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Determinants of the Export of Financial and Insurance & Pension Services

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Finans ve Sigortacılık & Emeklilik Hizmetleri İhracatının Belirleyicileri

Abstract

International trade in services, defined as the backbone of the global economy, is expected to take approximately 50% by 2040 globally. Among services, two service categories are financial and insurance & pension services. Considering the contribution of the exports of these services to the local and global economy and the increasing trend of their export values, this study aims to examine the main determinants of the export of financial and, insurance & pension services. Therefore, it analyses the impacts of changes in Foreign Direct Investment Inflows and Outflows, Financial Institutions Depth, Corruption Perception Index, Gross Domestic Product, and Federal Funds Rate on the export of financial and insurance & pension services. The Panel Fixed Effect Model is applied using annual panel data from 2005 through 2018 for 82 high and middle-income countries. Empirical findings show that Financial Institutions Depth and Gross Domestic Product have positive effects on the export of financial and insurance & pension services in high-income countries, while for middle-income countries, Financial Institutions Depth, Gross Domestic Product, and Foreign Direct Investment Outflow variables promote the export of financial and insurance & pension services.

Keywords : Service Sector, International Trade in Services, Financial Service Export, Insurance & Pension Services Export.

JEL Classification Codes : C23, F10, F30, G20, G22.

Öz

Küresel ekonominin bel kemiği olarak tanımlanan uluslararası hizmet ticaretinin, 2040 yılına kadar dünya genelindeki payının yaklaşık %50 olması beklenmektedir. Hizmet kategorileri arasındaki finans ve sigortacılık & emeklilik hizmetleri ihracatının yerel ve küresel ekonomiye katkısı ve ihracatındaki artış trendi göz önüne alındığında, bu çalışma, finans ve sigortacılık & emeklilik hizmetleri ihracatının temel belirleyicilerini incelemeyi amaçlamaktadır. Doğrudan Yabancı Yatırım Giriş ve Çıkışları, Finansal Kurumların Derinliği, Yolsuzluk Algı Endeksi, Gayrisafi Yurtiçi Hasıla (GSYH) ve Federal Rezerv Bankası Fon Oranlarındaki değişikliklerin finans ve sigortacılık & emeklilik hizmetleri ihracatı üzerindeki etkilerini analiz eder. 2005-2018 yılları arasında 82 yüksek ve orta gelirli ülkeler için yıllık panel veriler kullanılarak Panel Sabit Etki Modeli uygulanmıştır. Ampirik bulgular, yüksek gelirli ülkelerde Finansal Kurumların Derinliğinin ve GSYH'nin finans ve sigortacılık

& emeklilik hizmetleri ihracatı üzerinde olumlu etkileri olduğunu ortaya koyarken orta gelirli ülkeler için, Finansal Kurumların Derinliği, GSYH ve Doğrudan Yabancı Yatırım Çıkış değişkenlerinin finans ve sigortacılık & emeklilik hizmetlerinin ihracatını teşvik ettiğini göstermektedir.

Anahtar Sözcükler : Hizmet Sektörü, Uluslararası Hizmet Ticareti, Finans Hizmeti İhracatı, Sigortacılık & Emeklilik Hizmetleri İhracatı.

1. Introduction

Services are the most dynamic component of international trade and the backbone of the global economy (WTO, 2019a: 7). They are defined as the engine of growth since they cover a large economic area (Mattoo et al., 2008: 335). Trade-in services can help economies achieve more rapid growth, enhance domestic firms' competitiveness, and promote inclusiveness regarding skills, gender, and economic activity location. Since services are supplied as an intermediate in producing goods, and digital technologies provide remote connections, more services are tradable. Developing and developed countries try to improve themselves in this field (Amador et al., 2019: 128). The share of trade in services in world Gross Domestic Product (GDP) has followed a linearly increasing trend nearly for 50 years. In the twentieth century, the service sector is seen as one of the principal actors in global trade. It is estimated that the share of trade in services will reach approximately 50% by 2040 globally (WTO, 2019a: 10). Therefore, trade in services provides international investors and exporters (Lu et al., 2012: 1637).

General Agreement of Trade in Services (GATS), entered into force on January 1, 1995, is the first set of legally enforceable rules covering international trade in services. It provides transparent and predictable conditions under which services companies can operate (WTO, 2019a: 11). GATS expresses international trade in services as the service supply through four modes - cross border supply, consumption abroad, commercial presence, and natural persons - based on the producer and the consumer (United Nations, 2010). Besides GATS classification, United Nations (UN) Extended Balance of Payments (EBOPS) 2010[1] declared 12 service categories in the *Manual on Statistics of International Trade in Services.*

Two of them are the financial and insurance & pension services. Financial services assume greater importance and are defined as the economy's brain and regarded as a source of comparative advantage and trade of economies (Do & Levchenko, 2004: 2; WTO, 2019a: 67). According to El Khoury (2006: 7), financial services prove a country's development level since they enable global transactions and facilitate exchanging goods and services. Developed financial systems positively affect economic growth. Essentially, the financial system is the core component of the economy. It is related to economic and socio-political institutions (Dowell-Jones & Buckley, 2016: 8). Since all economic activities depend on access to financial services, the share of the financial service sector in global trade has grown since the 1980s by encouraging global economic growth via financial intermediaries (such

[1] *See; <http://unstats.un.org/unsd/tradeserv/TFSITS/msits2010/annexes.htm>, 25.05.2021.*

as banks and insurance companies), markets (such as stock and bond markets). Insurance & pension services have a significant role in economic development (Khatun, 2016: 215). At the same time, the rapid growth of financial services contributes to the development of the insurance & pension service sector (Impavido & Tower, 2009: 5). Insurance & pension services play a significant role in the functioning of an economy as facilitators of production in trade in all goods and services (Rouzet et al., 2014: 4).

As a part of the financial system, the insurance sector has a critical role in financial and economic development (Khatun, 2016: 215). Insurance & pension services protect people who withdraw from the labour market from falling into poverty (Cuadros-Menaca, 2020: 1). According to Haiss & Sümegi (2008: 422), the rationale behind how insurance influences economic growth is two. First, the significance of the insurance sector among the total financial intermediation has increased over time. Second, the engagement and intensity of links between insurance, capital markets, and banking have improved. The development of insurance & pension systems promotes the role of the capital market in supporting growth (Impavido & Tower, 2009: 6). Therefore, as a component of the financial service sector, insurance & pension services play a significant role in the functioning of an economy as facilitators of production in trade in all goods and services (Rouzet et al., 2014: 6). The prominent role of these sectors in the regional and global integration of the financial services markets and the economic growth should not be ignored (Gani & Clemes, 2016: 512).

In particular, countries have power in international business areas by increasing their exporting activities to support their national economies (Lindemane, 2011a: 961). Lindemane (2012: 355) claims that the core point of exporting financial services is a country's export capability. As an indicator of a country's export capability, the 'market capacity' reveals that the level of financial services calculated in the currency may be realised at a certain price level. Lindemane (2011a: 962) created a scheme that shows the key factors of a country's financial service export strategy. The three basic steps for this strategy are as follows: (i) identifying the level of internal and external financial services market saturation, (ii) identifying key factors and measuring the country's potential in financial services export growth, (iii) analysing legislation in importing countries and choosing of channels for export of financial services.

According to United Nations Conference on Trade and Development (UNCTAD) statistics[2], the total export of financial and, insurance & pension services has substantially increased and attracted the attention of many developed countries. The share of financial and insurance & pension services exports is significant among the total service exports. While the export of service sector is increasing steadily, exports of financial and, insurance & pension services are growing. According to Trade Map statistics[3], all services exported value was around five trillion dollars in the world in 2020. Among these values, the share of financial services export is 533 billion dollars. The export value of insurance & pension

[2] *See; <https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=135718>, 25.05.2021.*

[3] *See; <https://www.trademap.org/Service_SelService_TS.aspx?nvpm=>, 25.05.2021.*

services is 134 billion dollars worldwide. The percentage of financial and insurance & pension services exports among all services export is approximately 14%.

We now show a holistic approach by handling these two service categories together based on the most recent classification of EBOPS 2010. Due to the lack of empirical studies that analyse these two service sectors' exports, we meticulously focused on the main determinants of exporting these service categories. When considering their export's importance for economies, this paper is intended to demonstrate the main determinants of financial and insurance & pension services exports for high and middle-income economies by applying panel data analysis. Therefore, the paper investigates the impacts of changes in Foreign Direct Investment (FDI) Inflows and Outflows, Financial Institutions Depth, Corruption Perception Index (CPI), GDP (constant 2010 US$) of countries, and Federal Funds Rate on financial and insurance & pension services export.

The rest of the paper is organised in the following manner: Section 2 discusses the literature regarding financial and, insurance & pension services and handles the most appropriate determinants of these services exports. Section 3 presents the definitions of the variables and data used. Section 4 provides the study's methodology and the findings of the empirical analysis. Finally, section 5 concludes the study.

2. Literature Review and Main Determinants of the Export of Financial and Insurance & Pension Services

Many papers pay attention to the importance of financial and, insurance & pension services that are accepted as a fundamental component of the modern market-led economies and contribute to economic growth (Levine, 1997: 689; Mattoo et al., 2006: 66; Demirgüç-Kunt & Levine, 2008: 4; Gani & Clemes, 2016: 512). In this context, we review the relevant literature and emphasise the main determinants of the export of financial and insurance & pension services.

El Khoury (2006: 282) points out that financial services indicate a country's development level since they enable global transactions and facilitate exchanging goods and services. Due to the interaction of financial services with other services such as transportation and information & communication technologies (ICT), trade in financial services (TIFS) has gained much importance in both developed and developing countries. Thus, many countries seek an advantage in the financial services sector (Lorde et al., 2015: 556). De Haan et al. (2012) state that a developed financial system directs funds to their most productive ones for economic development. Therefore, countries with a well-developed financial system develop fast since the external financing constraints restraining firms' and industries' expansion are diminished (Demirgüç-Kunt & Levine, 2008: 32). Also, thanks to the developed financial sector, international trade in services can increase competition and encourage innovation since the financial resources are secured and distributed efficiently (Gonzalez, 2019: 4). Moreover, since developed financial systems contribute to better corporate governance and efficient allocation of resources, there is a significant influence

on the relationship between financial development and economic growth (Ang & Mckibbin, 2007: 216).

According to United Nations (2010: 63-67), the content of financial services in EBOPS 2010 Sectoral Classification List is evaluated as financial advisory services, financial asset management services, merger and acquisition services, corporate finance and venture capital services, credit card and other credit-granting services, custody services for financial assets or bullion, foreign exchange, regulation and administration of financial markets, service charges on purchases of International Monetary Fund (IMF) and resources commissions, credit rating, costs associated with undrawn balances under standby or extended arrangements with IMF, financial intermediation services indirectly measured (FISIM) and fees associated with financial transactions such as money transfer, letters of credit, factoring and financial leasing.

The insurance & pension services assure people who withdraw from the labour market to avoid poverty and other risks (Cuadros-Menaca, 2020: 11). Insurance & pension services consist of direct insurance (life insurance, freight insurance, and additional direct insurance), reinsurance, auxiliary insurance services, pension, and standardised guarantee services (pension services and standardised guarantee services) (United Nations, 2010: 57). Export of financial and, insurance & pension services can be defined as providing financial services by financial institutions (such as banks, insurance, broker companies, etc.) supplied in one country to the clients of another country (Lindemane, 2011a: 960).

With the development of digital technologies, these services can be supplied quickly without physical proximity between service suppliers and consumers. The recent decades' technological advances and promotion of the free-market economy reveal more cross-border financial, insurance & pension services activities. Face-to-face interaction is not necessary, thanks to the possibility of exporting services via digital platforms. For instance, a bank can offer its services electronically, or insurance firms underwrite and submit claims online. Mobile banking, e-banking, and online sales methods have become popular in the global business world thanks to digitally-enabled services (WTO, 2019b: 25), and the share of export of financial and insurance & pension services export is approximately 14% among all services in 2020 via 670 billion dollars.

At this point, it is required to know the determinants of financial and insurance & pension services export since they are the resource of comparative advantage and trade (Do & Levchenko, 2004: 2), and their export provides inflows of money into the domestic economy (Briggs, 2017: 8). Therefore, Table 1 shows the main determinants of the export of financial and insurance & pension services most closely related to the literature.

Table: 1
Main Determinants of the Export of Financial and Insurance & Pension Services Export

	Determinant	Literature
1	Financial Institutions Depth	The primary stimuli that initiatives the export of financial services is the saturation of the domestic market with financial services (Lindemane, 2011b: 74). This depends on the financial development of the domestic market (Harms et al., 2003: 98), so the core determinant of financial and, insurance & pension services export is the 'financial development' of the domestic market. Sahay et al. (2015:5) define financial development as *'a depth of size markets, access financial services, and efficiency for the ability of institutions to provide financial services at with sustainable revenues, and activeness of financial market'.* Access, depth, and efficiency of financial markets and institutions characterise the financial development level of the country (Čihák et al., 2012: 3). According to the IMF Financial Development database[4], financial development depends on the development level of financial institutions and financial markets. Among them, '**Financial Institutions Depth'** compiles data on bank credit to the private sector in per cent of GDP, pension fund assets to GDP, mutual fund assets to GDP and insurance premiums, life and non-life to GDP. This determinant is a specific and inclusive variable for the export of financial and, insurance & pension services; it is seen as the primary determinant of these services' export.
2	FDI Inflows and Outflows	For the export of financial and, insurance & pension services, the financial development of the domestic market is a core determinant that depends on financial openness (Mattoo et al., 2006: 83; Borchert et al., 2020: 30). The advances in the financial system increase the trade openness level of the country (Do & Levchenko, 2004: 18). According to Ozkok (2015: 9-15), variation in financial improvement across countries depends on financial openness and over time, so in this field, FDI movements ensure financial openness. Lindemane (2011a: 966) uses the 'Financial Freedom' indicator, which means *free competition and the lowest intervention by the government in the financial sector (through direct regulation, property rights, etc.).* The benefits of international trade in financial and insurance & pension services are seen with foreign banks and insurance companies through FDIs by transferring knowledge and technology. That is why we draw attention to FDI Inflow and Outflow. To illustrate, in 2017, around 77% of financial services were traded worldwide through foreign affiliates (WTO, 2019a: 25). Specifically, in insurance service export, FDI movements in insurance are significant determinants for developing home and host countries' insurance markets (Moshirian, 1999: 192; Cole et al., 2012: 926). According to World Trade Organization (WTO) Report (2019a: 178), FDIs (including in non-services sectors) are a determinant for service export. The study by Eichengreen & Gupta (2013) demonstrates the relationship between FDI inflows and services exports in 60 emerging markets. Ahmad et al. (2018) mention a positive relationship between FDI inflows and services exports in 13 Asian economies. Therefore, the FDI Inflow and Outflow are the main determinants of exporting financial, insurance & pension services.
3	Corruption Perception Index (CPI)	Transparency is an indicator of the dysfunction and corruption levels and affects the trade dynamics of countries (Lindemane, 2011a: 966-971). Gelos and Wei (2005: 3012) note that international funds prefer to hold more assets in more transparent markets. They suggest that becoming more transparent contributes to global financial integration by avoiding volatility during unstable times. Also, poor public governance discourages FDI and portfolio equity inflows to countries (Kose et al., 2009: 45). The presence of transparency in financial and insurance & pension institutions and markets prevents governments from information asymmetries that cause an inefficient allocation of financial flows and mismatches. Hence, as an indicator of transparency, CPI is seen one of the main determinants of the export of financial and insurance & pension services.
4	GDP (Constant US$)	The financial system affects the economy's structure and is indirectly relevant to economic development's inclusiveness (Honohan, 2008: 2493). According to Rouzet et al. (2014: 6), financial and insurance services are shareholders of the economy in terms of GDP and facilitation of the production of trade in goods and services. The size of the banking system and the liquidity of stock markets are positively related to economic growth (Demirgüç-Kunt & Levine, 2008: 43). Beck et al. (2000: 63) demonstrate that financial intermediaries positively impact total factor productivity growth, contributing to overall GDP growth. As UNCTAD (2020b: 14) presents, the leading financial services exporters are developed economies and have a comparative advantage in the financial services export in the world. Also, Ma & Pope (2003: 239) measure 'insurance demand' in the host country using the GDP variable. Their results suggest that the development of the economy is positively correlated with the participation of foreign insurers. When the relationship between economic growth and financial development, GDP is seen as one of the main determinants of export finance and insurance & pension services.

[4] *See; <https://data.imf.org/?sk=F8032E80-B36C-43B1-AC26-493C5B1CD33B>, 25.05.2021.*

5	Federal Funds Rate	Global interest rates are another global determinant affecting capital flows and the insurance market. Firstly, the real interest rate is one of the determinants of capital flows. Especially, high-interest rates in the short term are perceived as an opportunity for speculative activities, so increasing profitable arbitrage and speculation opportunities generate many capital flows by stimulating portfolio investments across financial markets (Eratas & Oztekin, 2010: 60). According to Ahmed & Zlate (2014: 221), capital flows lead to an efficient allocation of resources that increases economic growth, and significant capital inflows may cause an appreciation of currencies, which affect export and growth performance. Many studies have found the effect of U.S. interest rates on capital flows. Calvo et al. (1993: 140) state that the low U.S. interest rates attract capital inflows to the USA. Also, Byrne & Fiess (2011: 19) also show that U.S. interest rates are a significant determinant of global capital flows to Emerging Market Economies (EMEs). Kim (2000: 236) points out that decreases in the world interest rates increased the capital flows in the 2000s. Therefore, when we consider that the capital flows are a determinant of financial service export, we use Federal Funds Rates as a determinant of global capital flows. Besides the effect of U.S. Interest Rates on capital flows, particularly during times of persistently low-interest rates, the income of life insurers from investments may be insufficient to meet contractually guaranteed obligations to policyholders, which cannot be lowered. Rising interest rates enhance life insurers' cash flows (CIPRnewsletter, 2014: 20). If capital market interest rates are expected to remain low, life insurers will have to set aside more reserves and raise premiums. In terms of pension services, especially group pensions, require higher provisions than individual businesses if interest rates remain low (Holsboer, 2000: 43). The effect of interest rates is seen on the export of financial and insurance & pension services. That is why Federal Funds Rate has been stressed as one of the main determinants of exporting financial, insurance & pension services.

3. Dataset and Model Specification

In this section, we present our study's dataset and econometric model. This balanced panel dataset contains 14 years' annual panel data of the export values of financial and insurance & pension services of 82 countries over the period 2005-2018. We select this period because the export values of the financial and insurance & pension services are available for 82 countries between 2005 and 2018 in the Trade Map database.

The high correlation between financial service export value and insurance & pension services export value (approximately 0.8504) is the reason to use their total values as a dependent variable: *Export of Financial and Insurance & Pension Services Export.* This high correlation refers to financial services exporters and insurance & pension services exporters.

Besides the dependent variable, Export of Financial and Insurance & Pension Services Export, the empirical model of our study contains such variables: FDI Inflow, FDI Outflow, Financial Institutions Depth, Corruption Perception Index (CPI), GDP (constant 2010 US$), and Federal Funds Rate for the estimation of determinants of financial and insurance & pension services export of the countries. The definitions and sources of our data set are summarised in Table 2 as follows:

Table: 2
Dataset

No	Variable	Definition	Time	Source
1	(ln)Export	Total Export of Financial and Insurance & Pension Services	2005 - 2018	Trade Map
2	FDI Inflow (% of GDP)	Foreign Direct Investment Inflow	2005 - 2018	World Bank
3	FDI Outflow (% of GDP)	Foreign Direct Investment Outflow	2005 - 2018	World Bank
4	(ln)Financial Institutions Depth	Financial Institutions Depth Index	2005 - 2018	IMF
6	(ln)CPI	Corruption Perception Index	2005 - 2018	Transparency International
7	(ln)GDP	Gross Domestic Product (constant 2010 US $)	2005 - 2018	World Bank
8	(ln)FEDInterest	Federal Funds Rate	2005 - 2018	FRED Economic Data

According to the World Bank country classification, the study divides countries into high and middle-income groups to analyse the impact of determinants separately. 42 out of 82 countries belong to the high-income group, while the rest are middle-income countries.

Separation of countries according to their income levels instead of their development levels is more effective on the significance and validity of the analysis results. Because when based on the classification made by UNCTAD (2020a: 1-9), some developing countries (e.g., Singapore and Hong Kong, China) rank ahead of developed countries (e.g., Japan and Canada) among the leading exporters of financial and insurance & pension services. Therefore, when these countries are considered according to their income levels, they can come together under the group of high-income countries. However, the leading financial and, insurance & pension services exporters cannot come together in a classification that takes the countries' development levels. That is why we prefer to select countries according to their income levels.

The regression model of the study aims to reveal the determinants that influence the financial and insurance & pension services exported by countries. The econometric panel regression model of the study is specified as:

$$\ln Export_{it} = \beta_0 + \beta_1 FDIInflow_{it} + \beta_2 FDIOutflow_{it} + \beta_3 (\ln) FinancialInstitutionsDepth_{it} + \beta_4 (\ln) CPI_{it} + \beta_5 (\ln) GDP_{it} + \beta_6 (\ln) FEDInterest_{it} + \beta_7 FDIOutflow*(\ln) FEDInterest_{it} + \mu_{it} \quad (1)$$

where the subscript *i* represents the country (*i* =1, 2,…,82) and *t* represents time (*t*=2005, 2006,.., 2018) in the panel regression model. In addition to this, applied economists estimate interaction terms to infer how the effect of one independent variable on the dependent variable depends on the magnitude of another independent variable (Ai & Norton, 2003: 123). Therefore, the model will be run with an interaction between FDI Outflow and Federal Funds Rates.

4. Empirical Analysis Result

The study's independent variables are chosen by referencing financial, insurance & pension services literature. Table 3 reports the descriptive statistics, and Table 4 provides a correlation matrix of the variables (at level) used in the analysis separately for high and middle-income groups.

Descriptive statistics reveal the difference between high-income and middle-income countries. Export volume, FDI (inflow and outflow), institutional financial depth, and GDP of high-income countries are more than middle incomes. In addition to this, the corruption perception in middle-income countries is higher. Also, the correlation of high-income countries' variables (such as FDIInflow and FDIOutflow, Export and GDP) demonstrates a stronger correlation than middle-income ones.

We conduct the Levin-Lin-Chu (LLC) unit root test to determine whether the variables are stationary. The unit root test helps identify whether the trend is stochastic, through the presence of a unit root, or deterministic through a polynomial-time trend (Phillips & Perron, 1988: 335). Therefore, we apply unit root tests to the series of high and middle-income countries. After the unit root test, the regression's Fixed Effect (FE) Model

is estimated. The diagnostic tests - heteroskedasticity, autocorrelation, and cross-sectional independence - will be applied to model whether it is valid and appropriate. The existence of even one of these problems negatively affects the validity of the model so that robustness estimators should be applied according to the problems involved.

Table: 3
Descriptive Statistics of Variables

	Variable	Obs.	Mean	St. Dev.	Min.	Max.	Skewness	Kurtosis
High Income Countries	Export	588	1.03e	2.33e	8772	1.50e	3.564	16.492
	FDIInflow	588	11.004	36.888	-58.322	451.639	7.595	72.273
	FDIOutflow	588	8.127	31.647	-89.659	301.249	5.385	41.909
	FinancialInstitutions Depth	588	.561	.262	.095	1	.022	1.773
	CPI	588	67.872	16.676	31	97	-.214	1.990
	GDP	588	1.06e	2.57e	7.92e	1.79e	4.670	26.525
	FEDInterest	588	1.375	1.732	.09	5.02	1.188	2.946
	(Interaction term) FDIOutflow*(ln)FEDInterest)	588	-3.735	60.517	-687.702	352.183	-5.167	61.238
Middle Income Countries	Export	560	759969.6	1583252	3246	9105070	3.180	13.335
	FDIInflow	560	4.007	3.821	-1.391	33.795	2.797	15.954
	FDIOutflow	560	.989	2.437	-2.589	30.328	8.501	95.429
	FinancialInstitutions Depth	560	.206	.181	.015	.883	2.007	6.923
	CPI	560	33.001	8.871	17	65	.885	3.896
	GDP	560	4.72e	1.23e	3.86e	1.09e	5.282	35.761
	FEDInterest	560	1.375	1.732	.09	5.02	1.188	2.946
	(Interaction term) FDIOutflow*(ln)FEDInterest)	560	-.441	3.979	-13.994	47.005	6.395	77.661

Table: 4
Correlation Matrix

	Variable	Export	FDIInflow	FDIOutflow	FinancialInstDepth	CPI	GDP	FEDInterest	Interaction Term FDIOutflow* (ln)FEDInterest
High Income Countries	Export	1.000							
	FDIInflow	-0.027	1.000						
	FDIOutflow	0.027	0.803	1.000					
	FinancialInstitutions Depth	0.423	0.045	0.049	1.000				
	CPI	0.249	-0.010	0.065	0.721	1.000			
	GDP	0.712	-0.092	-0.065	0.301	0.120	1.000		
	FEDInterest	-0.059	0.067	0.068	-0.022	0.023	-0.008	1.000	
	(Interaction term) FDIOutflow*(ln)FEDInterest)	-0.016	-0.514	-0.205	0.028	-0.011	0.014	0.228	1.000
Middle Income Countries	Export	1.000							
	FDIInflow	-0.058	1.000						
	FDIOutflow	0.222	0.428	1.000					
	FinancialInstitutionsDepth	0.204	-0.129	0.099	1.000				
	CPI	0.057	-0.072	-0.033	0.558	1.000			
	GDP	0.656	-0.135	0.015	0.265	0.093	1.000		
	FEDInterest	0.111	0.211	0.090	-0.070	-0.101	-0.046	1.000	
	(Interaction term) FDIOutflow*(ln)FEDInterest)	-0.070	0.276	0.536	-0.135	-0.088	-0.039	0.393	1.000

4.1. Panel Unit Root Test

A stationary process shows that variance and mean do not change over time. In other words, able to say that a process is stationary, its variance and mean are constant over time and the value of the covariance between two time periods depends on the distance or lag between the two time periods and not on the actual time at which the covariance is computed

(Gujarati & Porter, 1999: 382). Stationary series means the elimination of the spurious regression. The Levin-Lin-Chu (LLC) unit root test is applied to test the stationarity level of variables. According to Levin et al. (2002: 4), the hypotheses are:

- H_0: Panels contain unit roots.

- Ha: Panels are stationary.

The LLC unit root test results of variables are presented in Table 5:

Table: 5
Unit Root Tests

		High-Income Countries		Middle-Income Countries	
		Adjusted t	*p-value*	*Adjusted t*	*p-value*
Levin-Lin-Chun	(ln)Export	-8.122	0.000	-6.968	0.000
	FDIInflow (% of GDP)	-7.840	0.000	-7.069	0.000
	FDIOutflow (% of GDP)	-6.055	0.000	-6.103	0.000
	(ln)FinancialInstitutionsDepth	-2.803	0.002	-7.856	0.000
	(ln)CPI	-6.329	0.000	-5.363	0.000
	(ln)GDP	-3.247	0.000	0.342	0.633
	(ln)FEDInterest	-6.222	0.000	-6.072	0.000
	(Interaction term) FDIOutflow*(ln)FEDInterest	-7.605	0.000	-6.801	0.000

Except for the (ln)GDP variable of the middle-income group, all p-values are less than 5% in both economic groups. The Null Hypothesis of the LLC unit root test is rejected, and these variables are stationary. In the rest of the analysis, only the (ln)GDP[5] variable will be included in the panel regression model with its first difference form (via D.(ln)GDP notation). In contrast, others are included at the level form for middle-income countries.

4.2. Heteroskedasticity, Autocorrelation, and Cross-sectional Independence Tests

To have an unbiased and consistent regression model, we check the heteroskedasticity, autocorrelation, and cross-section dependency encountered in the model.

Table: 6
Heteroskedasticity Test

Modified Wald Test for Groupwise Heteroskedasticity		
	High-Income Countries	**Middle-Income Countries**
chi2	3338.03	8108.69
Prob>chi2	0.000	0.000

Since Prob>chi2 is less than 5%, the H_0 hypothesis is rejected. This indicates that there is a problem with heteroskedasticity in the respective model. It shows that the error term is not homogeneously distributed to the variables in the series.

[5] *The variable is stationary in its first difference for middle-income group.*

Table: 7
Autocorrelation Test

Autocorrelation		
	High-Income Countries	**Middle-Income Countries**
Durbin Watson	.554	.885
Baltagi-Wu LBI	.772	1.087

Durbin-Watson and Baltagi-Wu LBI test results are less than 2, indicating an autocorrelation problem in the Fixed Effects Model for both high and middle-income groups.

Table: 8
Cross-Sectional Dependency Test

	High-Income Countries	**Middle-Income Countries**
Pesaran's test of cross-sectional independence	14.271	3.494
Prob.	0.000	0.000
Frees' test of cross-sectional independence	6.162	3.861
Alpha 0.05	0.243	0.262

It is seen that there is cross-section dependence in the fixed model established according to Pesaran and Frees tests in high and middle-income categories.

Before applying the robustness estimator for the model, we have proved the 'Robust Hausman' tests for FE Model for high and middle-income groups. Since heteroskedasticity and other forms of temporal and cross-sectional dependency problems are encountered in our panel dataset, we perform a robust Hausman test to general forms of spatial and temporal dependence and are suitable for most econometric applications (Hoechle, 2007: 281). Tables 9 and 10 demonstrate the Robust Hausman test results for country groups.

Table: 9
Robust Hausman Test for High Income Group

	Variable	**-Coefficients-** (b) FE	(B) REgls	(b-B) Difference	sqrt (diag(V_b-V_B)) S.E.		
High-Income Countries	FDIInflow	-.002	-.002	-.000	.000		
	FDIOutflow	-.000	-.001	.000	.000		
	(ln)FinancialInstitutions Depth	.206	.518	-.312	.087		
	(ln)CPI	-.304	.139	-.443	.110		
	(ln)GDP	2.580	1.130	1.450 .159			
	(ln)FEDInterest	-.074	-.081	.007	.001		
	(Interaction term) FDIOutflow*(ln)FEDInterest)	-.000	-.001	.000	.000		
		b = consistent under Ho and Ha; obtained from xtreg					
	B = inconsistent under Ha, efficient under Ho; obtained from xtreg						

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 121.11
Prob>chi2 = 0.000

Table: 10
Robust Hausman Test for Middle Income Group

	Variable	-Coefficients- (b) FE	(B) REgls	(b-B) Difference	sqrt (diag(V_b-V_B)) S.E.		
Middle-Income Countries	FDIInflow	-.022	-.027	.004	.002		
	FDIOutflow	.061	.076	-.014	.006		
	(ln)FinancialInstitutions Depth	-.071	.220	-.291	.089		
	(ln)CPI	-.653	-.216	-.436	.103		
	D.(ln)GDP	1.849	.972	.876	.187		
	(ln)FEDInterest	.033	.025	.007	.003		
	(Interaction term) FDIOutflow*(ln)FEDInterest)	-.016	-.025	.008	.001		
		b = consistent under Ho and Ha; obtained from xtreg					
	B = inconsistent under Ha, efficient under Ho; obtained from xtreg						

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 52.60
Prob>chi2 = 0.000

According to the Robust Hausman tests, the null hypothesis is rejected at the 5% significance level. Therefore, the Robust Hausman test shows that the applied Regression FE Model is acceptable.

4.3. Prais-Winsten Standard Errors Estimator Model

There are heteroskedasticity, autocorrelation, and cross-section dependency problems in the fixed model we have established for high and middle-income countries. Therefore, we must use robustness estimators to eliminate these problems and make the model significant. Due to these three problems in our Fixed Model, we prefer to use Prais-Winsten Estimator. Additionally, Prais-Winsten Standard Errors Estimator is more efficient for small samples based on Ordinary Least Squares (OLS) estimation. Tables 11 and 12 give the robustness tests for high and middle-income countries, respectively.

Table: 11
Fixed Effect Estimation for High-Income Countries

Prais-Winsten Standard Errors Estimator Model		
(ln)Export	**Coef.**	**P > z**
FDI Inflow (% of GDP)	-.000	0.781
FDI Outflow (% of GDP)	.000	0.938
(ln)FinancialInstitutions Depth	1.041	0.000
(ln)CPI	.038	0.888
(ln)GDP	.717	0.000
(ln)FEDInterest	9.85e	1.000
cons.	-4.087	0.061
R-squared		0.917
Wald chi 2		644.07
Prob>chi 2		0.000
Rho		.861

According to the result Prais-Winsten Standard Errors Estimator, Financial Institutions Depth and GDP variables significantly affect the Export variable in the high-income group.

Table: 12
Fixed Effect Estimation for Middle-Income Countries

Prais-Winsten Standard Errors Estimator Model		
(ln)Export	**Coef.**	**P > z**
FDI Inflow (% of GDP)	.009	0.452
FDI Outflow (% of GDP)	.072	0.028
(ln)FinancialInstitutions Depth	.232	0.046
(ln)CPI	-.126	0.646
D.(ln)GDP	.864	0.000
(ln)FEDInterest	.013	0.739
cons.	-9.211	0.000
R-squared		0.860
Wald chi 2		588.06
Prob>chi 2		0.000
Rho		.783

Tables 11 and 12 show that Financial Institutions Depth and GDP (constant 2010 US$) affect Financial and Insurance & Pension Services Export successively at 5% and 1% significance levels. In addition, the coefficient of Financial Institutions Depth reveals the relationship with the dependent variables as elastic for high-income countries.

4.4. Robustness Check

Robustness is necessary for valid causal inference in that the coefficients of the critical core variables should be insensitive to adding or dropping variables under appropriate conditions (Lu & White, 2014: 195). Differently, instead of the Federal Funds Rate, LIBOR (London Interbank Offered Rate) is the reference rate at which large banks indicate that they can borrow short-term wholesale funds is added to check the validity of interest rates in the robustness. Tables 13 and 14 report the robust regression results for high- and middle-income countries.

Table: 13
Fixed Effect Robustness Test for High-Income Countries

Prais-Winsten Standard Errors Estimator Model (High Incomes)		
(ln)Export	**Coef.**	**P > z**
FDI Inflow (% of GDP)	-.000	0.908
FDI Outflow (% of GDP)	.000	0.775
(ln)FinancialInstitutionsDepth	1.042	0.000
(ln)CPI	.036	0.892
(ln)GDP	.719	0.000
(ln)LIBOR	-.100	0.344
cons.	-4.118	0.056
R-squared		0.917
Wald chi 2		657.27
Prob>chi 2		0.000
Rho		.858

According to the Prais-Winsten Standard Errors Estimator, Financial Institutions Depth and GDP variables significantly affect the Export variable in the high-income group. Table 13 presents that Financial Institutions Depth and GDP (constant 2010 US$) affect Financial and Insurance & Pension Services Export positively at a 1% significance level.

Table: 14
Fixed Effect Robustness Test for Middle-Income Countries

Prais-Winsten Standard Errors Estimator Model (Middle Incomes)		
(ln)Export	**Coef.**	**P > z**
FDI Inflow (% of GDP)	.008	0.515
FDI Outflow (% of GDP)	.089	0.002
(ln)FinancialInstitutionsDepth	.225	0.043
(ln)CPI	-.111	0.662
D.(ln)GDP	.861	0.000
(ln)LIBOR	-.006	0.944
cons.	-9.207	0.000
R-squared		0.861
Wald chi 2		681.72
Prob>chi 2		0.000
Rho		.773

The Prais-Winsten Standard Errors Estimator results demonstrate that FDI Outflow, Financial Institutions Depth, and GDP variables significantly and positively affect the middle-income group's Financial and Insurance & Pension Services Export. However, the impact of GDP is higher (0.861) than the other variables in the model.

The fact that the financial institution's depth index is meaningful for exporting financial and insurance & pension services for both country groups indicates that the model was constructed correctly. According to the studies of Lindemane (2011b: 74); Čihák et al. (2012: 3); Sahay et al. (2015: 5), the export of financial and insurance & pension services depends on the financial development of economies. Since financial institutions' depth index compiles data on bank credit to the private sector in per cent of GDP, pension fund assets to GDP, mutual fund assets to GDP and insurance premiums, life, and non-life to GDP, we can say that we have reached a coherent finding with the literature for financial and insurance & pension services export. Besides, some emerging economies' role increases in these services' export. Even the report of UNCTAD (2020b: 14) attracts attention to the economic growth of leading financial services exporters. Therefore, increasing the GDP value of both country groups positively affects exports of financial and insurance & pension services. This result is closely related to literature, too.

Lastly, the significant positive effect of FDI Outflow on the export of financial and insurance & pension services for middle-income countries indicates that middle-income economies will gain more from financial and insurance & pension services export when they are more open, as Ozkok (2015: 9-15) states that FDI outflows ensure financial openness that encourages financial and, insurance & pension services export. Contrary to our expectations, we cannot comment on FDI Inflow, CPI, and LIBOR variables because the coefficients of variables are insignificant.

5. Conclusion

Services defined as the backbone of the global economy and the growth engine, are the most dynamic component of international trade. According to EBOPS 2010, there are 12 service categories in the *Manual on Statistics of International Trade in Services.* Two of them are the financial and insurance & pension services. They are regarded as a comparative

advantage and trade of economies (Do & Levchenko, 2004: 2; WTO, 2019a: 67). Their volume and importance are increasing due to their intermediate role in producing goods and services. They show a country's development level since they enable global transactions and facilitate exchanging goods and services. Thanks to the technological advances and promotion of the free-market economy in the last decades, the export of financial, insurance & pension services increased yearly. They constitute 14% of all service exports in 2020 via 670 billion dollars. Hence, this study examines the main determinants of export financial, insurance & pension services for high- and middle-income countries. Specifically, the study analyses the impacts of changes in FDI inflows and outflows, financial institutions' depth, corruption perception index, GDP (constant 2010 US$), and Federal Funds Rate on financial and insurance & pension services export. In addition, we have added an interaction term (*FDI Outflow*(ln)FEDInterest*) to infer how the effect of one independent variable on the dependent variable depends on the magnitude of another independent variable. Via annual panel data from 2005 through 2018 for 82 high and middle-income countries, Panel Fixed Effect (FE) model is applied to identify the impact of determinants of financial and insurance & pension services export. After we controlled the validity of the FE Model with Robust Hausman Tests for two country groups, we tested the model using Prais-Winsten Standard Errors Estimator due to heteroscedasticity and autocorrelation and cross-section dependence problems. We have checked the FE model with Prais-Winsten Standard Errors Estimator by adding LIBOR rates instead of Federal Funds Rates.

As a result, this paper shows that financial institutions' depth and GDP in high-income countries positively impact the financial and insurance & pension export. Additionally, financial institutions' depth, GDP, and FDI outflow variables promote exporting financial, insurance & pension services to middle-income countries.

It is possible to say that we have reached a coherent finding with the literature for financial and insurance & pension services export since both determinants are closely linked with 'Financial Development', which initiative Financial and Insurance & Pension Services Export (Beck et al., 2000: 63; Ma & Pope, 2003: 239; Demirgüç-Kunt & Levine, 2008: 4; Honohan, 2008: 2493; Lindemane, 2011b: 74; Rouzet et al., 2014: 4).

Also, the finding that FDI outflow activities promote the export of financial and insurance & pension services in middle-income economies supports that FDI movements in insurance are significant determinants for the development of home and host countries' insurance markets (Moshirian, 1999: 192; Cole et al., 2012: 926). Besides, around 77% of financial services were traded worldwide through foreign affiliates (WTO, 2019a: 25).

This result for developed countries shows that when some of these countries, positioned as financial centres, lose their positions against other developed countries, finance and insurance flows will decrease. These countries need to protect their competitiveness against shifts favouring other developed countries in this sense. On the other hand, the experience of middle-income countries due to the increased attempts to invest abroad will contribute to developing their finance and insurance markets.

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