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Trends and Accounting Factors of South Korea's Outward Foreign Direct Investment

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Trends and Accounting Factors of South Korea's Outward Foreign Direct Investment

Kyung Hyun Kim*

Abstract

This paper empirically studies the changing trends and examines how economic variables account for the changes in South Korea's outward FDI from 2001 to 2021. In the early 2000s, the major recipients were the USA, China, and Vietnam in the manufacturing industry. However, a shift in this trend is observed as more investments are now made in the Cayman Islands and Luxemburg in the finance and insurance industry. To confirm whether the differential patterns across the industries, investor sizes, and countries are due to the economic conditions, or specific time trends, we build a regression model that can control for such changes in economic conditions. Our findings suggest that the total trade value and GDP per capita are associated with outward FDI from South Korea. While the USA is still clearly one of the main recipients, investments made in Luxemburg and Cayman Islands are increasing at a rapid pace at 29.6% and 18.7% per annum respectively, which raises alarm on the importance of tax haven use.

Keyword : Outward Foreign Direct Investment, Heterogenous Effect, Linear Time Trend, Location Choice
Student Number : 2021-22989

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1. Introduction

Globalization and the increase in transnational economic activities have been the driving forces behind the increase in Foreign Direct Investment (FDI) across the world. Some even argue that FDI is more important than international trade as it "deepens economic integration not just via the transfer of capital but also through the transfer of knowledge" (Park and Jung, 2020). In particular, outward FDI brings about a positive impact on the domestic economy by acting as a gateway to access the global market, attain new technologies and skills, and increase efficiency (Kwak, 2007). Much like its economic performance, South Korea's outward FDI has experienced a substantial increase since the late 1990s, since its government liberalized its FDI regulations in 1987. During this time, the *chaebol*s took their business globally, looking to gain access to foreign markets, acquire new technology, and relocate production factories. The Small and Medium-sized Enterprises (SMEs) followed shortly, as a measure to minimize operating costs as they were faced with increasing domestic manufacturing costs. Although the Asian financial crisis slowed down the trend in 1997-1998, the investments continued growing shortly afterward.

South Korea's outward FDI increased sharply as we entered the 21st century. Starting at $6.09 billion in 2001, the amount grew up to $75.8 billion in 2021, a 1146.4% increase in mere two decades. From 2015 to 2021 alone, there was a 149.7% increase in outward FDI amidst the COVID-19 global crisis. Despite having been through 2 major financial crises, South Korea is a successful representative among emerging economies, on its way to being a developed country.

This paper aims to study the trends and examine how economic variables account for the change in South Korean outward FDI from 2001 to 2021. Emphasis

is placed on these years as it is during this time that the outward FDI has significantly increased, and the contributors expanded beyond Multinational Corporations (MNCs)[1]. The remainder of this paper is organized as follows: section 2 contains the literature review of existing papers pertaining to global FDI, followed by section 3 and 4 which discusses the history of South Korean FDI policies and the descriptive analysis respectively. Section 5 discusses the regression model, its findings, and robustness check, with the conclusion presented in section 6.

2. Literature Review

Many variations of economic models and variables have been used in the existing literature studying the determinants of FDI activity. In this section, some papers that are more closely related to this paper are discussed.

Papers such as Bano & Tabbada (2015), Petri (2012), and Rajan (2008) focus on outward FDI originating from Asian countries. Findings suggest that for developed countries, inward FDI is the strongest explanatory variable, whereas for developing countries, the home country's international reserves from the previous year proved to be the strongest explanatory variable. In intra-Asian bilateral FDI, FDI flows within Asian countries differ from other parts of the world in the sense that Asian FDI is mostly made up of investments that originate from economies with relatively high technologies to those with relatively low technologies. GDP, distance, difference in GDP per capita, level of exports, corporate tax level, political risk index,

[1] "대기업" (tae-ki-ŏp) is hereforth referred to as Multinational Corporation (MNCs). While the term "대기업" (tae-ki-ŏp) is not a legal term, it is used to address companies that exceed the conditions for Small and Medium-sized Enterprises (SME). The conditions include number of regular employees exceeding 300 people. As of 2022, all companies regarded as "대기업" (tae-ki-ŏp) in South Korea have operations in at least one other country outside South Korea, hence the use of the term MNCs.

and the existence of FTA influence the amount of FDI between two the host and source country. Amighini et al (2013) report level of export has shown statistical significance among the service industry when investing in high-income countries. Meanwhile, in the natural resources industry, unstable political environments had a positive influence on FDI-making decisions.

Kim & Rhe (2009) and Kang et al[2] (2007) find that GDP is the most important determinant of South Korean outward FDI. A large amount of FDI is dedicated to developed countries with high population levels and high patent levels. As for developing countries, their findings report that South Korean outward FDI favors large markets, low wages, and advanced technology in developing countries.

Compared to existing studies, this paper contributes to the existing literature by providing more recent insights into South Korea's outward FDI. Additionally, this paper investigates the heterogeneous effect on different industries as well as the various types of investor sizes. Most papers exclusively study MNCs, however recent trends show that SMEs and non-profit organizations also contribute significantly to South Korea's outward FDI. Finally, to the best of the author's knowledge, this is the first paper to study the linear time trend of South Korea's outward FDI.

While there are many reasons why countries partake in FDI activities, investments in tax havens have received more attention than any others in recent years. South Korea is not an exception, and we discuss in this paper its contribution to this phenomenon. In the existing literature, scholars have studied some of the

[2] Kang et al (2007) study the determinants of location choice for South Korean outward FDI as well, but specifically towards China. Their research shows that variables such as market size, quality of labor, and transport infrastructure have a positive influence on the level of FDI whereas labor costs, inner waterways, and distance impose a negative influence.

possible reasons why and when countries decide to invest in tax havens. Jones et al (2016) investigated the determinants of MNCs' decisions to set up their subsidiaries in tax haven countries. Using data that covers 12 OECD countries, the authors found that MNCs from the "high technology manufacturing and services sector with high levels of intangible assets are more likely to have tax haven presence". Additionally, MNCs from liberal market economies are more likely to partake in tax haven FDI as compared to MNCs from coordinated market economies. Finally, the home country's statutory corporate tax rate has a small impact on tax haven use, and as long as there is a gap between the home country's tax rate and the tax haven country's tax rate, FDI will continue to flow into tax havens.

As for South Korean-specific research, Driffield et al (2021) report that FDI is strongly linked to market-seeking and efficiency-seeking types of FDI more so than the resource-seeking and technology-sourcing FDI. The regression results show that GDP, trade openness, exchange rate, and inflation rate influence the level of tax haven FDI.

3. Institutional background

South Korea was once a country whose regulations on outward FDI were severely restricted, at least until around the late 1970s. Outward FDI was limited to certain industries, including natural resources required as raw materials. Investors were required to ask for approval after an extensive background screening by the Korea Export-Import Bank. In the early 1980s, policies on outward FDI started to relax, accompanied by the abolishment of the approval requirement. In place of the approval provided by the Korea Export-Import Bank, a Committee of Investment Overseas was established, allowing SMEs to take part in outward FDI and providing

them with financial support.

Proper liberalization of outward FDI took place in the mid-1980s when South Korea experienced an export boom. However, with the appreciation of the Korean Won, firms were faced with increasing production costs at home. As a solution, the government further liberalized the outward FDI regulations by minimizing the necessary prerequisites and even allowing individual investors to participate. This allowed firms, particularly labor-intensive firms to move their production to foreign countries where they could benefit from relatively cheaper labor costs. With South Korea's accession to the OECD in 1996, the policies and processes were further relaxed and simplified. Outward FDI was actively encouraged by the government.

The reform and liberalization process were interrupted by the Asian financial crisis that took place in 1997-1998, only to resume in 1999. The Foreign Exchange Control Act was introduced during President Kim Dae-Jung's era, along with the establishment of the Service Center for Korean Overseas Investors in major investment partners, namely China and Vietnam. These centers were created to provide information that would help South Korean firms make potential investment decisions in the respective countries. The government also started providing support for businesses with large contract bids and encouraging businesses to form business associations to make room for cooperation. A large proportion of outward FDI was driven by the private sector during this time (Nicolas, 2013).

In 2007, efforts were made to transform South Korea into one of the major outward investor countries globally. These included setting up government agencies

such as Korea Trade-Investment Promotion Agency[3] (KOTRA) that aid South Korean investors abroad. Since then, the South Korean government has not been placing major emphasis on policies to actively promote outward FDI, but rather on the rules and regulations to monitor investment activities (Kim and Rhe, 2009). Such policies include export insurance provided by the Korean Export Insurance Corporation that offers protection from uncontrollable circumstances such as war and nationalization.

4. Descriptive analysis

The majority of South Korea's FDI is contributed by MNCs. From 2001 to 2021, investments made by MNCs make up almost 68% of total outward FDI. The major players in terms of investor sizes are MNCs, SMEs, and others[4]. However, the share of others has been increasing sharply; starting merely at 0.32% in 2001, this number grew to 17.96% in 2021.

The two biggest destinations of choice for South Korean FDI are the USA and China, followed by the Cayman Islands, Hong Kong, and Vietnam. Up until 2008, China received more FDI from South Korea compared to the USA. However, since 2008, the USA remains the top investment destination, while investments in China have not seen a such drastic change.

An interesting trend to note is regarding the Cayman Islands. The share of investments in the Cayman Islands stood at a mere 0.3% in 2001. However, by the end of 2021, this grew to 14%, placing the Cayman Islands in second place, even

[3] As of 2020, KOTRA operates in 84 countries, with 10 regional headquarters.
[4] Investor sizes classified as others by the Export-Import Bank of Korea refer to non-profit organizations.

above China which received 8.8%. According to Kim and Rhe (2007), South Korean outward FDI in developing countries is made as a way to increase efficiency and reduce production costs. In this case, it is difficult to imagine investments made in the Cayman Islands as a direct approach to reduce production costs, but rather investors taking advantage of the tax system in their favor. More details will be discussed about the use of tax havens in section 5.

The top 5 industries make up 83.51% of total outward FDI from 2001 to 2021. While the manufacturing industry was heavily favored at the beginning of the 2000s, the finance and insurance industry took over as the highest-invested industry after 2015. As of 2021, the finance and insurance industry makes up 38.65% of total outward FDI. Compared to 2001, the amount has increased more than thirtyfold.

5. Regression analysis

To confirm whether the differential pattern across the industries, investor sizes, and countries are due to the economic conditions, or specific time trends, we perform the following regression that can control for such changes in economic conditions. These are GDP per capita, GDP per capita growth rate, yearly % difference in the exchange rate, and total trade value.

5.1 Data and sample

The total amount of outward FDI by year, investor size, industry, and country is provided by the Export-Import Bank of Korea, which spans from 2001 to 2021. Korea's export and import with host countries are sourced from UN Comtrade, including the country and trade amount. All amounts are converted and represented

in US dollars. The economic conditions of countries are provided by the Worldbank, which include GDP per capita (US$), GDP per capita growth (%), and official exchange rate (Local Currency Unit per US$, period average) from 2001 to 2021. This model takes the yearly % change of exchange rate to account for the different local currencies.

GDP per capita (US$) and GDP per capita growth (%) are proxies to measure the individual economic power of a country. The import and export amount between South Korea and the host country are summed up to represent the trade volume, which measures the strength of the economic relationships. The yearly percentage difference in exchange rate is a proxy for economic stability.

5.2 Regression model and results

We set up the following regression model to estimate the heterogeneous effect on Korea's outward FDI:

$$\log\left(Y_{s,i,c,t}\right) = \alpha_c + \tilde{\alpha}_c t + \beta_t + \mu_i + \sum_k \gamma_k X^k_{s,i,c,t} + \varepsilon_{s,i,c,t} \qquad (1)$$

where $Y_{s,i,c,t}$ is the amount of outward FDI from investor size *s*, to industry *i*, in country *c*, at time *t*. Parameters α_c, β_t, and μ_i capture country-, year-, and industry-, fixed effects. Variable $X^k_{s,i,c,t}$ includes country-specific economic conditions: GDP per capita, GDP per capita growth rate, trade volume, and yearly % difference in the exchange rate. $\varepsilon_{s,i,c,t}$ captures unexplained random shock, clustered at country level. The parameter of interest in this paper is α_c, $\tilde{\alpha}_c$ and γ.

Accounting factors of South Korea's outward FDI

Regression results show that GDP per capita and total trade are statistically significant. Specifically, GDP per capita shows statistical significance at 1% level

for both MNCs and SMEs, suggesting that the bigger the host countries' individual economic power, the more outward FDI they attract. Similarly, the positive association for total trade implies that the closer the economic ties between South Korea and the host countries, the higher the amount of FDI received. The % yearly exchange rate showed statistical significance at 10% level and 5% for wholesale and retail, and finance and insurance industry respectively. This negative association may be due to expectations of increased monetary return from the investments.

For manufacturing industry, GDP per capita is positively associated with outward FDI, meaning the higher the individual economic power of the host country, the more outward FDI it receives. This may suggest that market penetration or expansion is part of the objective for FDI activities. On the other hand, a negative association is observed for the finance and insurance industry. Contrary to the manufacturing industry, where the purchasing power is important for potential markets, firms in the finance and insurance industry may be more inclined towards countries with weaker economic power as it opens more doors for South Korean firms to enter.

South Korea's main outward FDI destinations

The following reviews parameters α_c and $\tilde{\alpha}_c$ for the top 10 countries making up South Korea's outward FDI, with the USA as a baseline. Results show that after controlling for the economic variables, South Korea's FDI to the USA is increasing at an annual rate of 6.1% since 2001. A similar upward trend is observed with Luxemburg (29.6%), the Cayman Islands (18.7%), Singapore (8.5%), and Canada (3.2%). As of 2021, the Cayman Islands, Luxemburg, and Singapore are the only countries that are increasing at a faster rate compared to the USA.

China and Vietnam received a higher level of FDI compared to the USA at the beginning of the sample years. In 2001, outward FDI from South Korea to China and Vietnam were 212.9% and 137.8% higher compared to the USA. To be sure, China had been South Korea's main receiver of outward FDI until 2008. The relatively cheaper labor cost was the biggest attraction at the time. However, in recent years, there had been an increase in labor costs, especially in the technology-based industries, thereby reducing its attractiveness (Kim et al., 2016). Results show that China's outward FDI is decreasing at a rate of 10.6% per annum whereas the annual change rate for almost all the other main host countries is increasing, suggesting a shift in South Korea's preference for outward FDI away from China.

Investor compositions of South Korea's outward FDI

The following reviews parameters α_c and $\tilde{\alpha}_c$ according to investor sizes and industries. Outward FDI made by MNCs is increasing the fastest for Luxemburg (24.1%), the Cayman Islands (20.5%), Canada (10.6%), and the USA (10.4%). As for SMEs, a similar pattern is observed. Outward FDI bound for China is decreasing for both MNCs and SMEs (-10.0% and -13.3% respectively). In section 4, it has been noted that others have been increasing in their share of outward FDI over the years. Results show that these investments are growing rapidly in the USA at 25.8%, which is faster than MNCs or SMEs.

The most rapidly growing industry is by far the finance and investment industry. After controlling for the economic variables, outward FDI to the USA is increasing at a rate of 35.2%. Out of the top 10 countries that make up South Korea's outward FDI, none of the countries are showing signs of a reduction in investments.

As for the manufacturing industry, Vietnam and China initially received

significantly more outward FDI from South Korea compared to the USA in 2001. However, while China is showing signs of decline at 16.2% per annum, the remaining countries are not showing much sign of movement. Another industry of interest is the wholesale and retail industries. Vietnam is growing the fastest at a rate of 30.4% per annum, which is the fastest among the top 10 countries, with Singapore coming in second at 18.3% per annum.

Importance of tax haven

A tax haven is a term used to define countries that impose relatively lower or no tax, where corporations may direct assets to avoid paying taxes (OECD, 2022). The use of tax haven by corporations is not a new phenomenon in the realm of international business. In 2017, 25% of global FDI was directed into tax haven countries, despite the fact that the GDP of these countries combined only accounted for 3% of the global GDP (Naoki, 2021).

The use of tax haven has been gaining more attention along with criticisms that such economic resources that could have been used as ways to increase employment and add value to the domestic economy are instead diverted into tax havens for the benefit of the minority. Although there are several different definitions of tax haven countries, the main countries include the Netherlands, Ireland, Switzerland, Singapore, Luxembourg, Bermuda, the Bahamas, Panama, and the Cayman Islands (Zucman, 2014).

In the case of South Korea, the Cayman Islands is the most popular choice of destination. There is no corporate, individual, or value-added tax applicable in the Cayman Islands (Deloitte, 2022). According to Driffield et.al (2021), 13 major corporations in South Korea set up 66 offshore corporations, of which 41 were in the

Cayman Islands. These corporations include the SK Group, Samsung Group, Hyundai, LG, Lotte Group and Mirae. After controlling for the economic conditions, the outward FDI to the Cayman Islands is increasing at a rate of 18.7% annually. Specifically, for MNCs, the rate is 20.5%, whereas for SMEs, the rate is 30.9%. This implies that an increasing number of SMEs are taking an active part in redirecting their funds to tax havens, rather than investing back into their own business activities.

Another country of concern is Luxemburg. Although Luxemburg has not always been as popular as the Cayman Islands, the annual change rate of outward FDI is 29.6%. As a matter of fact, outward FDI to Luxemburg is the fastest growing amongst the receivers of South Korea's top 10 outward FDI. Not surprisingly, the finance and insurance industry has been the biggest and fastest-growing receiver, followed by the manufacturing industry.

Figure 5 shows the increasing trend in South Korea's outward FDI to the main tax haven countries from 2002 to 2021. In the recent five years, more than 20% of total outward FDI is directed into one of the main tax haven countries. According to a study conducted by Driffield et al. (2021), market-seeking FDI subsequently generates high levels of FDI in tax havens. This is explained by the fact that as markets become saturated, there are limited opportunities for firms to re-invest. Therefore, to avoid taxation, the earnings from FDI are placed in tax havens. There are three main issues with the use of tax havens. Firstly, the opportunity cost of redirecting the funds to tax havens is job creation in the domestic economy and creating or moving up the value chain. Secondly, in the case of emerging economies, this could slow down the process of becoming matured economies. Lastly, outward FDI is often used to bring about technological advances. However, with the investments redirected into tax havens, such opportunities are forgone.

As such, the OECD is focusing on ways to reform the international tax system to minimize the consequences of tax havens. In 2013, the Base Erosion and Profit Shifting (BEPS) project was launched to harmonize international tax rules, ensure transparency, and adapt to the digitalization of the economy.

5.3 Robustness check

Inward FDI is an additional economic variable that may account for outward FDI as it explains the extent of economic relations between countries. We perform the robustness check by including the additional explanatory variable. Inward FDI made in South Korea by country, industry and year are provided by the Ministry of Trade, Industry and Energy, from 2001 to 2021. Results show that in terms of α_c and $\tilde{\alpha}_c$, the estimates are quantitatively comparable to the main model.

Next, we estimate the main model with only the countries that has made inward FDI within South Korea at least once. This eliminates any countries that has never invested in South Korea before. The results remain stable and aligned with the main model for all parameters α_c, $\tilde{\alpha}_c$ and γ.

6. Conclusion

Since the early 1990s, South Korea's outward FDI has been increasing at a rapid pace. Despite having been through major financial crises, Korea has managed to establish itself as one of the core players in the global economy. One of the telltale signs includes an increase in outward FDI, as an attempt to increase market share, obtain new technologies, access raw materials, and minimize costs. This paper empirically studies the changing trends and the accounting factors of South Korea's outward FDI from 2001 to 2021.

In the early 2000s, the major recipients included the USA, China and Vietnam in the manufacturing industry. However, a shift in this trend is observed as more investments are now made in countries such as the Cayman Islands and Luxemburg in the finance and insurance industry. The most active investors remain as MNCs, although the share of SMEs and others (non-profit organizations) has been steadily growing over the years.

To confirm whether the differential pattern across the industries, investor sizes, and countries is due to the economic conditions, or specific time trends, we build a regression model that can control for such changes in economic conditions. Our findings suggest that the total trade value, GDP per capita, and inward FDI are associated with outward FDI from South Korea. As for the linear time trend, while the USA is still clearly one of the main recipients, countries such as the Cayman Islands and Luxemburg are also increasing at a rapid pace at 18.7% and 29.6% per annum respectively. This phenomenon is simultaneous to the quick expansion of investments made in the finance and insurance industry. While an increase in outward FDI may be a sign of a mature economy, whether the investment brings about meaningful value added back into the domestic economy is up for further discussion.

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Figure 1. Total outward FDI from 1980 to 2021

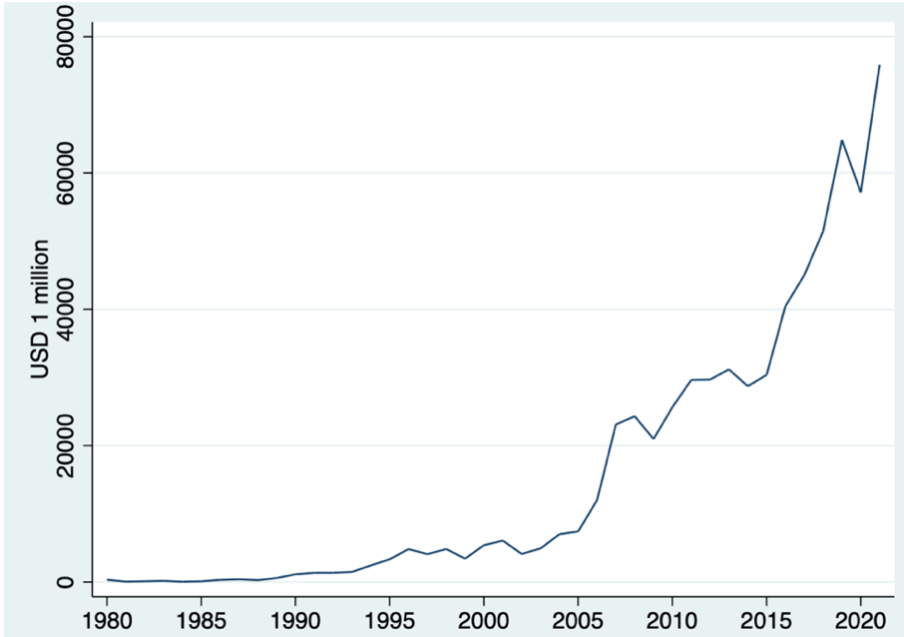


Figure 2. South Korea's Outward FDI: Investor Sizes

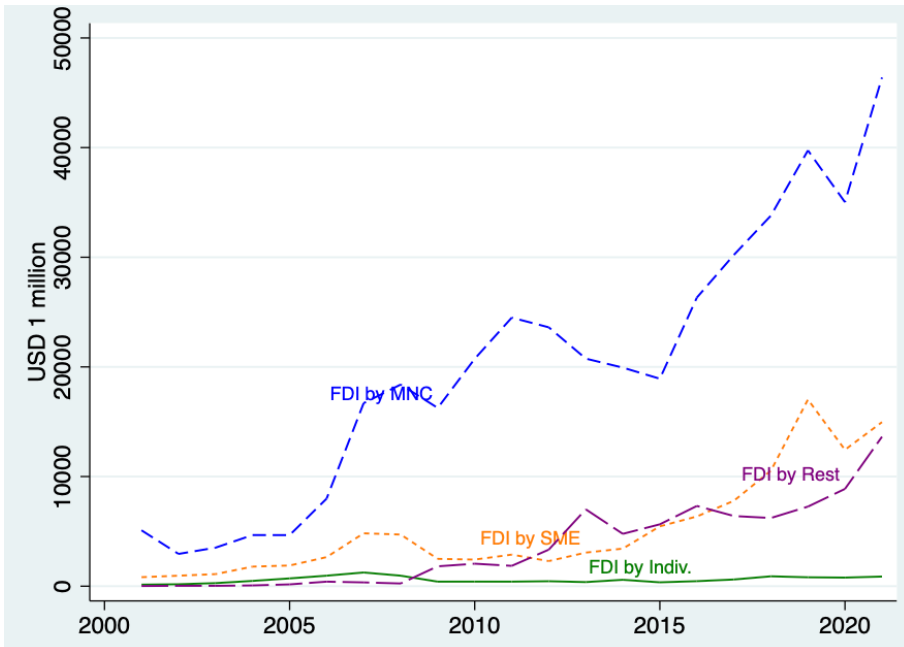


Figure 3. South Korea's Outward FDI: Top 5 Countries

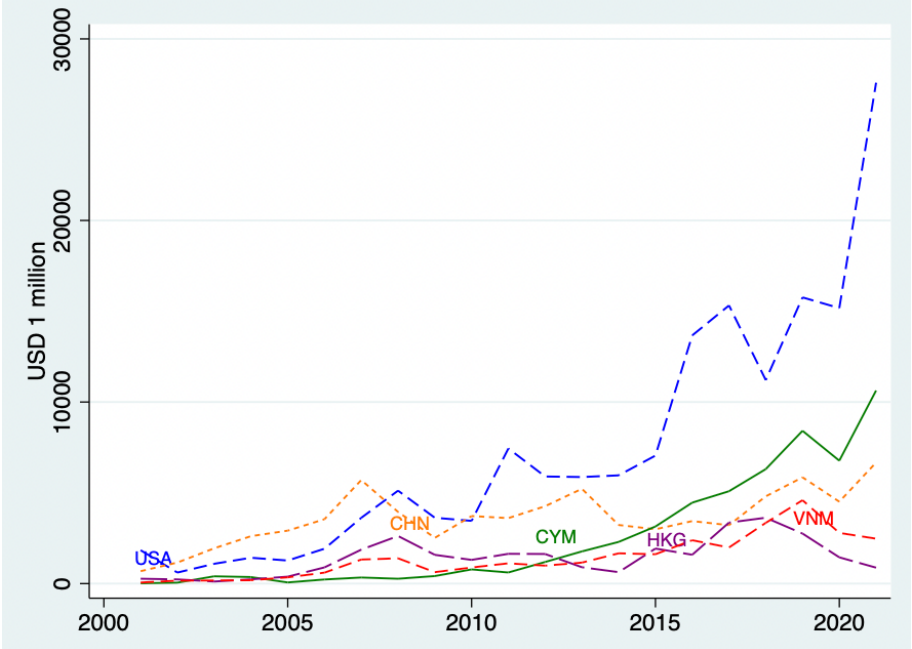


Figure 4. South Korea's Outward FDI: Top 5 Industries

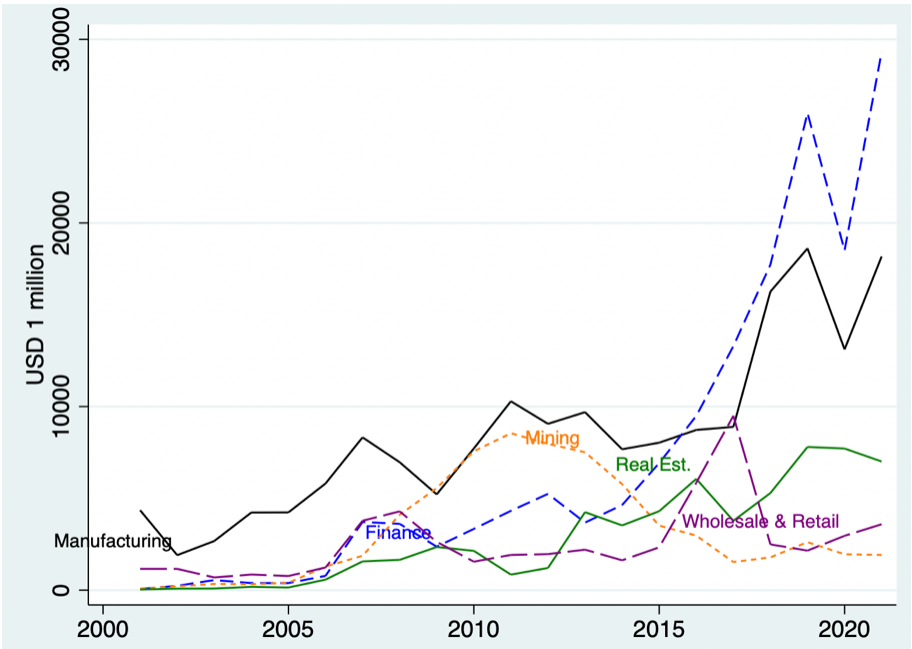


Figure 5. FDI to tax haven countries

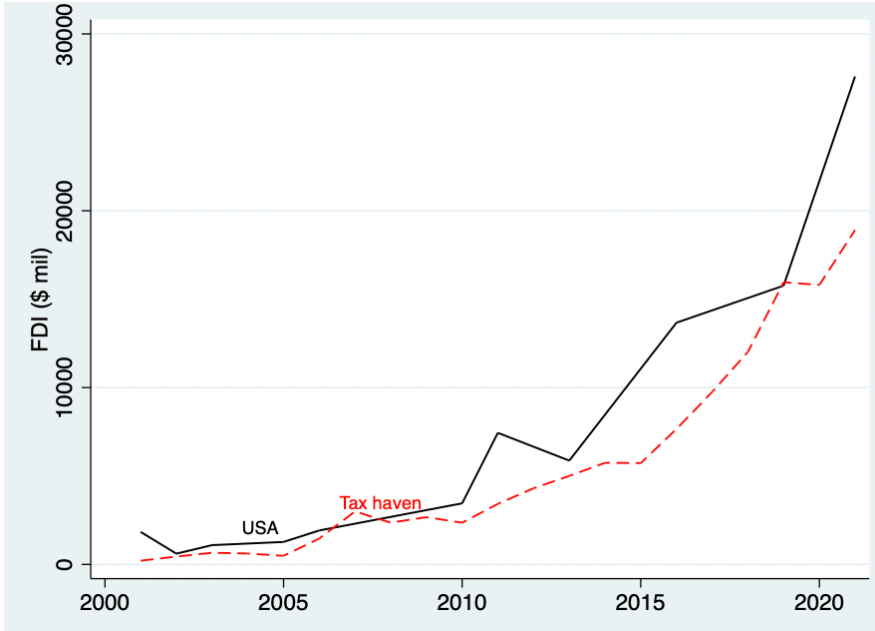
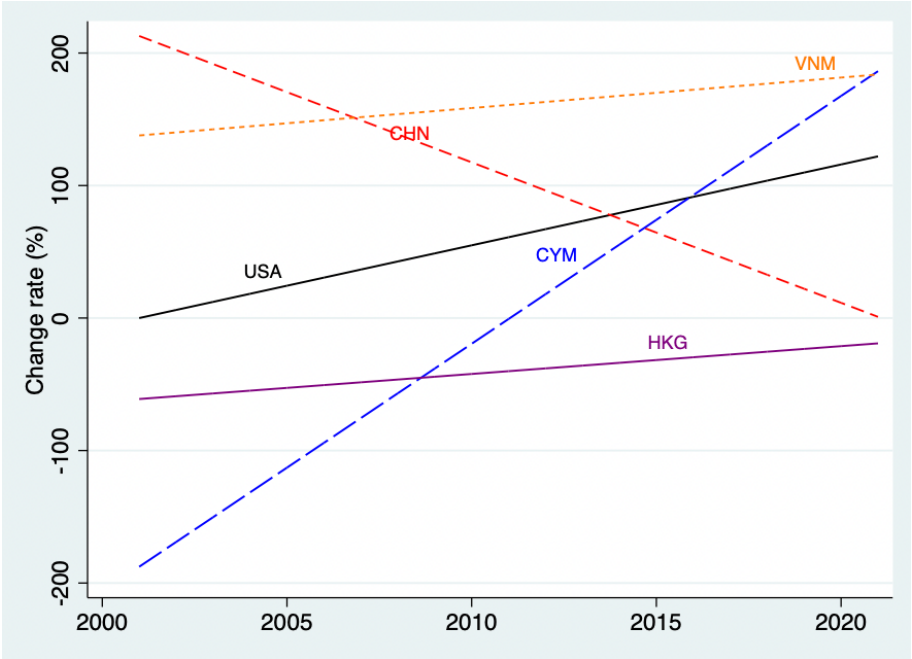


Figure 6. Korea's Outward FDI Linear Time Trend: Total

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

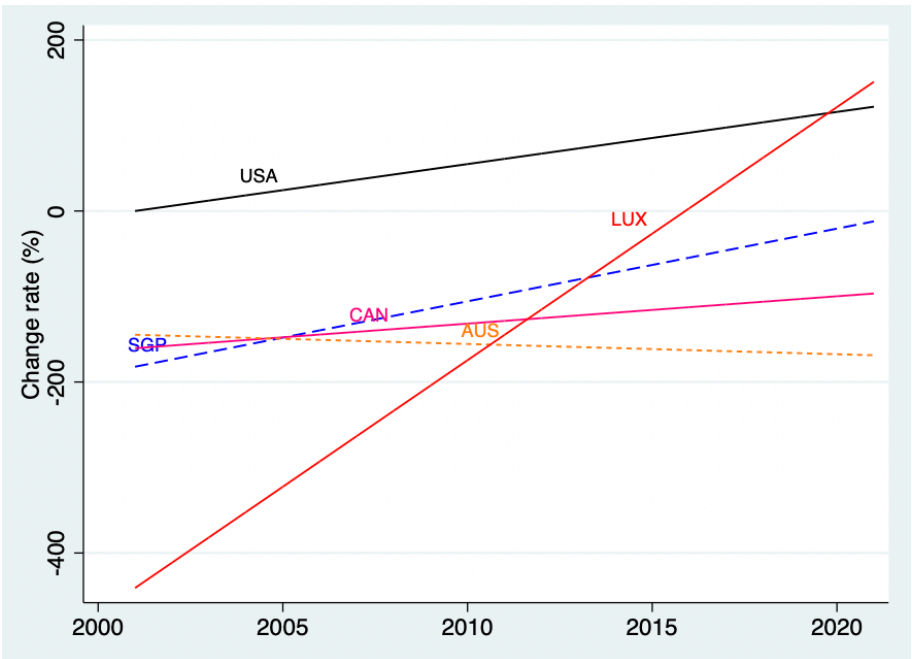
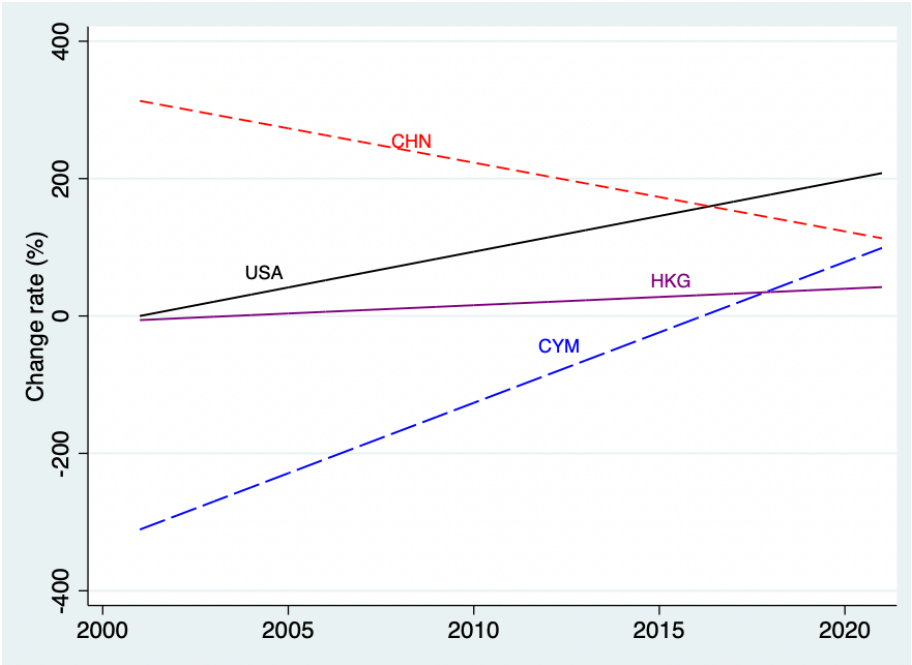


Figure 7. Korea's Outward FDI Linear Time Trend: MNC

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

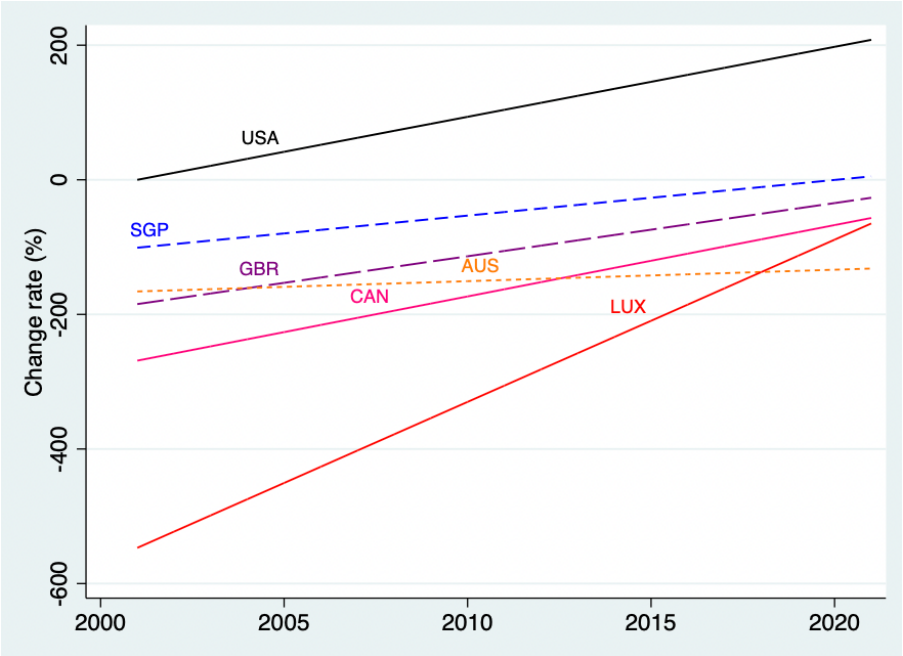
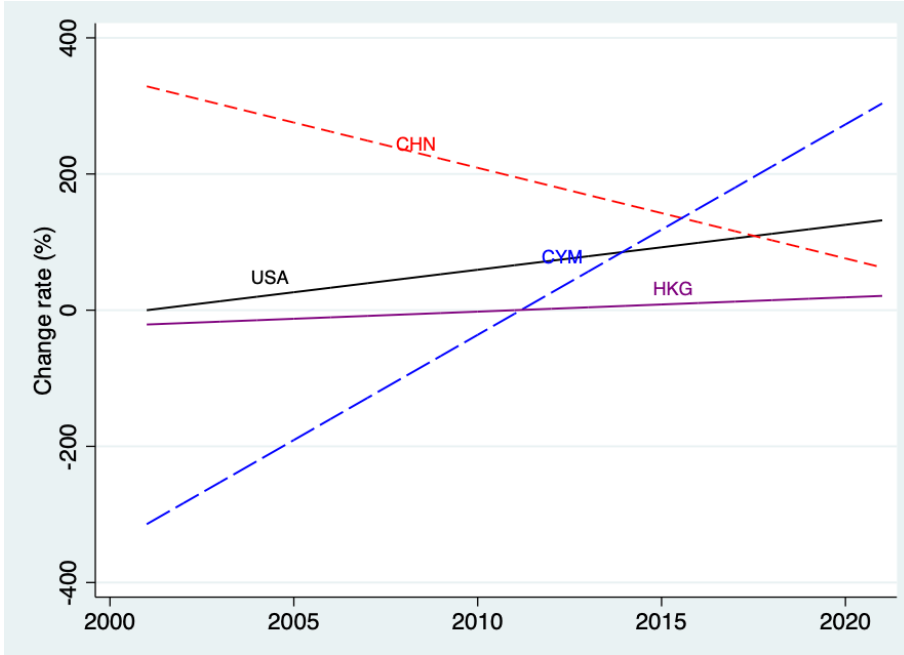


Figure 8. Korea's Outward FDI Linear Time Trend: SME

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

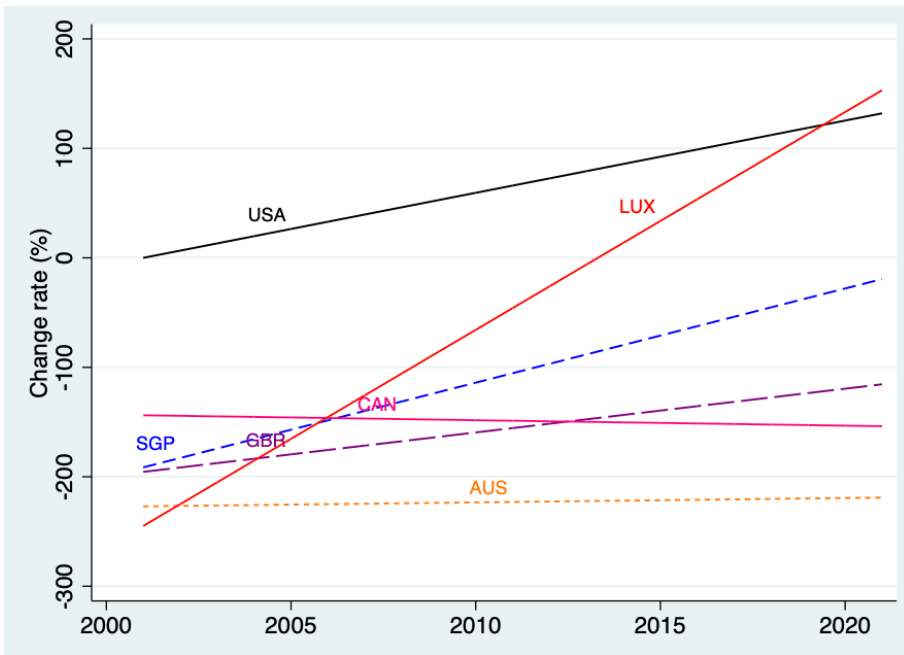
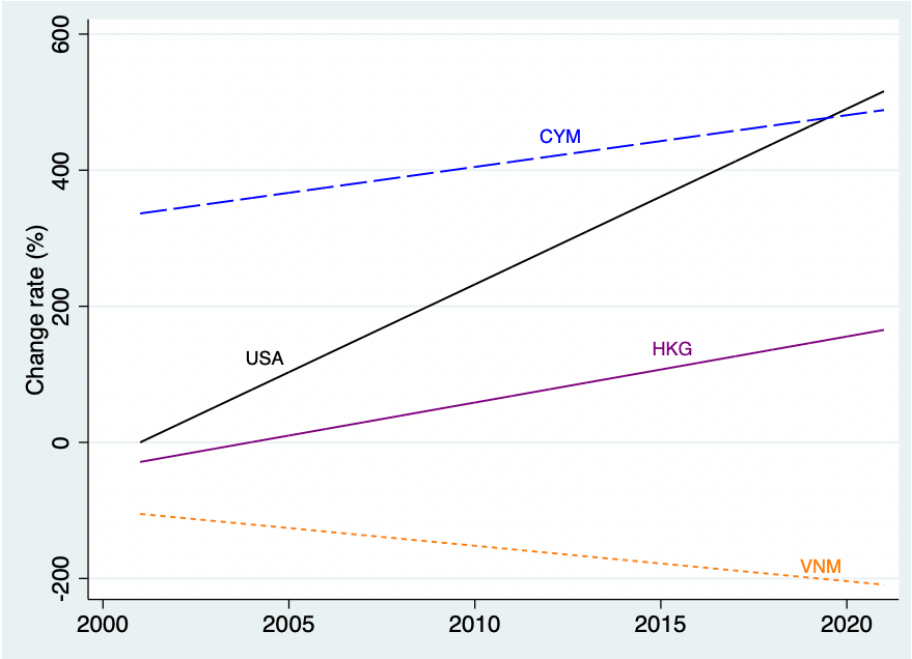


Figure 9. Korea's Outward FDI Linear Time Trend: Others

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

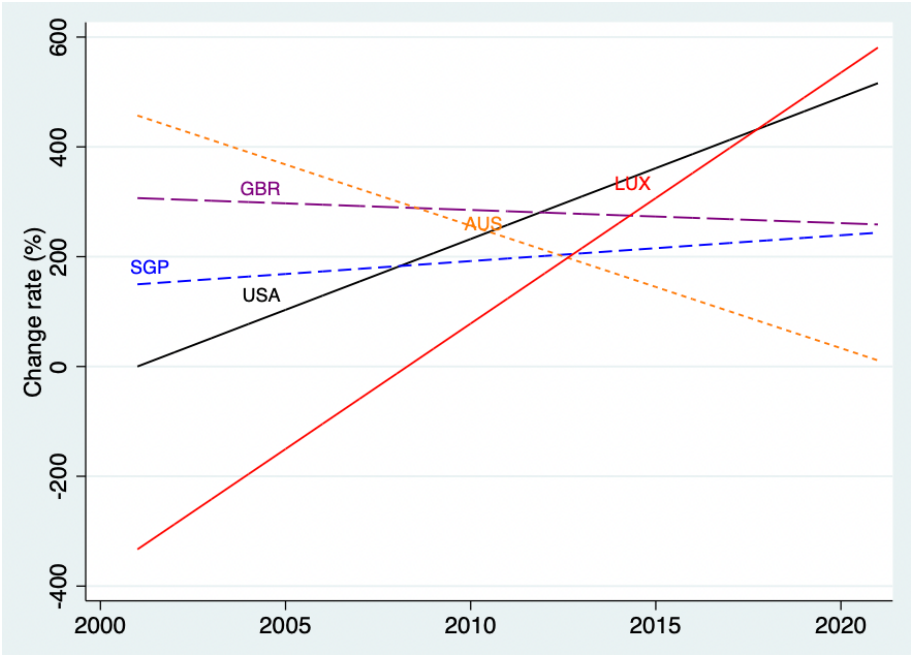
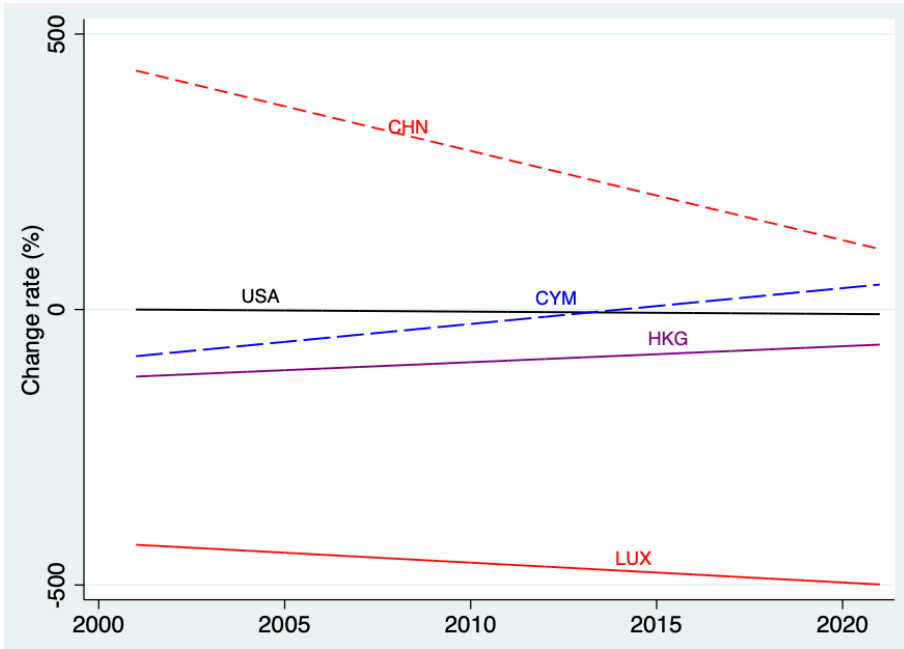


Figure 10. Korea's Outward FDI Linear Time Trend: Manufacturing industry

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

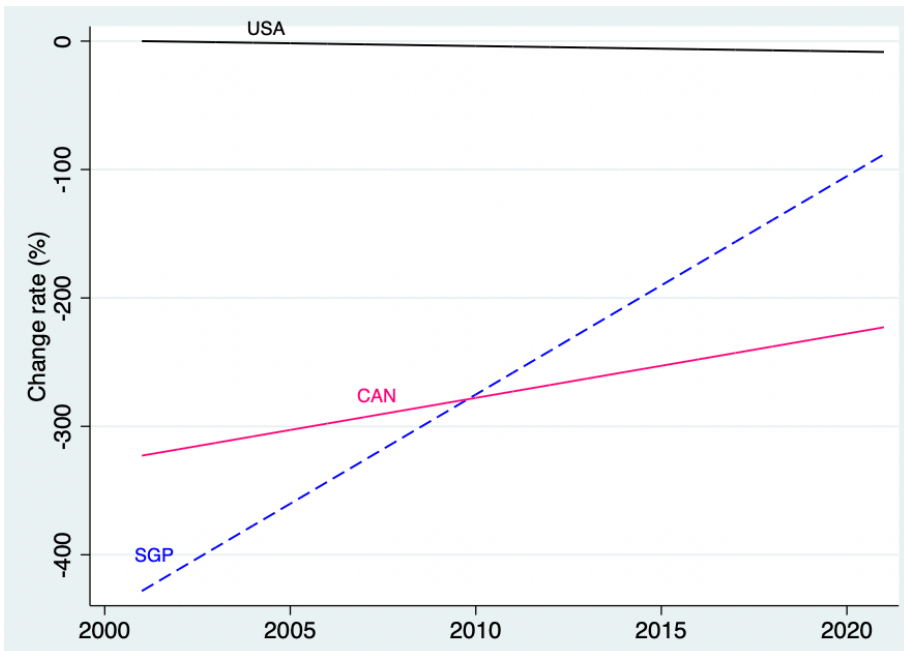
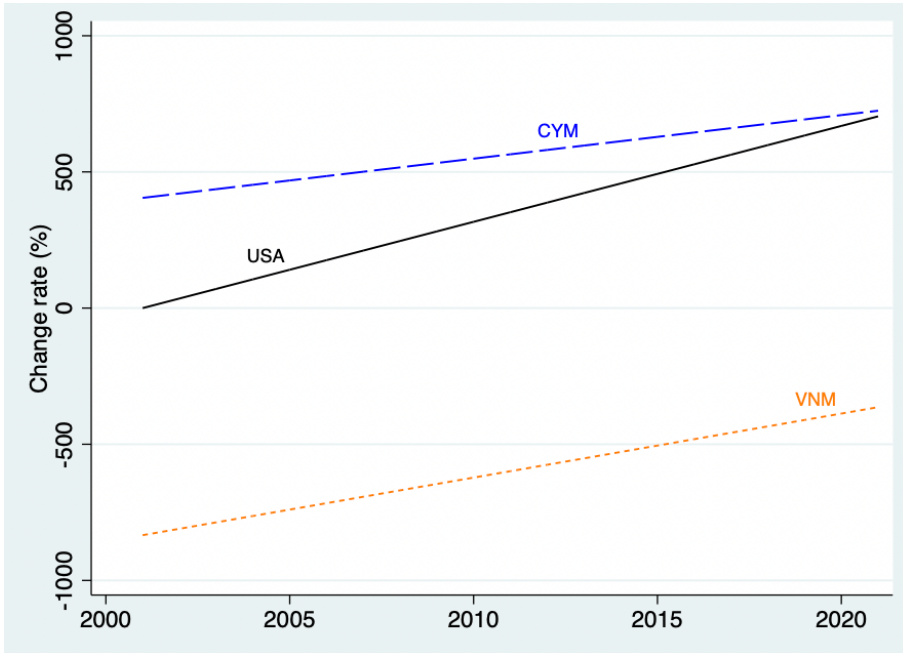


Figure 11. Korea's Outward FDI Linear Time Trend: Finance and insurance industry

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

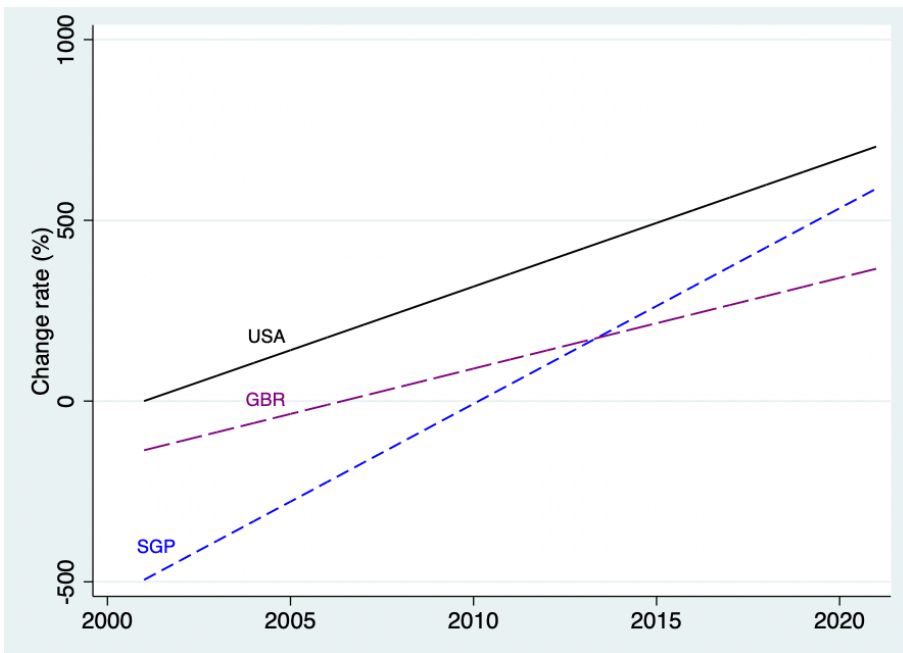
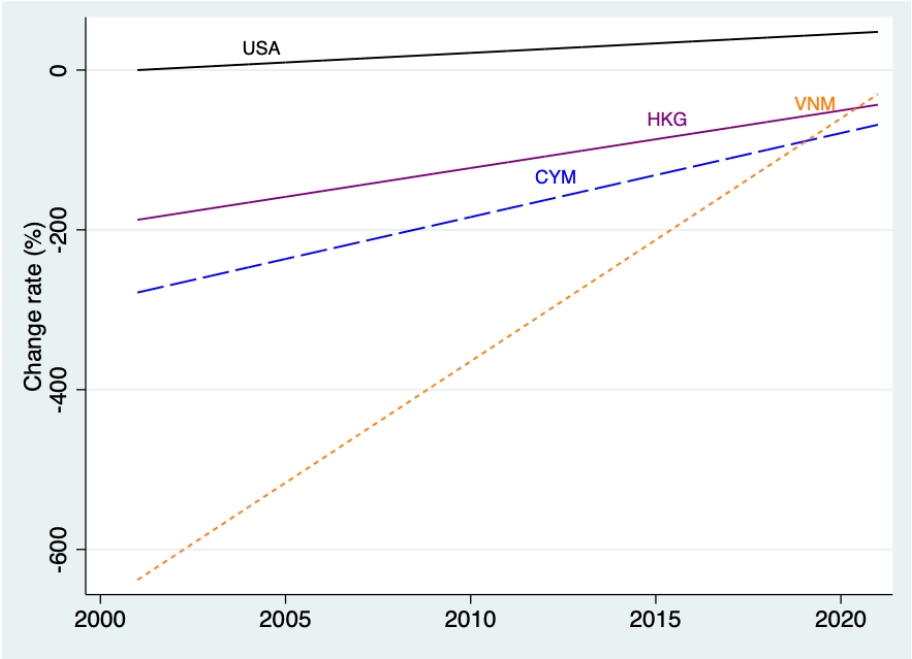


Figure 12. Korea's Outward FDI Linear Time Trend: Wholesale and retail industry

Panel A. Top 1 to 4 Countries



Panel B. Top 5 to 9 Countries

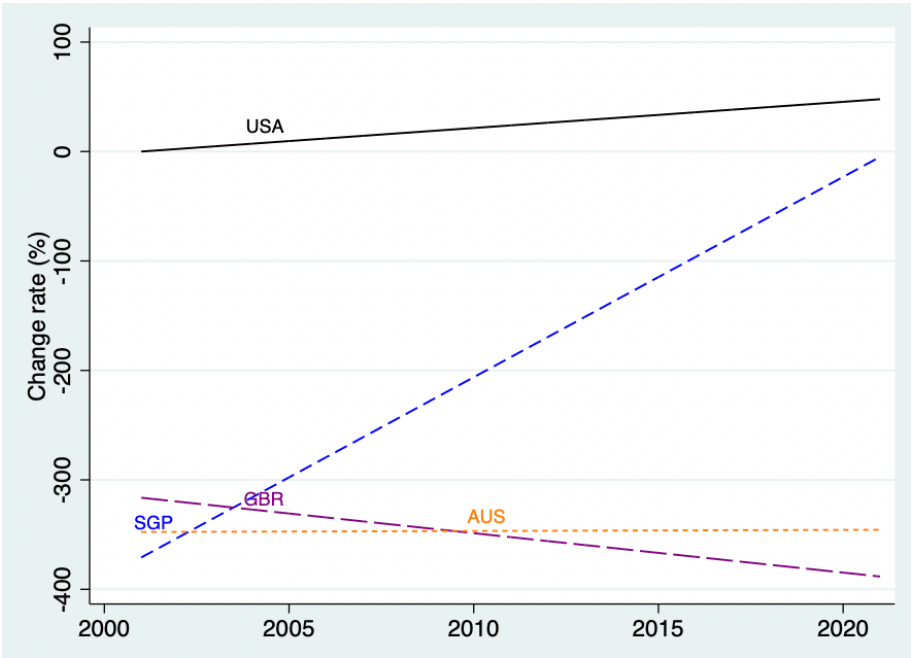


Table 1. Summary Statistics

	(1) Mean	(2) S.D	(3) Min	(4) Max
Outward FDI	31,007,174	179,755,538,578	0	6,568,840,353
Log Outward FDI	13.771	2.783	-0.372	22.601
Yearly exchange rate change**	0.394	8.344	-0.999	227.315
Total Trade	64,530,419,994	155,453,381,696	901,008	805,839,044,608
Log Total Trade	23.293	2.233	13.711	27.415
GDP per capita	21,609.500	23,313.950	111.927	185,978.600
Log GDP per capita	9.116	1.510	4.718	12.133
GDP per capita growth rate**	0.027	0.045	-0.624	1.218
Inward FDI	69,308,407	222,939,439	0	2,677,975,040
Log Inward FDI	15.718	2.864	6.908	21.708

Note: The unit of observation is year by country by industry by investor size. ** Unit is %. Rest are US$.

Table 2. Results (By Investor Sizes)

	(1) All	(2) MNC	(3) SME	(4) Others
% Yearly exchange rate change	-0.001	0.003*	-0.005**	2.774
	(0.002)	(0.002)	(0.002)	(1.957)
Total Trade	0.134**	0.040	0.227**	0.086
	(0.060)	(0.101)	(0.100)	(0.083)
GDP per capita	0.692***	0.984***	0.926***	-0.670
	(0.176)	(0.312)	(0.270)	(1.288)
GDP per capita growth rate	-0.590	-0.862**	-0.518	-5.248
	(0.390)	(0.396)	(0.715)	(6.439)
AUS	-1.447***	-1.659***	-2.270***	4.571***
	(0.117)	(0.189)	(0.235)	(1.282)
CAN	-1.605***	-2.687***	-1.438***	0.962
	(0.150)	(0.260)	(0.268)	(2.229)
CHN	2.129***	3.132***	3.288***	-2.483
	(0.618)	(1.104)	(0.957)	(4.691)
CYM	-1.877***	-3.109***	-3.143***	3.364***
	(0.453)	(0.751)	(0.728)	(1.086)
GBR	-1.827***	-1.847***	-1.955***	3.067***
	(0.148)	(0.232)	(0.256)	(0.840)
HKG	-0.611***	-0.059	-0.210	-0.287
	(0.120)	(0.215)	(0.215)	(0.892)
LUX	-4.409***	-5.469***	-2.449***	-3.331**
	(0.454)	(0.757)	(0.722)	(1.531)
SGP	-1.821***	-1.009***	-1.914***	1.497
	(0.137)	(0.219)	(0.217)	(0.915)
VNM	1.378*	2.144	2.431*	-1.051
	(0.736)	(1.360)	(1.233)	(5.716)
t	0.061***	0.104***	0.066***	0.258***
	(0.010)	(0.018)	(0.014)	(0.070)
AUS*t	-0.073***	-0.087***	-0.062***	-0.481***
	(0.005)	(0.008)	(0.009)	(0.081)
CAN*t	-0.029***	0.002	-0.071***	-0.179
	(0.003)	(0.006)	(0.004)	(0.132)
CHN*t	-0.167***	-0.204***	-0.199***	-0.145
	(0.018)	(0.032)	(0.028)	(0.148)
CYM*t	0.126***	0.101***	0.243***	-0.182**
	(0.013)	(0.017)	(0.013)	(0.073)
GBR*t	-0.005	-0.025***	-0.0254***	-0.282***
	(0.004)	(0.006)	(0.007)	(0.043)
HKG*t	-0.040***	-0.080***	-0.045***	-0.161***
	(0.003)	(0.006)	(0.006)	(0.032)
LUX*t	0.235***	0.137***	0.133***	0.199***
	(0.013)	(0.011)	(0.014)	(0.064)
SGP*t	0.0241***	-0.051***	0.020**	-0.211***
	(0.008)	(0.0131)	(0.009)	(0.057)
VNM*t	-0.038***	-0.042	-0.038	-0.310***
	(0.014)	(0.027)	(0.026)	(0.106)
Observations	17,872	5,755	6,554	621
R-squared	0.390	0.415	0.397	0.687

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.
* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Table 3. Results (By Industries)

	(1) Manufacturing	(2) Wholesale and Retail	(3) Finance and Insurance
% Yearly exchange rate change	0.002	-0.006*	-1.274**
	(0.002)	(0.003)	(0.621)
Total Trade	0.278*	0.152	0.249***
	(0.152)	(0.184)	(0.0833)
GDP per capita	0.931**	-0.255	-1.656**
	(0.418)	(0.421)	(0.694)
GDP per capita growth rate	2.875	1.815	5.955
	(1.802)	(1.984)	(4.457)
AUS	-3.064***	-3.476***	-2.413*
	(0.270)	(0.325)	(1.386)
CAN	-3.228***	-3.764***	-2.362***
	(0.369)	(0.444)	(0.621)
CHN	4.337***	-2.029	-7.153***
	(1.456)	(1.517)	(2.663)
CYM	-0.847	-2.784*	4.047***
	(1.164)	(1.594)	(0.887)
GBR	-3.004***	-3.163***	-1.360**
	(0.308)	(0.420)	(0.556)
HKG	-1.217***	-1.874***	-1.858***
	(0.275)	(0.320)	(0.636)
LUX	-4.270***	-3.052**	0.689
	(1.099)	(1.333)	(0.855)
SGP	-4.282***	-3.709***	-4.945***
	(0.293)	(0.342)	(0.719)
VNM	4.148**	-6.381***	-8.338**
	(1.837)	(1.873)	(3.314)
t	-0.004	0.024	0.352***
	(0.023)	(0.017)	(0.040)
AUS*t	0.007	-0.023*	-0.083
	(0.011)	(0.012)	(0.087)
CAN*t	0.054***	-0.001	-0.038
	(0.009)	(0.005)	(0.037)
CHN*t	-0.158***	0.033	-0.005
	(0.043)	(0.045)	(0.081)
CYM*t	0.069**	0.081**	-0.192***
	(0.031)	(0.036)	(0.038)
GBR*t	0.018	-0.060***	-0.101***
	(0.012)	(0.010)	(0.033)
HKG*t	0.033***	0.048***	-0.009
	(0.007)	(0.009)	(0.028)
LUX*t	-0.032***	0.027	0.028
	(0.010)	(0.016)	(0.031)
SGP*t	0.174***	0.159***	0.189***
	(0.014)	(0.020)	(0.041)
VNM*t	-0.022	0.280***	-0.117*
	(0.038)	(0.041)	(0.068)
Observations	2,999	2,242	816
R-squared	0.657	0.608	0.557

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.
* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Table 4. Robustness Check I (By Investor Sizes)

	(1) All	(2) MNC	(3) SME	(4) Others
% Yearly exchange rate change	-0.010***	-0.004	-0.008***	-4.012
	(0.004)	(0.008)	(0.002)	(3.231)
Total Trade	0.117	0.056	0.016	-0.182
	(0.114)	(0.128)	(0.249)	(0.151)
GDP per capita	-0.082	-0.029	0.474	-4.171
	(0.358)	(0.704)	(0.593)	(2.681)
GDP per capita growth rate	1.192	0.987	-1.319	-5.818
	(1.989)	(3.343)	(2.464)	(7.079)
Inward FDI	0.033	0.003	0.087**	0.206*
	(0.035)	(0.045)	(0.043)	(0.107)
AUS	-2.462***	-2.529***	-3.177***	3.137
	(0.250)	(0.400)	(0.447)	(3.382)
CAN	-2.652***	-2.978***	-2.898***	-5.906
	(0.308)	(0.463)	(0.588)	(5.058)
CHN	0.104	0.356	3.061	-15.250*
	(1.280)	(2.511)	(2.131)	(8.071)
CYM	-0.638	-2.416**	-2.967	3.783**
	(1.022)	(1.164)	(2.016)	(1.696)
GBR	-2.806***	-3.063***	-3.392***	0.797
	(0.269)	(0.326)	(0.541)	(1.205)
HKG	-1.285***	-1.803***	0.298	-3.143**
	(0.237)	(0.459)	(0.420)	(1.495)
LUX	-3.727***	-4.820***	-2.107	-0.985
	(0.890)	(1.076)	(1.766)	(2.627)
SGP	-3.646***	-3.519***	-2.804***	-9.864***
	(0.228)	(0.431)	(0.427)	(2.920)
VNM	-3.103**	-4.858	-1.191	-11.250
	(1.481)	(3.100)	(2.473)	(10.100)
t	0.106***	0.130***	0.174***	0.314***
	(0.019)	(0.027)	(0.026)	(0.111)
AUS*t	-0.040***	-0.077***	-0.038**	-0.201
	(0.008)	(0.023)	(0.019)	(0.193)
CAN*t	0.000	-0.035***	0.001	0.133
	(0.006)	(0.011)	(0.008)	(0.290)
CHN*t	-0.121***	-0.169**	-0.216***	0.255
	(0.036)	(0.073)	(0.061)	(0.213)
CYM*t	0.011	0.058*	0.112***	-0.245**
	(0.019)	(0.032)	(0.029)	(0.090)
GBR*t	0.008	0.007	-0.008	-0.238**
	(0.009)	(0.015)	(0.015)	(0.091)
HKG*t	-0.011	0.010	-0.100***	-0.075
	(0.007)	(0.017)	(0.014)	(0.066)
LUX*t	0.149***	0.061***	-0.054**	0.116*
	(0.017)	(0.018)	(0.021)	(0.068)
SGP*t	0.131***	0.091***	0.032	0.457***
	(0.013)	(0.028)	(0.021)	(0.148)
VNM*t	0.156***	0.196***	0.213***	-0.260
	(0.028)	(0.058)	(0.051)	(0.177)
Observations	4863	1567	1611	218
R-squared	0.501	0.496	0.591	0.734

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.

* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Table 5. Robustness Check I (By Industries)

	(1) Manufacturing	(2) Wholesale and Retail	(3) Finance and Insurance
% Yearly exchange rate change	-0.073*	-0.005	-0.836
	(0.042)	(0.004)	(0.717)
Total Trade	0.227	0.118	0.227*
	(0.176)	(0.298)	(0.119)
GDP per capita	0.022	-0.281	-1.915
	(0.493)	(0.482)	(1.466)
GDP per capita growth rate	3.046	1.638	1.221
	(2.482)	(3.056)	(8.787)
Inward FDI	-0.024	0.017	0.070
	(0.031)	(0.036)	(0.055)
AUS	-3.652***	-3.467***	0.850
	(0.362)	(0.514)	(2.193)
CAN	-3.619***	-3.791***	-2.818*
	(0.452)	(0.742)	(1.393)
CHN	1.109	-2.072	-6.382
	(1.813)	(1.698)	(5.430)
CYM	-1.209	-3.113	4.018**
	(1.290)	(1.978)	(1.707)
GBR	-3.304***	-3.325***	-1.234*
	(0.373)	(0.656)	(0.635)
HKG	-1.825***	-1.909***	-1.480
	(0.383)	(0.425)	(1.169)
LUX	-4.307***	-3.704	2.399
	(1.281)	(2.244)	(1.439)
SGP	-4.881***	-3.771***	-4.529***
	(0.375)	(0.465)	(1.177)
VNM	-11.250	-0.062	-6.579***
	(10.100)	(2.291)	(1.895)
t	0.032	0.027	0.345***
	(0.027)	(0.021)	(0.058)
AUS*t	0.031**	-0.024*	-0.275*
	(0.015)	(0.013)	(0.143)
CAN*t	0.052***	-0.006	-0.006
	(0.011)	(0.006)	(0.087)
CHN*t	-0.061	0.036	-0.073
	(0.056)	(0.046)	(0.155)
CYM*t	0.089***	0.090**	-0.197***
	(0.034)	(0.037)	(0.066)
GBR*t	0.001	-0.054***	-0.118**
	(0.013)	(0.011)	(0.049)
HKG*t	0.046***	0.048***	-0.039
	(0.011)	(0.011)	(0.052)
LUX*t	-0.024*	0.057**	-0.065
	(0.013)	(0.025)	(0.039)
SGP*t	0.200***	0.160***	0.158**
	(0.019)	(0.021)	(0.068)
VNM*t	0.050	0.292***	-
	(0.055)	(0.045)	-
Observations	1673	1725	504
R-squared	0.668	0.619	0.512

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.

* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Table 6. Robustness Check II (By Investor Sizes)

	(1) All	(2) MNC	(3) SME	(4) Others
% Yearly exchange rate change	-0.000	0.003	-0.004**	2.989
	(0.002)	(0.002)	(0.002)	(1.846)
Total Trade	0.161**	-0.014	0.353***	0.044
	(0.061)	(0.102)	(0.115)	(0.073)
GDP per capita	0.703***	1.138***	0.739**	-0.751
	(0.180)	(0.308)	(0.289)	(1.334)
GDP per capita growth rate	-0.558	-0.199	-1.392	-0.965
	(0.897)	(1.257)	(1.474)	(4.366)
AUS	-1.412***	-1.689***	-2.143***	4.842***
	(0.117)	(0.218)	(0.255)	(1.234)
CAN	-1.552***	-2.792***	-1.157***	0.884
	(0.151)	(0.277)	(0.310)	(2.213)
CHN	2.165***	3.608***	2.719**	-3.160
	(0.640)	(1.073)	(1.045)	(4.756)
CYM	-1.719***	-3.434***	-2.338***	3.387***
	(0.473)	(0.784)	(0.870)	(1.036)
GBR	-1.807***	-1.986***	-1.725***	3.202***
	(0.152)	(0.232)	(0.285)	(0.867)
HKG	-0.597***	-0.097	-0.124	-0.488
	(0.130)	(0.228)	(0.248)	(0.866)
LUX	-4.331***	-5.959***	-1.651*	-3.718**
	(0.467)	(0.712)	(0.847)	(1.462)
SGP	-1.810***	-1.056***	-1.806***	1.260
	(0.145)	(0.234)	(0.253)	(0.878)
VNM	1.496*	2.623*	2.056	-1.756
	(0.755)	(1.389)	(1.321)	(5.839)
t	0.058***	0.101***	0.059***	0.273***
	(0.010)	(0.019)	(0.015)	(0.066)
AUS*t	-0.074***	-0.090***	-0.061***	-0.502***
	(0.005)	(0.009)	(0.009)	(0.078)
CAN*t	-0.029***	0.003	-0.074***	-0.179
	(0.003)	(0.006)	(0.005)	(0.133)
CHN*t	-0.170***	-0.216***	-0.189***	-0.122
	(0.018)	(0.032)	(0.030)	(0.149)
CYM*t	0.126***	0.096***	0.247***	-0.198***
	(0.014)	(0.018)	(0.014)	(0.072)
GBR*t	-0.003	-0.020***	-0.028***	-0.296***
	(0.004)	(0.007)	(0.007)	(0.043)
HKG*t	-0.040***	-0.080***	-0.045***	-0.150***
	(0.004)	(0.006)	(0.008)	(0.030)
LUX*t	0.239***	0.140***	0.143***	0.210***
	(0.013)	(0.012)	(0.014)	(0.062)
SGP*t	0.026***	-0.054***	0.026**	-0.202***
	(0.008)	(0.013)	(0.011)	(0.057)
VNM*t	-0.042***	-0.046	-0.043	-0.297***
	(0.014)	(0.029)	(0.028)	(0.107)
Observations	16,576	5,323	5,978	590
R-squared	0.391	0.399	0.389	0.689

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.

* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

Table 7. Robustness Check II (By Industries)

	(1) Manufacturing	(2) Wholesale and Retail	(3) Finance and Insurance
% Yearly exchange rate change	0.002	-0.006*	-1.285**
	(0.002)	(0.003)	(0.620)
Total Trade	0.268	0.146	0.252***
	(0.162)	(0.217)	(0.085)
GDP per capita	0.911**	-0.333	-1.648**
	(0.425)	(0.439)	(0.691)
GDP per capita growth rate	2.964	3.163	6.030
	(1.933)	(2.368)	(4.556)
AUS	-3.107***	-3.532***	-2.436*
	(0.281)	(0.362)	(1.393)
CAN	-3.273***	-3.823***	-2.361***
	(0.390)	(0.517)	(0.622)
CHN	4.263***	-2.430	-7.133***
	(1.475)	(1.585)	(2.654)
CYM	-0.970	-2.762	4.061***
	(1.241)	(1.865)	(0.895)
GBR	-3.057***	-3.204***	-1.354**
	(0.328)	(0.491)	(0.558)
HKG	-1.240***	-1.978***	-1.855***
	(0.283)	(0.344)	(0.639)
LUX	-4.343***	-3.021*	0.694
	(1.172)	(1.570)	(0.861)
SGP	-4.340***	-3.798***	-4.951***
	(0.302)	(0.373)	(0.722)
VNM	4.025**	-6.816***	-8.301**
	(1.855)	(1.893)	(3.304)
t	-0.008	0.033*	0.352***
	(0.024)	(0.018)	(0.040)
AUS*t	0.008	-0.020	-0.082
	(0.012)	(0.012)	(0.088)
CAN*t	0.054***	0.010	-0.038
	(0.009)	(0.005)	(0.037)
CHN*t	-0.156***	0.045	-0.006
	(0.043)	(0.046)	(0.081)
CYM*t	0.073**	0.079**	-0.192***
	(0.032)	(0.040)	(0.038)
GBR*t	0.017	-0.059***	-0.101***
	(0.013)	(0.010)	(0.033)
HKG*t	0.033***	0.053***	-0.090
	(0.007)	(0.010)	(0.029)
LUX*t	-0.033***	0.025	0.028
	(0.010)	(0.017)	(0.031)
SGP*t	0.175***	0.163***	0.190***
	(0.014)	(0.020)	(0.041)
VNM*t	-0.019	0.288***	-0.118*
	(0.038)	(0.042)	(0.068)
Observations	2,688	2,101	801
R-squared	0.650	0.601	0.554

Note: The unit of observation is year by country by industry by investor size. We additionally control for country-, year- and industry- fixed effects and linear time trends. Robust standard errors are in parentheses.

* Significant at 10%, ** Significant at 5%, *** Significant at 1%.

국문 초록

한국의 FDI 동향 및 설명요인

본 논문은 2001년부터 2021년까지 경제 변수가 한국의 해외직접투자 변화 추이에 미치는 영향에 관해 실증적 방법으로 연구하였다. 2000년대 초반에는 미국, 중국, 베트남의 제조업이 인기 투자 종목이었다. 그러나 최근 케이맨 제도, 룩셈부르크 등 국가의 금융·보험업계가 부상하면서 해외직접투자량이 증가세를 보였다. 산업별, 투자자 규모별, 국가별 차등 패턴이 경제 상황에 따른 효과인지, 혹은 특정 시계열 추세의 효과인지를 확인하기 위해, 경제 상황의 변화를 통제한 회귀 모델을 설계한다. 본 연구 결과는 총 무역량과 1인당 GDP가 한국의 해외직접투자와 관련이 있음을 시사한다. 2000년 이후 미국에 대한 투자율이 1위를 유지하고 있지만, 룩셈부르크와 케이맨 제도에 대한 투자율이 각각 연 29.6%, 18.7%로 빠르게 증가하는 새로운 추세가 관측되었다. 해당 국가들은 대표적은 조세피난처로 지목되고 있으므로 해당 투자의 적법성에 대한 조사가 필요할 것으로 보인다.

주제어: 해외 직접투자, 이질적 효과, 선형추세 모형, 위치선택

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