and engineering services, the most prevalent are restrictions on movement of people and restrictions on foreign entry. Notably, in the former category, nationality and/or residency requirements to practice law, along with lack of recognition of foreign qualifications, are significant impediments and affect all modes of trade.[19] In this same category, quotas and labor market tests are also prevalent and block or limit foreign attorneys from traveling to host countries on a temporary basis.

When applicable, the category of restrictions affecting foreign entry differentiates between firms practicing international versus domestic law. For example, countries commonly restrict ownership of law firms to locally qualified lawyers only in the case of firms practicing domestic law. Other prevalent restrictions in this category include local qualifications for a majority of the board of directors, equity partners, and /or managers, and limits on commercial association between locally and non-locally licensed attorneys.[20] Restrictions in other categories relate to fee setting and advertising.

Table 3 presents the most restrictive measures that apply to select countries with above-average legal services STRI scores, as well as the United States. In the two cases where trade is completely restricted, nationality or residency restrictions apply to either or both domestic and international law practice and a temporary licensing system is not in place. In India, which has one of the most restrictive scores, legal services can be provided only by Indian citizens. Foreign law firms are not permitted to establish businesses and non-locally licensed attorneys cannot invest in law firms in India. Additionally, Indian law firms cannot commercially associate or partner with non-locally licensed attorneys and foreign law firms cannot hire local attorneys for the purpose of providing host-country (Indian) legal advice. Again, the STRI score for the United States is much lower than for counterparts in the other countries shown in the table, and this suggests that it places fewer or less intense restrictions on trade in these services.

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[17] BEA, Interactive Data, tables 2.1, 3.1, and 4.1 (accessed September 15 and 22, 2016). These are all available years of data.

[18] The following paragraph is based on Geloso Grosso et al. (2014b), 9–10, and OECD (2016), 2.

[19] Some countries have implemented limited-licensing schemes which circumvent the necessity to be licensed in the host country and allow foreign attorneys to practice in their qualified areas of law (typically known as foreign legal consultants). Temporary practice rules adopted by some jurisdictions are considered an additional avenue for foreign attorneys to be able to practice law.

[20] Restrictions on commercial association can impede the ability of foreign firms to partner with or employ local lawyers as an avenue to provide host country law to their clients, without the need to requalify in local markets.

Table 3: Legal services restrictions for selected countries

Country and score	Restrictions on foreign entry	Restrictions on movement of people	Other
India Legal: 0.946	No foreign equity in law firms; restrictions on ownership by non-locally licensed attorneys (both domestic and international); prohibitions on commercial association and hiring local lawyers	Labor market tests; limitations on stay; citizenship required for practice (both domestic and international law)	Advertising prohibited (non-discriminatory)
South Korea Legal: 0.475	Restrictions on ownership by lawyers (South Korean law firms, domestic law); certain commercial association restrictions; board of directors and managers must be lawyers in South Korean law firms (domestic law); local office for foreign legal consultants; repatriation of profits	Limitation on stay; residency for foreign legal consultants; domicile requirement for domestic and international law; education and practice requirements for domestic law; lack of temporary licensing	
Poland Legal: 1.000	Restrictions on ownership by non-locally licensed attorneys (both domestic and international); legal form; certain restrictions on commercial association; board of directors and managers must be licensed lawyers; establishment requirements for host-country law	Labor market tests; limitations on stay; domicile requirements for host-country law; recognition of foreign qualifications based on reciprocity (international law) and/or education/practice in Poland (domestic law); lack of temporary licensing	Advertising restrictions; minimum capital requirements
United States Legal: 0.160	Licensing requirements for board of directors and managers (domestic law); foreign investment screening; local-office requirements for nonresident attorneys	Quotas (contractual/independent service suppliers); local exam requirements (domestic law); lack of temporary licensing	

Source: OECD Services Trade Restrictiveness Index Simulator (accessed September 21, 2016). http://sim.oecd.org/default.ashx.
Note: Most of the restrictive policies in the "Foreign Entry" and "Movement of People" categories are listed (excluding those which may be scored greater than zero but are subsumed by a binding restriction). In the case of India, many scored measures are not listed because they are not applicable, given that foreign law firms are not permitted to establish in India. Selected restrictions in the remaining categories are listed. Worldwide, the average STRI score in legal services is 0.36.

3. Economic Modeling Framework

Next, we briefly describe the economic model that we use to estimate the impact of reducing barriers to different modes of trade in professional services. Khachaturian and Riker (2016) provides a detailed technical explanation of the model.

The economic model focuses narrowly on one category of services at a time—first architectural and engineering services, and then legal services. Providers within each service category vary in their labor productivity, so in the terminology of the economic literature, the model includes firm

heterogeneity within the industry. The firms provide services that are differentiated from the services provided by other firms within their service category.

The model includes three costs of serving a foreign market. The first is a variable cost of cross-border exports. The second is a fixed cost of cross-border exports. The third is a fixed cost incurred when a firm from one country establishes a foreign affiliate in another country. Following Helpman, Melitz, and Yeaple, we represent this third cost in terms of the incremental fixed cost of foreign affiliate sales relative to cross-border exports.[21]

Firms decide whether they will serve foreign markets through cross-border exports or foreign affiliate sales, based on the relative magnitudes of these different variable and fixed costs as they affect the relative profitability of each of these modes of supply. According to the model, the most productive firms are the largest and establish foreign affiliates, while the least productive firms only serve their domestic market.[22]

We use the model to simulate the change in the value of cross-border exports, foreign affiliate sales, domestic sales, and average prices if there were significant reductions in the two types of fixed costs, based on data about market shares, the substitutability of firms' services in consumer demand, the differences in productivity across the firms, and the size of the trade costs.

Table 4 reports the market shares for cross-border imports and foreign affiliate sales in the U.S. market. The denominator for these share calculations, total consumption of services in the U.S. market, is calculated as the sum of total revenue of service providers in the United States, from the 2012 Economic Census, minus cross-border exports from the United States plus cross-border imports into the United States, from the BEA data in table 1.[23]

Table 4: Market shares in the U.S. market in 2012 (percent)

Category of services	Share of cross-border imports	Share of inbound FAS
Architectural and engineering services	1.87	5.00
Legal services	0.80	0.05

Source: BEA, International Services database. Note: FAS = foreign affiliate sales.

Other inputs for the model are drawn from the economic literature on trade and firm heterogeneity, specifically Zhai (2008) and Di Giovanni, Levchenko, and Rancière (2011). We calibrate the relative magnitude of the two types of fixed costs of supplying the U.S. market based on relative market shares. Finally, we consider several different values of variable trade costs, since these are not directly observable. We consider a range, from variable trade costs that increase prices by 10 percent to variable trade costs that increase prices by 30 percent.

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[21] This is the cost of establishing foreign affiliate production, in excess of the cost of gaining market access.

[22] In the Helpman, Melitz, and Yeaple model, firms vary in their productivity. The most productive firms have the most domestic sales and also find it profitable to enter foreign markets by establishing a foreign affiliate.

[23] Domestic sales of foreign-owned affiliates in the United States (or foreign affiliate sales) are included in the U.S. Census Bureau's revenue statistics.

4. Estimated Impact on Trade in Architectural and Engineering Services

First, we estimate the effects of reducing fixed costs of exporting to the United States and the incremental fixed costs of foreign affiliate provision in the United States on international trade in architectural and engineering services. Table 5 reports that a 50 percent reduction in the fixed cost of exporting (holding the incremental fixed costs of foreign affiliate provision fixed) would increase cross-border imports into the United States by approximately 52 percent. It would reduce the price index for the services category by approximately 0.19 percent. This would benefit consumers in the United States, but would also reduce the demand for services supplied through the other modes of supply.[24] Domestic sales and foreign affiliate sales in the United States would both decline by approximately 1 percent.[25]

Table 5: Estimated impact on trade in architectural and engineering services

Economic outcome (in percent changes)	Variable trade costs	50 percent reduction in fixed costs of cross-border imports	50 percent reduction in incremental fixed costs of foreign affiliate provision
Foreign affiliate sales in the United States	1.1	-0.9951	26.8387
	1.2	-1.0145	26.8581
	1.3	-0.9656	26.8092
Cross-border imports into the United States	1.1	52.2175	-26.3739
	1.2	53.2382	-27.3946
	1.3	50.6730	-24.8294
Domestic sales in the U.S. market	1.1	-0.9951	-0.9113
	1.2	-1.0145	-0.8919
	1.3	-0.9656	-0.9408
Price index in the U.S. market	1.1	-0.1939	-0.1776
	1.2	-0.1977	-0.1738
	1.3	-0.1882	-0.1833

Source: Khachaturian and Riker (2016).

Separately, table 5 reports that a 50 percent reduction in the incremental fixed costs of foreign affiliate provision in the United States (holding the fixed costs of exporting fixed) would increase foreign affiliate sales in the United States by 26 percent. It would reduce the price index for the services category by approximately 0.18 percent. This would benefit consumers in the United States but would also reduce the demand for domestic sales in the United States by approximately 1 percent and for cross-border imports by approximately 26 percent.

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[24] The four modes of supply are listed in footnote 2.
[25] In the economic model, the increase in the competitiveness of cross-border imports leads to proportional diversion from the other services competing in the market, which means equal percentage reductions in their sales.

The effects of simultaneously reducing both types of fixed costs is simply the sum (or net) of the effects in the two columns for each row in table 5. In this case, there would be a net increase in foreign affiliate sales and cross-border imports and a net decrease in domestic sales and in the price index for the range of values of variable trade costs that we considered.

5. Estimated Impact on Trade in Legal Services

Finally, we estimate the effects of reducing fixed costs of exporting to the United States and incremental fixed costs of foreign affiliate provision in the United States on international trade in legal services. Table 6 reports that a 50 percent reduction in fixed costs of exporting to the United States would increase cross-border imports into the United States by approximately 28 percent. It would reduce the price index for the services category by approximately 0.04 percent. This would benefit consumers in the United States but would also reduce the demand for both domestic sales and foreign affiliate sales in the United States by 0.23 percent.

Table 6: Estimated impact on trade in legal services

Economic outcome (in percent changes)	Variable trade costs	50 percent reduction in fixed costs of cross-border imports	50 percent reduction in incremental fixed costs of foreign affiliate provision
Foreign affiliate sales in the United States	1.1	-0.2292	27.7434
	1.2	-0.2282	27.7423
	1.3	-0.2271	27.7412
Cross-border imports into the United States	1.1	28.4257	-0.9116
	1.2	28.2981	-0.7840
	1.3	28.1584	-0.6443
Domestic sales in the U.S. Market	1.1	-0.2292	-0.0066
	1.2	-0.2282	-0.0077
	1.3	-0.2271	-0.0088
Price index in the U.S. Market	1.1	-0.0447	-0.0013
	1.2	-0.0445	-0.0015
	1.3	-0.0443	-0.0017

Source: Khachaturian and Riker (2016).

Separately, table 6 reports that a 50 percent reduction in the incremental fixed costs of foreign affiliate provision in the United States would increase foreign affiliate sales of the services in the United States by approximately 28 percent. It will reduce the price index for the services category by approximately 0.001 percent. This would benefit consumers in the United States but would also reduce the demand for domestic sales in the United States by approximately 0.007 percent, and cross-border imports by approximately 0.8 percent. The smaller effects in table 6 reflect the very small share of foreign affiliate sales and cross-border imports into the U.S.

market for legal services, as reported in table 4. In fact, all of the differences in the estimates in table 6, relative to table 5, are due to the differences in these market shares.

6. Conclusions

We use the economic model to quantify the impact of reducing fixed costs of trade in two categories of professional services in the United States. We estimate that reducing the fixed costs of trade in these professional services by half would have large effects on the value of cross-border imports into the U.S. market and on foreign affiliate sales in the U.S. market but would have only small effects on the sales of domestic producers and on overall prices of the services in the U.S. market.

These models quantify the economic impact of hypothetical reductions in the fixed costs of trade, but they do not provide a method for estimating the size of cost reductions associated with specific policy changes. To illustrate how the model works, we have assumed 50 percent reductions in one or both of the types of fixed costs. The sizes of such potential reductions are critical inputs into an analysis of actual policy changes and are therefore a very important area for future research.

Finally, our review of OECD STRIs in tables 2 and 3 suggest that there may be even larger potential gains from liberalizing markets for services in other countries, though the challenge for future research that applies the model to the foreign markets will be collecting reliable data on market shares of the different service providers in these markets.

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