

Trade Restrictions and Modes of Supply in Services Trade

Tamar Khachaturian

Abstract

Services are supplied to foreign markets through multiple modes of delivery. However, the share of services supplied through particular modes is not well known, it is not clear whether and to what degree these different modes are complements or substitutes, and the effects of trade policy on the mode of services delivery is an open question. The analysis in this paper calculates the ratios of U.S. cross-border exports to foreign affiliate sales in professional services and financial services and relates them to the ratios of barriers across modes in each country to assess whether their relationship is consistent with substitutability or complementarity in the provision of services in foreign markets. There appears to be a negative relationship between the relative proportion of cross-border exports to foreign affiliate sales and relative services trade restrictions across modes, which is consistent with inter-modal substitution and suggests that service providers may shift between modes in response to these barriers.

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Introduction

Services are supplied to foreign markets through multiple modes of delivery. For example, services can be provided digitally across borders or through the travel of service supplier or client (collectively referred to here as cross-border trade), or through the establishment of a local commercial presence (foreign affiliate sales). However, the share of services supplied through particular modes is not well known and it is not clear whether and to what degree these different modes are complements or substitutes.¹ Although research points to the substantial impact that non-tariff measures (NTMs) have on services trade generally, the effects of trade policy on the mode of services delivery is an open question. The purpose of this paper is to assess whether the relationship between the ratio of mode-specific barriers and the ratio of trade and foreign affiliate sales is consistent with substitutability or complementarity in the provision of services in foreign markets.

The degree of inter-modal substitution versus complementarity in response to policy environments likely varies across industries and countries, and is expected to change with increased digital delivery of services. Recent empirical work suggests that in the aggregate (across private services trade as a whole) there is switching between modes of supply in response to trade barriers, lending support to the idea that restrictions lead to substitution across modes.² In these estimations, cross-border trade restrictions are associated with increased foreign affiliate sales and barriers on foreign affiliates are associated with increased cross-border exports. However, in some industries, barriers on foreign affiliates are associated with decreased cross-border exports, evidence that providing services to foreign markets via multiple modes is complementary in nature.³ These analyses focusing on levels of trade have the advantage of quantifying the cross-effects of barriers on the value of trade. The analysis in this paper calculates the ratios of U.S. cross-border exports to foreign affiliate sales in professional services and financial services and relates them to the ratios of barriers across modes in each country. Focusing on ratios facilitates a consideration of how the relative size of barriers at any given level of restrictiveness relates to how trade is conducted and apportioned across modes at any given value of trade.

Data Sources

To create ratios of cross border exports to foreign affiliate sales, a certain level of sectoral aggregation is required in order to match data, since it is necessary to use statistics from multiple datasets. The U.S. Bureau of Economic Analysis (BEA) reports data on sales by majority owned foreign affiliates to foreign persons, which roughly correspond to mode 3 transactions, and data on cross-border exports, which

¹ U.S. services trade data only roughly correspond to the four modes. See USITC, *Recent Trends, 2017*, Box 1.1, 28 and Mann, “Exploratory Estimates,” 2017.

² Riker, “The Impact of Restrictions on Mode 3 International Supply of Services,” 2015; and Van der Marel and Shepherd, “Services Trade, Regulation and Regional Integration,” 2013.

³ Van der Marel and Shepherd, “Services Trade, Regulation and Regional Integration,” 2013. Feedback from industry representatives indicate multiple modes of supply are necessary to deliver services abroad. USITC, *Recent Trends, 2017*, 141–143.

roughly correspond to modes 1, 2, and 4.⁴ For the purposes of this analysis, data for 2013 were obtained from BEA Interactive Data Tables 2.3 (cross-border exports) and 4.4 (affiliate sales).⁵ The industries for this analysis—professional services and financial services—were chosen based on data availability. For professional services, data on “professional, scientific, and technical services” from BEA Table 4.4 were matched with data on “other business services” from Table 2.3,⁶ and for financial services, data on “finance and insurance” from BEA Table 4.4 were matched with data on “insurance” and “financial services” from BEA Table 2.3.

In order to observe the relationship between the ratio of modal trade and relative modal barriers, BEA trade data are matched with measures from the World Bank Services Trade Restrictions Database (STRI).⁷ BEA data on professional services correspond to the World Bank STRI on professional services (which reflects barriers in legal and accounting and auditing services), while BEA data on financial services correspond to the World Bank STRI on financial services (which reflects barriers in banking and insurance). The STRI is measured on a scale of 0-100, where 0 is completely open to trade and 100 is completely closed. Restrictions are measured separately for cross-border trade (mode 1) and the

⁴ With some exceptions, it is presumed that data on cross-border exports predominantly capture mode 1 transactions. For both insurance and financial services, exploratory estimates attribute most or all of cross-border trade to mode 1 transactions. For other business services, exploratory estimates attribute 3/4 of the value of cross-border trade to mode 1 and 1/4 to mode 4 transactions, with variation in certain subcategories (for example, 2/3 of professional and management consulting services are attributed to mode 1 and 1/3 to mode 4). See Mann, “Exploratory Estimates,” 2017.

⁵ USDOC, BEA, Interactive Data Tables 2.3 and 4.4, December 19, 2016. The BEA collects data on an industry basis for foreign affiliate sales and by activity for cross-border exports, which for some industries may lead to lack of concordance between the statistics. See USITC, Recent Trends, 2017, Box 5.2, 115 for related discussion on legal services. Beginning in 2013, data in Table 2.3 is reported for a larger set of countries and is available for a greater number of discrete industries including separate categories of professional services such as advertising and legal services. Data from Tables 4.1 and 4.4 are similar. However, Table 4.1 includes data for only 11 countries while Table 4.4 includes data for over 50 countries but at higher levels of industry aggregation (services data are available for wholesale trade, retail trade; information services; finance and insurance; professional, scientific, and technical services; and other industries). Rather than using data from a more recent year, data from 2013 are used in this analysis to better match services trade restrictions data, which typically corresponds to policies as of 2009.

⁶ The match between Table 2.3 and Table 4.4 is not exact. Based on BEA Table 4.1, the aggregated data on “professional, scientific, and technical services” from Table 4.4 appears to include architectural, engineering, and related services; computer systems design and related services; management, scientific, and technical consulting services; legal services; accounting, tax preparation, bookkeeping, and payroll services; specialized design services; scientific research and development services; and advertising and related services. These data were matched with cross-border trade data for “other business services” from Table 2.3. This category includes research and development services; professional and management consulting (legal; accounting, auditing, and bookkeeping services; business and management consulting and public relations services; and advertising); and technical, trade-related, and other business services (architectural and engineering services; construction; industrial engineering; operating and leasing services; and other). Though the data from Table 2.3 is not aggregated, the aggregated total was used for simplicity.

⁷ World Bank, “Services Trade Restrictions Index,” n.d. (accessed July 7, 2017).

provision of services through foreign affiliates (mode 3).⁸ Ratios of mode 1 to mode 3 barriers are calculated to match the ratios of exports to foreign affiliate sales. For the purposes of creating STRI ratios and avoiding zeroes in the denominator, a “1” had been added to all STRI observations.

Descriptive Statistics

Trade and Foreign Affiliate Sales

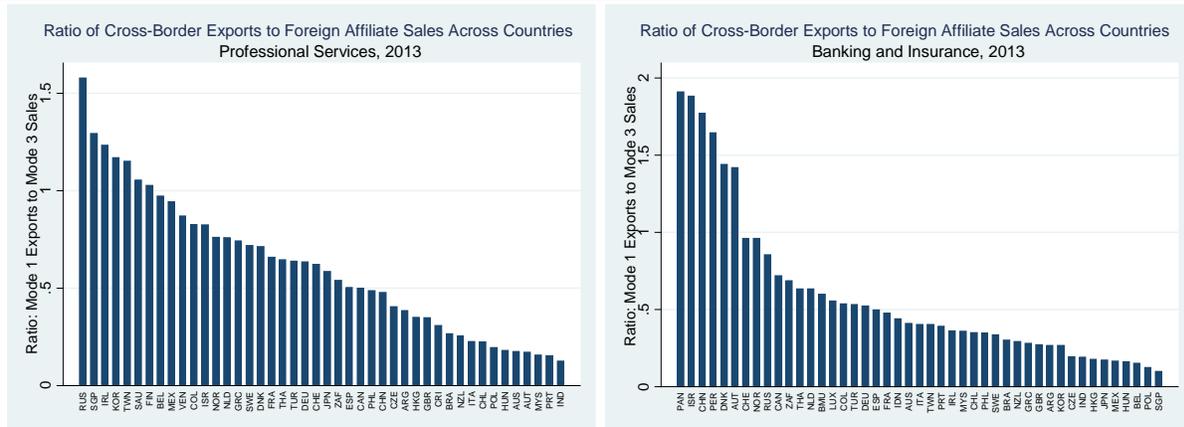
The analysis below calculates the ratios of U.S. cross-border exports to foreign affiliate sales in two aggregated services sectors for the year 2013: professional services and financial services. A ratio of cross-border trade to foreign affiliate sales that is lower than 1 implies a larger share of mode 3 trade. For example, the ratio for India’s professional services sector is 0.13: mode 1 exports (\$1.1 billion) were substantially lower than foreign affiliate sales (\$8.3 billion). A ratio of cross-border trade to foreign affiliate sales higher than 1 implies a larger share of cross-border trade. For example, the ratio in Russia’s professional services sector is 1.6: mode 1 exports (\$1.3 billion) were higher than foreign affiliate sales (\$813 million).

The following graphs depict the ratios across countries. It is clear that most ratios are below 1, implying a greater share of foreign affiliate sales. For presentational purposes, five observations in professional services and two in financial services with ratios above 3 are not shown on the graphs.⁹

⁸ The World Bank calculates a country’s overall STRI score for a particular sector as an aggregation of mode-specific STRIs using modal weights which vary by sector (see Borchert, Gootiiz, and Mattoo, “Guide to the Services Trade Restrictions Database,” 2012, 53-54). Although the World Bank also measures mode 4 restrictions in professional services, they are not included in this analysis. Instead, the focus is the ratio of mode 1 to mode 3 barriers since it is presumed that cross-border exports would be most directly impacted by mode 1 barriers (see footnote 4 above). Adding mode 1 and 4 barriers (without weights) and creating a ratio with respect to mode 3 barriers does not change the observed relationship between the ratio of modal barriers and ratio of modal trade discussed below.

⁹ The mean ratio for professional services for all 49 countries in the sample is 1.44; when the five countries with ratios of cross border trade to foreign affiliate sales ratios above 3 are removed, the mean ratio is 0.61. The mean ratio for financial services for all 47 countries in the sample is 0.92; when the two countries with ratios above 3 are removed, the mean ratio is 0.58. As mentioned above, cross-border exports and foreign affiliate sales statistics may not be directly comparable.

Figure 1: Ratio of Cross-Border Exports to Foreign Affiliate Sales: Professional Services and Banking and Insurance Services, 2013



Source: USDOC, BEA, Interactive Data Tables 2.3 and 4.4, December 19, 2016. Data points for each country are available upon request.

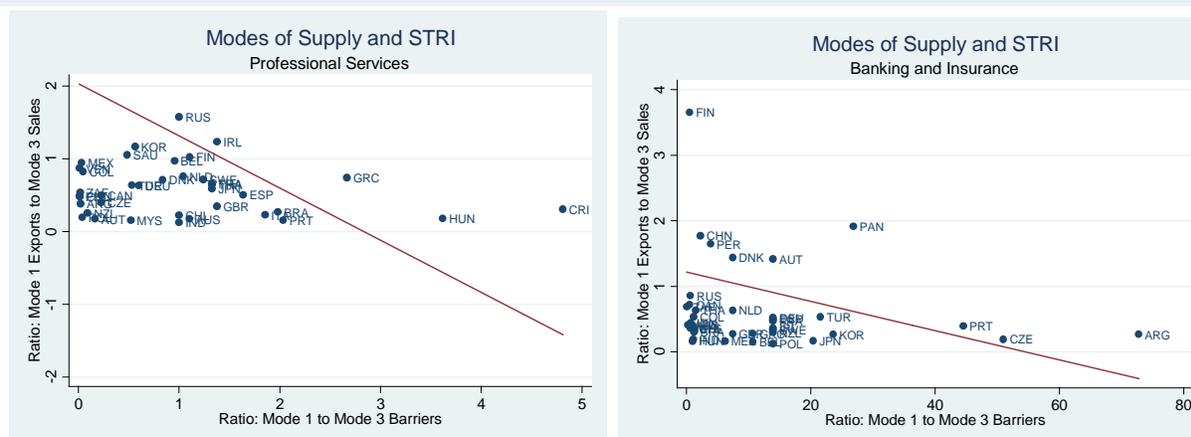
Services Trade Restrictions

For 73 of the 103 countries for which STRIs are available, mode 1 barriers to trade in financial services are higher (more restrictive) than mode 3 barriers in that sector, rendering the ratio of mode 1/mode 3 barriers greater than 1 and as high as 71.77 in the case of Argentina (where mode 1 barriers are 71.77 and mode 3 is completely open). Conversely, for 62 of these 103 countries, mode 3 barriers are higher (more restrictive) than mode 1 barriers in the professional services sector, rendering the ratio of mode 1/mode 3 barriers less than 1. There are 33 observations for which mode 1 barriers to trade in professional services are greater than mode 3 barriers, and are as high as 41.67 in the case of Mozambique (where mode 1 barriers are 41.67 and mode 3 is completely open). For the subset of countries used in the analysis below for which STRI and trade data are both available, the range of mode 1/mode 3 STRI ratios is 0.04 to 72.77 for financial services and 0.01 to 4.8 for professional services.

Modes of Supply and STRI

As with the value of trade, the relative proportion of trade across modes is likely impacted by many factors, including distance between trading partners, the existence of free trade agreements, industry characteristics, regulations, and services trade restrictions. The focus in this section is on the relationship between the relative services trade restrictions across modes and the relative proportion of cross-border exports to foreign affiliate sales.

Figure 2: Ratio of Cross-Border Exports to Foreign Affiliate Sales and Relative Services Trade Restrictions: Professional Services and Banking and Insurance Services



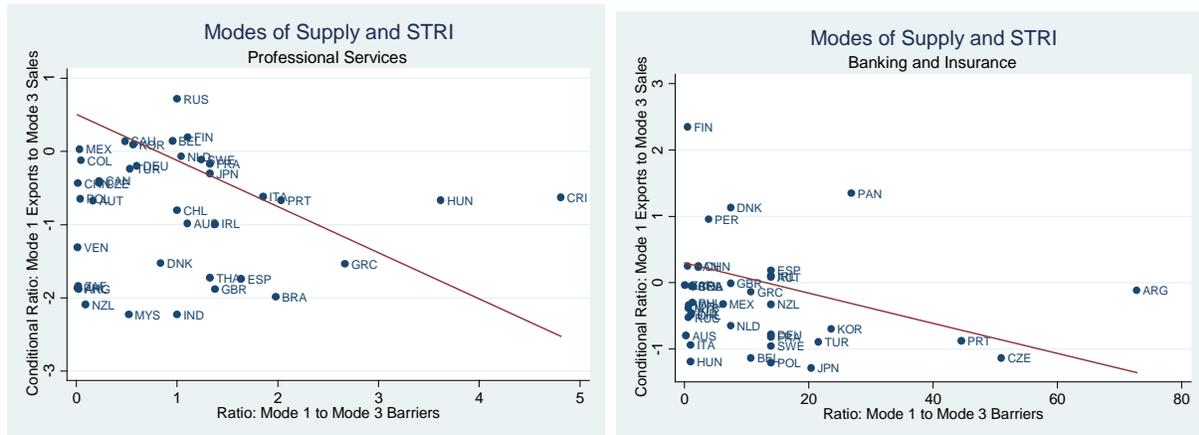
Sources: USDOC, BEA, Interactive Data Tables 2.3 and 4.4, December 19, 2016; World Bank, “Services Trade Restrictions Index,” n.d. (accessed July 7, 2017). Data points for each country are available upon request.

The graphs above are scatterplots of relative mode 1/mode 3 barriers and cross-border export/foreign affiliate sales ratios, and include a regression line that is fitted to the two variables. The regression includes all available data while, for presentation purposes, the scatterplots exclude data for countries with high ratios of cross border trade to foreign affiliate sales (ratios above 3 in professional services and above 10 in financial services). In both the banking and professional services sectors, there appears to be a negative relationship between the ratio of mode 1/mode 3 barriers and the ratio of cross border exports to foreign affiliate sales. This relationship suggests that higher relative “within-mode” barriers is associated with less trade in that mode and greater trade via the other mode, and is consistent with inter-modal substitution. In other words, higher relative mode 3 barriers are associated with lower relative foreign affiliate sales, while higher relative mode 1 barriers are associated with less relative cross-border exports, suggesting that service providers may shift between modes in response to these barriers. For example, Korea’s mode 1 professional services STRI (33) is almost half of its mode 3 STRI (60) and cross-border exports of professional services to that country exceed foreign affiliate sales. Conversely, Hungary’s mode 1 professional services STRI (75) is more than triple its mode 3 STRI (20) and foreign affiliate sales of such services to Hungary exceed cross-border exports.

The same relationship is also shown in the graphs below. The conditional ratios of trade in these graphs are adjusted for whether or not the United States has an FTA with the partner country as well as the distance and presence or absence of a common language between the United States and the trading partner.¹⁰

¹⁰ The ratios of trade are regressed on indicators described above; the residuals are then plotted against the ratio of trade barriers and a regression line is fitted between the plotted variables. Data on language and distance are from Gurevich and Herman, “The Dynamic Gravity Dataset: 1948-2016,” 2018, and data on FTAs are from U.S. International Trade Commission, “Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report” 2016.

Figure 3: Conditional Ratio of Cross-Border Exports to Foreign Affiliate Sales and Relative Services Trade Restrictions: Professional Services and Banking and Insurance Services



Sources: USDOC, BEA, Interactive Data Tables 2.3 and 4.4, December 19, 2016; World Bank, “Services Trade Restrictions Index,” n.d. (accessed July 7, 2017); Gurevich and Herman, “The Dynamic Gravity Dataset: 1948-2016,” 2018; U.S. International Trade Commission, “Economic Impact of Trade Agreements Implemented Under Trade Authorities Procedures, 2016 Report” 2016. Data points for each country are available upon request.

Conclusion and Areas for Further Research

The results of the analysis presented in this paper are consistent with inter-modal substitution and imply that specific policies may have a broad effect on how trade is conducted. While this is a useful conclusion, this analysis does not account for, and thus cannot speak to, certain factors that may impact service providers’ potential shifts between modes of supply. For example, technical feasibility and industry norms may impact providers’ ability or willingness to supply services through a particular mode. Future research should further explore how the types of services offered within industries differ across modes, in order to determine the degree that modes can act as substitutes versus complements, and thereby better understand the impact of trade policy. Additionally, when data are available, it would be helpful to examine more closely the relationship between changes in restrictions and shifts in the share of trade across modes over time.

Finally, since differences in the collection of cross-border trade and affiliate transactions data may potentially make it problematic to make comparisons across modes within certain industries, future research using microdata could helpfully shed light on the degree of concordance across industries.

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