

DRIVERS OF FOREIGN DIRECT INVESTMENT IN DEVELOPING COUNTRIES: EVIDENCE FROM NORTH MACEDONIA USING A GRAVITY MODEL APPROACH

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Abstract

This paper aims to evaluate the foreign direct investment in North Macedonia, a small developing economy. Findings indicate that after the dissolution of Yugoslavia, North Macedonia's policy of economic openness was generally successful and the country attracted substantial amounts of FDI by using its Technological industrial development zones and leveraging proximity to EU markets. By applying the gravity model to a panel of data, spanning 35 countries and a period of 14 years (2010-2023), this paper argues that economic dimensions of the host and source countries, geographic proximity, relative economic distance, economic integration, historical and cultural proximity, bilateral investment treaties and double taxation avoidance agreements have a positive impact on FDI. However, this paper does not find conclusive evidence that inflation rates, political corruption and innovation influence the FDI stock. In light of the need to avoid high concentration in just a few economic segments and high dependence on several source countries, the paper points out the need to simultaneously attract and diversify sources of foreign capital in order to enhance resilience to exogenous shocks. Diversified FDI stock is pivotal for achieving long-term macroeconomic stability and maintaining higher growth rates.

Keywords: foreign direct investment, North Macedonia, gravity model, factor endowments, economic integration, relative economic distance, diversification.

JEL classification: F210, F230, F150, C330, C510.

1. Introduction

Following Yugoslavia's dissolution, North Macedonia pursued market-based reforms, but faced major economic hardships in the 1990s. Although it was the only republic to secede peacefully, the Yugoslav wars brought severe trade disruptions. The country lost access to its key markets for industrial production, which combined with a decrease in demand led to a significant fall in GDP. The post-war period was characterized by serious macroeconomic problems, including high unemployment, rampant inflation and capital scarcity (World Bank 2018).

Macedonian attempts at economic recovery were hampered by sanctions from Greece due to a naming

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dispute and Greek allegations that the Macedonian Constitution makes territorial claims and promotes irredentist vision. As a result of the refusal to alter its position on the matter, Greece imposed a complete trade embargo in February 1994, which lasted 18 months. The embargo isolated the country economically, given that North Macedonia was cut off from its nearest port, Thessaloniki, and landlocked by the UN embargo against the Federal Republic of Yugoslavia, its main trading partner, in the north, causing about \$2 billion in damages (Petreski 2023).

Realizing the severity of the economic situation, as well as its limited resources and domestic savings, North Macedonia pursued a policy of economic openness and closer cooperation (integration) with the European Union (EU) in order to secure the capital needed to accelerate economic growth. Domestic efforts, as well as deepening economic ties with the EU stabilized the economy by providing access to financial aid and attracting a significant amount of foreign direct investment (FDI). As a result of the policy of openness, FDI has acquired a pivotal role in the Macedonian economy, which makes this study quite relevant.

Having this in mind, the objective of this paper is to evaluate existing FDI trends and patterns in North Macedonia, as well as to gain insight into the factors that shaped these trends in order to identify policy implications not just for the country of interest, but for other developing countries as well.

This paper will contribute to the empirical literature on FDI determinants in developing countries. Evidence suggests that the FDI stock in North Macedonia is determined by the economic size of the host and source countries, geographic distance, relative economic distance, host country FDI attraction policy as well as historical aspects. The use of relative economic distance which measures the interdependency of economic growth trajectory is a meaningful contribution to the analysis of FDI stock in North Macedonia given that previous studies have not used this concept. This paper does not find unequivocal evidence that inflation, political corruption and innovation environment affect FDI.

The paper is structured as follows: the following section proceeds with a presentation of previous studies on FDI determinants in North Macedonia and other countries. The third section presents the methodology and the hypotheses to be tested. The subsequent section presents the results of the descriptive analysis and provides interpretation of the econometric model. The last section summarizes the results and argues policy implications for North Macedonia and other developing countries.

2. Literature review

Research on FDI patterns and determinants in North Macedonia has been relatively modest and mainly focused on their impact on the national economy and the policy of attracting FDI through Technological industrial development zones (TIDZ), which offer incentive packages to foreign investors. Previous studies present differing results on FDI's role in the Macedonian economy. For instance, Jankuloska (2016) in her study on the effects of the Technological industrial development zones provides a brief overview of inward FDI flows and highlights the positive impact of FDI into TIDZ on the economic structure, foreign trade and unemployment rates. However, some studies underline the unambiguity of these effects by arguing that FDI into TIDZ did not yield the expected spill-over effects in terms of transfer of knowledge and technology and substantially increased North Macedonia's trade deficit (Kikerkova 2017; Bartlett et al. 2019). Similarly, by applying a cost-benefit analysis Garvalieva et al. (2016) argue that although North Macedonia successfully attracted greenfield FDI through TIDZ, the benefits from knowledge transfer face challenges due to concentration of R&D, marketing, and sales activities within parent companies or regional centers, limiting knowledge spillovers as an attraction factor for FDI in Macedonia. A study by Osmani and Ahmeti (2020) provides insight into FDI in North Macedonia since gaining independence and highlights its significance as a factor of economic growth considering market size and domestic savings limitations.

To some extent foreign investment is also examined by international organizations. The World Trade Organization (WTO) includes trends and patterns in FDI in its reports for the trade policy review. The latest country report (2019) acknowledges that North Macedonia managed to successfully attract a fair amount of FDI by maintaining an open regime and pursuing accelerated integration with EU countries. Another 2018 World Bank (WB) study also highlights the country's success in attracting FDI through incentives. Moreover, the WB highlights the gradual transition from FDI in services to technology-intensive industries, leveraging closeness to major assembly facilities across Central and Western Europe and Turkey, along with preferential tariff-free entry to EU markets.

Some research on Macedonian FDI is incorporated as a part of a broader analysis of Balkan countries or transition economies. Notably, a study by Dauti (2015) investigates the determinants of FDI stock in transition economies, with special reference to North Macedonia. By using LSDV estimates for the gravity

model, Dauti provides empirical evidence that market size, distance and institutional factors including corruption perception and regulatory quality determine inward FDI stock. Another study by Kuzmanoska Mirkovikj et al. (2024) using CLRM approach argues that regulatory quality and macroeconomic stability have a significant positive impact on FDI in the country and further policy improvements in institutional quality can enhance FDI and overall economic growth.

Despite the evident scarcity of research on FDI in North Macedonia, numerous studies have addressed the issue of evaluating determinants in other transition and developing economies. A study by Dauti (2020) on the institutional determinants in transition economies provides evidence that FDI flows are influenced by gravity factors as well as institutional factors such as WTO membership, transition progress and others. Deichmann et al. (2022) in their study on FDI propensity and geo-cultural interaction in former Yugoslavia based on analysis of FDI location choice across the successor states argue that host governments seeking FDI might potentially increase the likelihood by targeting geographically-proximate partners that are culturally similar. Estrin and Uvalic (2013) apply the OLS methodology to an augmented gravity model for European transition economies with focus on Western Balkans and find evidence that gravity factors, EU membership and wages influence FDI. Johnson in his 2006 study on FDI inflows to Eastern European transition economic uses pooled OLS, fixed and random effect model and provides evidence that gravity factors, corruption perception, market seeking and progress in transition are important determinants of FDI.

A study by Dorakh (2020) on FDI across EU countries uses the OLS and PPML estimators and finds that gravity factors (economic size and geographical proximity) have positive impact on FDI. Moreover, by using EU membership and historical ties (colony) proxies Dorakh provides evidence about their significance as determinants of FDI. Analyzing Portuguese (unilateral) inward FDI, Leitão (2023) uses the same methodology and draws similar conclusions. The author also provides evidence that cultural proximity due to historical ties enhances FDI. Kox and Rojas-Romagosa (2020) use an augmented gravity model with FDI stocks as the dependent variables and dummies for cultural proximity, bilateral investment treaties, preferential trade agreements and provide evidence that besides the standard gravity factors, these factors are also key determinants of FDI stocks. A 2024 study by Tu investigating the relationship between innovation and FDI attraction across 66 developing countries by using the Global Innovation Index provides evidence that

innovation is also a determinant of FDI albeit it has smaller effect vis-à-vis other variables (market size, labor resources and financial development). The author also analyzes the effects of inflation rates however he finds an insignificant negative relationship.

3. Methodology

Several research methodologies were used to evaluate foreign direct investment in North Macedonia. Aiming to assess inward FDI trends this research adopts a combined quantitative and qualitative approach to the analysis of inward FDI flows and stock for the period 2010-2023.

The first part of the study focuses on empirical data on inward FDI stock and their distribution across different geographic entities and economic sectors. The method of compound annual growth rate (CAGR), descriptive and comparative analysis were used in order to assess current patterns.

The second part employs the gravity model to get deeper insight into the drivers of FDI stock. The model builds on panel data collected by the National Bank of the Republic of North Macedonia, United Nations Conference on Trade and Development (UNCTAD) and other relevant organizations (Appendix 1), and it spans a period of 14 years (2010-2023). The dataset includes 35 countries (Appendix 2) from different geographic regions which account for approximately 99% of the inward FDI stock. Building on studies by Leitão (2023), Kox and Roja-Romagosa (2019) and other similar research, the augmented gravity equation for the FDI stock in North Macedonia is specified as:

$$\ln FDI_{h,i,t} = \beta_0 + \beta_1 \ln Y_{h,t} + \beta_2 \ln Y_{i,t} + \beta_3 \ln DIST_t + \beta_4 \ln RED_t + \beta_5 \ln CPI_t + \beta_6 \ln PCI_t + \beta_7 \ln GII_t + \beta_8 EU_t + \beta_9 HIST_t + \beta_{10} BIT_t + \beta_{11} DTAA_t + e_t \quad (1)$$

The dependent variable ($\ln FDI_{h,i}$) is defined as the unilateral FDI stock of source country i in North Macedonia (host). Despite a predominant focus on FDI flows within existing literature, the use of FDI stock has some advantages. Kox and Roja-Romagosa (2019, 2020) contend that FDI stock data exhibits reduced variability and hence enhances statistical robustness; Dauti (2015) emphasizes that employing FDI stock facilitates capturing time lag effects.

The dependent variable contains some zero and negative observations. To treat these observations a logarithmic transformation on the absolute value of FDI stock increased by 1, proposed by Yeyati et al. (2003), is used. According to other studies employing this transformation, the coefficients from the OLS

regression can still provide meaningful interpretation (Guerin and Mazocchi 2006).

Macedonian GDP per capita ($\ln Y_h$), GDP per capita of source countries ($\ln Y_i$), geographical distance ($\ln DIST$), relative economic distance ($\ln RED$), consumer price index ($\ln CPI$), political corruption index ($\ln PCI$), global innovation index ($\ln GII$), EU membership of an investing country (EU), shared history ($HIST$), Bilateral Investment Treaty (BIT), Double Taxation Avoidance Agreement ($DTAA$) are the independent variables. GDP per capita of both the host and source countries, geographical distance, relative economic distance, consumer price index, political corruption index and global innovation index are expressed in natural logarithmic form. Geographical distance ($DIST$) is defined as the direct air distance between the capital of North Macedonia (Skopje) and the capitals of source countries. The random residual term is denoted as e .

In line with Frankel et al. (1995) the gravity model approach frequently uses the difference between logarithms of GDP per capita as a measure of economic distance ($ED = |\ln Y_h - \ln Y_i|$). The reasoning behind this is that differences in per capita output to a certain extent can be considered as a measure of differences in factor endowment and hence economic distance (Melitz 2007). However, taking into consideration Dunning's (1993) taxonomy of FDI motives and the fact that North Macedonia is a developing country with relatively lower costs of traditional factor endowments, it can be argued that economic distance indeed has a certain impact on FDI. Moreover, preliminary correlation analysis confirmed the presence of certain correlation (0.100) between ($\ln FDI_h$) and ED , but it also confirmed the presence of a very strong correlation between $\ln Y_i$ and ED (0.947), which could potentially cause multicollinearity issues. Thereby, ED was excluded replaced with relative economic distance (RED) which measures the proximity (interdependency) of economic growth trajectory.

The theoretical justification for the use of RED is derived from the growth of global connectivity and economic interdependence as a result of globalization and regional integration; North Macedonia is actively pursuing EU integration. Furthermore, there is empirical evidence that regional integration contributes to convergence and synchronization of economic growth paths (Lee 2012; Gomez et al. 2013), which in turn might lead to lower ED . Evaluation of the RED between North Macedonia and the investing countries is based on the approach proposed by Mazurek (2012) which measures the correlation coefficient of time series for the chosen period. Namely, this study employed the following formula:

$$RED_{f,t}(A, B) = \left[\frac{1 - r(f_A, f_B)}{2} \right] \times 100 \quad (2)$$

where A and B are the countries of interest, f is the macroeconomic indicator of interest (GDP per capita), f_A and f_B are the time series, t is the time period (2010-2023) and r is the Pearson's correlation coefficient of the time series. Based on the formula, a conclusion can be drawn that stronger correlation implies higher relative economic proximity (interdependency) of growth trajectory.

The $\ln CPI$ variable is considered in the model to account for inflation trends in the host country. In line with previous research this study employs the inflation rate of North Macedonia measured by the Consumer Price Index. It is expected that inflation negatively impacts FDI stocks in host country given that countries experiencing higher rates are often perceived as riskier by foreign investors and can lead to depreciation of the local currency and hence reduction in the value of assets. The studies of Mishra and Jena (2019) and Ascani et al. (2020) find negative relationship between FDI and inflation rates.

The $\ln PCI$ variable is included to capture the effects of corruption on FDI. Most researchers use Transparency International's Corruption Perception Index however this study uses the Political Corruption Index, published by the Varieties of Democracy Institute (Stockholm, Sweden). In favor of the latter is the fact that it measures six distinct types of corruption that cover different areas and levels of the polity realm, distinguishing between public, executive, legislative and judicial corruption as well as the fact that is based on experts reports. On the contrary, the Transparency International Index does not distinguish individual types and is based on people's perceptions which might not reflect the actual corruption level. The index varies between 0 and 1 (0 indicates less corrupt and 1 more corrupt country). In this study the index is expressed as a percentage. It is expected that this variable negatively impacts FDI stocks in host country since a lower index value suggests a less corrupt environment.

The Global Innovation Index ($\ln GII$), published by the World Intellectual Property Organization (WIPO), is considered in order to account for the effects of innovation on FDI. The GII measures a country's innovation performance by capturing both quantitative data and qualitative indicators across various dimensions of innovation inputs and outputs. In line with Tu's findings (2024) it is expected that this variable positively impacts FDI since countries with strong innovation environment often have advanced technologies and tend to grow faster due to higher productivity rates.

This in turn attracts FDI since multinational enterprises seek locations where they can access cutting-edge technology and investors prefer markets with high growth prospects as it usually increases returns on investment.

Other variables such as wages and their growth rates, unemployment rate, exchange rate of the local currency and the Fragile States Index published by the U.S. think tank Fund for Peace were considered, however the preliminary correlation analysis identified very strong correlation of the variables with $\ln Y_h$. Since $\ln Y_h$ is an integral part of the gravity model and strong correlation among the independent variables can cause multicollinearity issues these variables were excluded.

EU, *HIST*, *BIT* and *DTAA* are dummy variables included to capture specific fixed effects. The *EU* dummy aims to capture the effects of European integration on the Macedonian FDI stock. *EU* takes the value 1 if the investor is an EU member (27 countries) and the value 0 if the investor is not an EU member. Due to Brexit, the UK's value since 2020 is 0. Croatia's value after its official EU accession in 2013 is 1. The *HIST* dummy aims to capture the effects of historical aspects and cultural proximity. It takes the value 1 if North Macedonia was at some point part of the same country with the investing country and there is a certain degree of cultural and linguistic proximity, and the value 0 if it was not. Value 1 was assigned to Serbia, Croatia, Slovenia, Bosnia, Kosovo, Bulgaria, Greece and Turkey. Although North Macedonia, Greece and Turkey have some significant differences, the fact that they were part of the Ottoman Empire and the presence of strong cultural ties and sizable Macedonian diaspora can be considered sufficient evidence of shared history and overall social proximity. *BIT* and *DTAA* aim to capture the effects of international investment-related treaties on FDI stock. *BIT* takes the value 1 if the investing country and North Macedonia have a Bilateral Investment Treaty. Value 1 was assigned to Austria, Turkey, Germany, Netherlands, Slovenia, UK, Switzerland, Bulgaria, Hungary, Italy, Serbia, Belgium, China, Croatia, Albania, Luxembourg, Poland, Romania, Bosnia, Russia, Sweden and France (22 countries). *DTAA* take the value 1 if the investing country and North Macedonia have a Double Taxation Avoidance Agreement. Value 1 was assigned to Austria, Turkey, Germany, Netherlands, Slovenia, UK, Switzerland, Bulgaria, Hungary, Italy, Serbia, Estonia, China, Croatia, Albania, Luxembourg, Poland, Kosovo, Bosnia, Russia, Sweden, Norway, France (23 countries).

Supported by previous research, it is expected that all of the dummy variables will have a positive relationship with the dependent. The studies of Dorakh

(2020) and Di Mauro (2000) find positive relationship between economic integration and FDI among European countries. Kox and Roja-Romagosa (2019, 2020) provide evidence that Bilateral Investment Treaties and Double Taxation Avoidance Agreements enhance FDI stocks. The rationale behind the positive relationship between FDI and historical aspects is that the presence of reliable historical ties is associated with lower transaction costs and easier market access (Leitão 2023).

In line with other studies on FDI employing the gravity model (Frankel et al. 2004; Alon et al. 2012; Estrin and Uvalic 2013; Leitão 2023), Equation (1) is estimated using a pooled OLS estimator with HAC standard errors. The use of pooled OLS is motivated by its simplicity and ability to combine information across countries and time periods. Moreover, given that the primary interest of this study lies in average relationships rather than specific entity-level variations, pooled OLS delivers parsimonious yet informative insights on key factors influencing the FDI stock in North Macedonia.

Overall, considering the arguments of the model, the following theoretical hypotheses to be tested have been formulated:

- H1(a): Economic dimension of North Macedonia plays a crucial role in drawing FDI;
- H1(b): Economic dimension of investing countries drives outward FDI;
- H2: Geographical proximity is an important factor for investing countries;
- H3: Relative economic distance in GDP per capita growth rates has positive impact on FDI;
- H4: Inflation rates negatively affects FDI patterns;
- H5: Political corruption hinders FDI;
- H6: Innovation fosters FDI;
- H7: Economic integration contributes to attracting FDI;
- H8: Shared history and cultural proximity (including linguistic similarities) enhance FDI;
- H9: Bilateral Investment Treaties help host countries attract FDI;
- H10: Double Taxation Avoidance Agreements help host countries attract FDI.

4. Results and discussion

4.1. FDI inward stock in North Macedonia: volumes and distribution

Data displayed in Table 1 shows that North Macedonia has experienced a massive influx of FDI since 1994. Between 1994 and 2003 the inward FDI stock on average grew by 40.4% reaching \$1.63 billion by 2003.

Table 1. North Macedonia's inward FDI 1994-2023

Indicators	1994	1998	2003	2008	2013	2018	2023	CAGR
GDP, in million USD	3,560	3,766	4,946	9,910	10,818	12,683	15,764	5.3%
FDI flow								
In million USD	24.0	150.0	117.8	586.9	334.7	725.3	625.1	11.9%
Share of GDP, %	0.7%	4.0%	2.4%	5.9%	3.1%	5.7%	4.0%	-
FDI stock								
In million USD	77	315	1,632	4,132	5,486	6,079	8,323	17.5%
Share of GDP, %	2.2%	8.4%	33.0%	41.7%	50.7%	47.9%	52.8%	-

Source: National Bank of North Macedonia, State Statistical Office

This reflects the post-Yugoslav economic policy of the country which was based on expedited liberalization of trade and capital markets, i.e. economic openness, in order to decrease capital deficiency and accelerate economic growth.

However, over the last two decades growth rates have slowed down significantly. Between 2004 and 2013 the average growth rates slowed to 10.7%. The average growth rates for the period 2014-2023 stood at 6.1% which is slightly lower than the global average – 7.4%. The slowdown is mostly attributable to the consequences of the European sovereign debt crisis which placed downward pressure on European investment patterns as well as various domestic institutional, economic, political constraints (Estrin and Uvalic 2016). A series of economic challenges such as the COVID-19 and the overall global slowdown as a result of the rising levels of geopolitical uncertainty also made their adjustments.

Nevertheless, the long-term trend remains positive. After a period of no positive changes, since 2017 FDI stock has been again on the rise and in 2023 inward surpassed \$8.3 billion for the first time ever. Moreover, average growth rates have consistently surpassed GDP growth rates. As a result, FDI has become a significant part of the Macedonian economy. The substantial increase of annual inward FDI flows, as well as the total stock led to an increase of the FDI stock-GDP ratio. In 1994 the FDI stock accounted for just 2.2% of GDP and by 2023 reached 52.8%.

When compared to other Balkan and European countries, it can be concluded that North Macedonia's policy of economic openness has been quite successful in attracting foreign capital. Between 2010 and 2023 the FDI stock in North Macedonia increased by 94% which is significantly higher than the FDI stock increase in former Yugoslav republics Bosnia (59%) and Croatia (30%), which is an EU member. Moreover, comparing the FDI stock-GDP ratio, based on UNCTAD

data, it can be noted that relative to its economic size North Macedonia has accumulated more foreign capital than Slovenia (34.3%), France (33.2%), Italy (20.8%), Germany (24.9%), Greece (25.3%), all of whom are EU members with better developed economies.

Table 2 displays the distribution of the FDI stock across key regions, regional blocs and source countries. In 2023 92% of the Macedonian FDI stock came from other European countries. America accounts for 5.8% and Asia's share stands at just 2.1%. Overall, this suggests that North Macedonia's FDI stock is poorly diversified and the country is extremely dependent on European investment. In terms of regional blocs, the European Union is by far the largest foreign investor in the country. By 2023 EU's FDI stock reached \$5.6 billion which accounts for roughly 67% of the total FDI stock.

In terms of individual countries, with roughly 16% of the total FDI stock, Austria is by far the largest investor. Austrian FDI are mainly concentrated in electricity, finance, insurance and telecommunications. The most notable investments are EVN Macedonia – key provider of energy services (part of the EVN AG Group), A1 Macedonia – key provider of communications and digital solutions (subsidiary of A1 Telekom Austria Group); Sparkasse Bank Macedonia (part of Steiermärkische Sparkasse), Winner Life and Insurance Makedonija (subsidiaries of Vienna Insurance Group), Grawe (subsidiary of Grawe Group), WVP (subsidiary of WVP Group).

Other key investors are Greece, Turkey, Germany and the Netherlands. Combined these five countries account for 52% of the total FDI stock. It is noteworthy that in the last decade Turkish and German investments have surged. Turkish FDI stock in North Macedonia increased from just \$64 million in 2010 to \$790 million in 2023. For the same period, German FDI stock increased from \$95 million to \$720 million. Furthermore, the presence of American, British and Belgian companies has also been on the rise. American

Table 2. North Macedonia's FDI inward stock across key investing countries, regions and blocs, 2010-2023

	Volume, \$ million			Share, %			Increase	
	2010	2016	2023	2010	2016	2023	Overall	CAGR
Key investing regions								
Europe	3,982.2	4,519.4	7,655.5	92.1%	92.1%	92.0%	1.92x	5.2%
Americas	297.4	316.1	479.4	6.9%	6.4%	5.8%	1.61x	3.7%
Asia	13.4	65.7	171.5	0.3%	1.3%	2.1%	12.82x	21.7%
Key investing regional blocs								
EU-27	3,403.0	3,242.6	5,558.6	78.7%	66.1%	66.8%	1.63	3.8%
EFTA	228.0	238.5	412.1	5.3%	4.9%	5.0%	1.81	4.7%
CEFTA	164.5	162.1	290.1	3.8%	3.3%	3.5%	1.76	4.5%
Key investing countries								
Austria	453.5	598.2	1,324.5	10.5%	12.2%	15.9%	2.92x	8.6%
Greece	572.6	488.5	829.8	13.2%	10.0%	10.0%	1.45x	2.9%
Turkey	64.13	261.2	790.4	1.5%	5.3%	9.5%	12.32x	21.3%
Germany	94.74	261.7	719.9	2.2%	5.3%	8.7%	7.60x	16.9%
Netherlands	730.9	446.2	659.3	16.9%	9.1%	7.9%	0.90x	-0.8%
Top 5 countries	1,915.9	2,055.9	4,324.0	44.3%	41.9%	51.9%	2.26x	6.5%

Source: National Bank of North Macedonia

Table 3. North Macedonia's inward FDI stock across key sectors, 2010-2023

Key investing countries	Volume, \$ million			Share, %			Increase	
	2010	2016	2023	2010	2016	2023	Overall	CAGR
Financial intermediation	1,000.1	872.4	1,727.6	23.1%	17.8%	20.8%	1.73x	4.3%
Automotive industry	219.3	691.4	1,149.2	4.7%	13.7%	13.5%	5.24x	13.6%
Electricity	303.3	384.9	764.5	7.0%	7.8%	9.2%	2.52x	7.4%
Wholesale	292.5	479.2	679.9	6.8%	9.8%	8.2%	2.32x	6.7%
Construction	177.7	355.8	572.2	4.1%	7.2%	6.9%	3.22x	9.4%
Top 5	1,992.7	2,783.8	4,893.4	45.7%	56.4%	58.5%	2.46x	7.2%

Source: National Bank of North Macedonia

and British FDI stocks have quadrupled between 2010 and 2023. Belgian FDI stock increased from \$1.6 million in 2010 to \$128.5 million in 2023.

Table 3 displays the key sectors for Macedonian FDI. Data indicates a continuation of the trend identified by the World Bank about the shifting nature of FDI (World Bank 2018). In 2010 the stock was mostly concentrated in financial services (23.1%), non-precious metals & metal products (10.3%), food & beverage manufacturing (8.0%), electricity (7.0%) and wholesale (6.8%); these sectors were primarily focused on serving the local market and FDI was mostly in the form of mergers and acquisitions (M&A). In the following period, North Macedonia experienced a significant influx of greenfield FDI in relation to the automotive

industry, whose FDI stock between 2010 and 2023 on average grew by 13.6% annually and as a result its share increased from 4.7% to 13.5%.

It stands to mention that most of the greenfield FDI in the last decade have been into the Technological and Industrial Development Zones (TIDZ) in North Macedonia (Kikerkova 2016). TIDZs are special economic zones that offer numerous fiscal benefits to foreign investors including partial return of investment costs in machines, equipment or construction, long-term lease on land (up to 99 years) at concessionary prices, as well as ten-year tax holiday for corporate and personal income tax, exemptions from customs duties and VAT on imported raw materials and equipment, etc. For instance, a company operating outside of TIDZ

would normally pay 10% corporate income tax, 18% VAT, 0-15% and 5-20% customs duties on imported raw materials and equipment respectively, while a company operating in TIDZ would be completely exempted from VAT and all customs duties applicable and will pay no corporate income tax for the first ten years (Invest North Macedonia website). Given that many of these incentives are zone-specific it comes as no surprise that these zones have been instrumental in drawing substantial manufacturing investments into the economy since being established in 2007, especially from multinationals seeking efficiency in the value chains and higher return on investment.

The zones were especially successful in attracting FDI into the automotive industry. The aforementioned FDI stock (\$1,15 billion) in this sphere has been entirely into TIDZ. According to Invest North Macedonia, the government investment and export promotion agency, the list of companies that have their production facilities in TIDZ includes Johnson Matthey (UK), Gerrresheimer, Kessler, Franz Kiel, Marquardt, Kostal, Kromberg & Schubert, Draxelmaier (Germany), VDL Van Hool (Belgium), Adient, GenTherm, Amphenol, Lear Corporation, Aptiv, Kemer, Dura (USA), Joyson Safety Systems (China). Also, in 2024 Belgian Avesta Battery & Energy Engineering started the construction of a factory in TIDZ. All companies are important suppliers not just for the European but for the global automotive industry as well; most of their output is being exported to other European countries, which is consistent with a 2017 OECD study that classified Macedonian TIDZ as export processing zones.

In this regard, it must be noted that North Macedonia has a free trade area with the EU, the European Free Trade Association (Switzerland, Norway, Iceland, Liechtenstein), other CEFTA countries (Albania, Bosnia, Kosovo, Moldova, Montenegro, Serbia), Turkey and Ukraine, as well as a Partnership, trade and cooperation agreement with the UK (Invest North Macedonia website). Also, together with Albania and Serbia, the country is part of Open Balkan, an economic and political zone that aims to strengthen cooperation. Hence, for most of the foreign companies North Macedonia serves as an export platform and a part of their value chain. In this context, there are theoretical justifications to support the claim that Macedonia's EU integration increased the probability of attracting investors.

It should be mentioned that FDI, especially into TIDZ, significantly contributed to the transformation of the Macedonian industrial output and exports. According to data collected by the State Statistical Office, in 2000 the industrial output was mainly dominated by apparel, food, beverages, tobacco products

and other non-metallic mineral products. These categories accounted for 60.7% of the industrial gross value added (GVA). Although food and apparel remain key industrial segments, accounting for a total of 19.1% in 2022, the shares of beverages, tobacco products and non-metallic minerals have declined significantly. This reconfiguration of the national industrial structure is mainly attributable to the FDI-based development of the automotive industry. As a result, in the last two decades the automotive industry contribution to the country's industrial GVA increased from 1.4% to 14.7%, which makes the automotive industry the largest industrial segment.

In terms of exports, the same situation can be observed. In 2018 TIDZ accounted for 36% of the value of exports (WTO 2019) and it is estimated that by 2023 their share exceeded 50%. Furthermore, two decades ago Macedonian exports were dominated by iron and steel (23.2%), articles of apparel (20.2%) and refined petroleum oils (8.0%). Nowadays, miscellaneous chemical products and electrical machinery lead with 23.4% and 20.4% respectively. The combined share of iron and steel, articles of apparel and refined petroleum oil declined from 51.4% in 2005 to 12.1% in 2024. It must be underlined that exports of miscellaneous chemical products, and by extension overall Macedonian exports, are highly dependent on a single product. In 2024 23.21% (almost a quarter) of Macedonian exports were reaction initiators, reaction accelerators and catalytic preparations (HS code 3815), which falls entirely on the British company Johnson Matthey, a world leader in the production of catalytic converters for the automotive industry and catalytic converters for environmental pollution control. Moreover, this product is almost entirely exported to Germany (97.1%), which poses a significant risk.

Overall, analysis shows that over the years North Macedonia has successfully integrated into European and global value chains, especially related to the automotive industry, by using its Technological industrial development zones and leveraging its proximity and duty-free access to European markets. Nevertheless, the current situation significantly exposes the country to exogenous shocks and changing patterns given the prevalence of export-oriented FDI in the total exports and the fact that economic crises can be transmitted through international trade. For instance, a decrease in demand from key export destinations might lead to a decrease in industrial output given that North Macedonia is simply a processing stop, and thus hinder economic growth. High exposure to exogenous shocks highlights the need to diversify FDI inflows in order to subsequently diversify its stock and mitigate possible negative outcomes.

4.2. Gravity model approach

In line with the gravity model (Equation (1)) formulated in this research, Table 4 displays the descriptive statistics of the variables. The GDP per capita variable of source countries ($\ln Y_i$) exhibits higher maximum and average values than GDP per capita of the host country. This is somewhat expected, given that most of the FDI in North Macedonia come from more developed European economies with higher GDP per capita (Appendix 3). For instance, Switzerland's GDP per capita is almost 12x higher. Among the dummy variables, *HIST* exhibits the lowest average value while

DTAA and *BIT* the highest. This indicates that North Macedonia has extensively used *DTAA* and *BIT* within its FDI attraction policy.

In order to evaluate the relationship degree between the variables, this research employed correlation analysis. Table 5 displays the results. Findings indicate positive correlation between $\ln FDI$ and the economic dimensions of both the host country ($\ln Y_h$) and source countries ($\ln Y_i$), as well as the relative economic distance ($\ln RED$), Political Corruption Index ($\ln PCI$), EU membership of source countries, shared history (*HIST*), bilateral investment treaties (*BIT*) and double taxation avoidance agreements (*DTAA*). It must

Table 4. Variables descriptive statistics

Variables	Minimum	Maximum	Mean	St Dev	Observations
$\ln FDI$	-4.61	7.19	3.90	1.87	490
$\ln Y_h$	8.43	9.06	8.70	0.18	490
$\ln Y_i$	8.00	12.22	10.17	0.93	490
$\ln DIST$	4.61	9.65	7.19	1.18	490
$\ln RED$	-1.05	4.06	1.93	1.53	490
$\ln CPI$	4.60	4.74	4.63	0.04	490
$\ln PCI$	3.99	4.32	4.22	0.08	490
$\ln GII$	3.36	3.64	3.53	0.08	490
<i>EU</i>	0.00	1.00	0.56	0.50	490
<i>HIST</i>	0.00	1.00	0.23	0.42	490
<i>BIT</i>	0.00	1.00	0.60	0.49	490
<i>DTAA</i>	0.00	1.00	0.65	0.48	490

Source: author's calculations

Table 5. Correlation matrix

Variables	$\ln FDI$	$\ln Y_h$	$\ln Y_i$	$\ln DIST$	$\ln RED$	$\ln CPI$	$\ln PCI$	$\ln GII$	<i>EU</i>	<i>HIST</i>	<i>BIT</i>	<i>DTAA</i>
$\ln FDI$	1.000											
$\ln Y_h$	0.257	1.000										
$\ln Y_i$	0.101	0.104	1.000									
$\ln DIST$	-0.227	0.000	0.557	1.000								
$\ln RED$	0.162	0.004	0.503	0.395	1.000							
$\ln CPI$	0.120	0.571	0.083	0.000	0.003	1.000						
$\ln PCI$	0.037	0.189	0.034	0.000	0.002	0.311	1.000					
$\ln GII$	-0.106	-0.515	-0.059	0.000	-0.001	-0.630	0.125	1.000				
<i>EU</i>	0.237	-0.021	0.121	-0.132	-0.002	-0.017	-0.010	0.013	1.000			
<i>HIST</i>	0.215	0.000	-0.547	-0.607	-0.204	0.000	0.000	0.000	-0.069	1.000		
<i>BIT</i>	0.313	-0.002	-0.260	-0.404	-0.123	0.002	0.001	0.001	0.226	0.169	1.000	
<i>DTAA</i>	0.323	0.118	-0.214	-0.395	-0.098	0.035	0.016	-0.040	0.120	0.176	0.618	1.000

Source: author's calculations

be noted that the strongest positive correlation is observed between $\ln FDI$ and $DTAA$ and the weakest between $\ln FDI$ and Political Corruption Index.

The only variables that exhibit negative correlation with $\ln FDI$ are geographical distance and Global Innovation index ($\ln GII$). The negative correlation between FDI and geographical distance is consistent with previous theoretical and empirical studies arguing that greater geographical distance increases transaction and transportation costs and thereby hinders FDI. This is especially important for North Macedonia considering the export-oriented nature of recent FDI.

Since gravity models rely heavily on variables that either remain constant over time (like geographic distance) or vary discretely (such as dummy variables) and these characteristics minimize the likelihood of encountering unit-root problems, this study does not conduct a unit root test. Scholarly contributions support this perspective (Bergstrand 1985; Anderson and van Wincoop 2003).

Table 6 displays the econometric results for the gravity model using the pooled OLS estimator. Since the Breusch-Pagan test for heteroscedasticity and the Breusch-Godfrey test for autocorrelation in the errors

detected presence of both heteroscedasticity and autocorrelation, the Newey-West estimator was used in order to derive heteroscedasticity-autocorrelation consistent (HAC) standard errors of the coefficients. The adjusted R^2 of the full model is 0,325 which is acceptable for this kind of studies and comparable to previous empirical research using the OLS estimator to analyze FDI determinants (Dorakh 2020; Leitão 2023).

In general, the model confirms that economic dimensions of both host and source countries have positive impact on Macedonian FDI stock given the positive signs of the coefficients and statistical significance of the variables ($\ln Y_h$) and ($\ln Y_i$) at 1% level. As expected, geographic distance negatively impacts FDI, indicating that proximity enhanced the FDI stock during the analyzed period, i.e. geographic distance hinders FDI which might explain North Macedonia's modest success in attracting and accumulating FDI stocks from other regions. The distance variable is significant at 10%. These findings are consistent with previous studies (for instance Estrin and Uvalic 2013).

Relative economic distance ($\ln RED$) also influenced FDI; the variable has a positive sign and it is

Table 6. Gravity model: estimation summary

	Full model					Reduced model				
	Coefficients	t-stat	SE	p-value	VIF	Coefficients	t-stat	SE	p-value	VIF
$\ln Y_h$	2.520***	4.100	0.615	0.000	1.661	2.202***	-4.882	0.494	0.000	1.049
$\ln Y_i$	0.570***	4.427	0.129	0.000	2.094	0.565***	4.453	0.129	0.000	2.089
$\ln DIST$	-0.207*	-1.834	0.113	0.067	2.321	-0.205**	4.370	0.113	0.000	2.320
$\ln RED$	0.202***	2.743	0.074	0.006	1.448	0.203*	-1.814	0.074	0.070	1.448
$\ln CPI$	-1.240	-0.456	2.719	0.649	2.408	-	-	-	-	-
$\ln PCI$	-0.347	-0.431	0.806	0.667	1.393	-	-	-	-	-
$\ln GII$	0.650	0.610	1.066	0.542	2.216	-	-	-	-	-
EU	0.568***	2.946	0.193	0.003	1.145	0.571***	2.958	0.193	0.003	1.144
$HIST$	1.241***	5.598	0.222	0.000	1.890	1.239***	5.609	0.221	0.000	1.890
BIT	0.720**	2.559	0.281	0.011	1.802	0.713**	2.534	0.281	0.012	1.799
$DTAA$	0.539*	1.906	0.283	0.057	1.745	0.550*	1.938	0.284	0.053	1.740
$Const$	-19.192	-1.398	13.732	0.163	-	-21.307***	-4.882	4.364	0.000	-
R^2	0.341					0.339				
$Adj. R^2$	0.325					0.328				
F -test	22.452 (0.000)					30.846 (0.000)				
Observations	490					490				
Breusch-Pagan	59.340 (0.000)					56.899 (0.000)				
Breusch-Godfrey	359.358 (0.000)					361.082 (0.000)				

Note: *** - 1% level; ** - 5% level; * - 10% level significance.

Source: author's calculations

significant at 1%. Moreover, this positivity suggests that higher RED would yield higher FDI stock. It stands to mention that higher RED between the host and investing country might indicate that:

- a) Host country has lower GDP per capita growth rates than the investing country;
- b) Host country has higher GDP per capita growth rates than the investing country,

with both cases likely reflecting differences in factor endowments, including their cost, as well as differences in factor intensity in the production of goods. By applying Dunning's taxonomy (Dunning, 1993) it can be argued that there are some theoretical justifications to support the claim that both cases can result in higher FDI stock. In the first case (a), the host could attract FDI by capitalizing on multinational enterprises seeking to take advantage of differences in the costs of traditional factor endowments. In the second case (b), the host country could attract FDI by capitalizing on multinationals seeking to profit from foreign markets, given that higher growth rates indicate better macroeconomic situation and thus potentially higher efficiency and profitability.

The coefficients of the variables for inflation rates (*ln CPI*), political corruption (*ln PCI*) have negative signs which suggests that indeed inflation rates and political corruption have negative impact on FDI stock. Nevertheless, they are statistically insignificant at all levels. The variable (*ln GII*) has a positive sign, indicating that improvement of the innovation environment indeed enhances FDI stock. However, the coefficient is also insignificant at all levels.

Regarding the dummy variables, findings indicate that all of them are statistically significant. *EU* and *HIST* are statistically significant at all levels, *BIT* at 5% and *DTAA* is significant at 10%. This suggests that these factors were helpful in accumulating FDI over the analyzed period. Among them, the highest enhancement effect has the *HIST* variable and the lowest *DTAA*. These findings are consistent with previous studies arguing that EU membership (Dorakh 2020), *BIT*, *DTAA* (Kox and Rojas-Romagosa 2020) and *HIST* (Leitão 2023) are significant determinants of FDI.

Given that *ln CPI*, *ln PCI* and *ln GII* are found to be statistically insignificant, a reduced model excluding these variables was estimated. There are indications that the second model is a slightly better option than the initial one; adjusted R^2 of the second model is 0.328 (against 0.325 of the initial model) and all of the variables are statistically significant at least at 10%. This would suggest that the model excluding the variables for inflation rate, political corruption and innovation fits the data slightly better. However, the study finds that both models are statistically significant at

all levels. Additionally, in order to assess the reliability and interpretability of the models, a multicollinearity test was conducted by using the variance inflation factor (VIF). The results exclude the presence of high correlations between the independent variables, i.e. no multicollinearity was detected; all VIFs are less than 5. This suggests that the coefficients could provide adequate insight into the true relationship between the dependent and independent variables.

Based on the gravity model, this study finds sufficient evidence to accept hypotheses H1-H3 and H7-H10, i.e. economic dimensions of both the host and investing countries, geographical proximity, relative economic distance, EU integration and historical aspects, bilateral investment treaties and double taxation avoidance agreements have a positive impact on the FDI stock in North Macedonia. In terms of H4-H6, although there is some evidence that inflation rates, political corruption and innovation affect the FDI stock, these hypotheses cannot be unconditionally accepted suggesting that further research on this matter is needed. In this context, it stands to mention that the study is not without its limitations which are mostly related to the variables used and the estimation technique. Values of the coefficient of determination (R^2) indicate that some significant factors influencing the FDI stock have been omitted from the analysis. This lays the groundwork for a future research that would expand the gravity model to include more independent variables and employ different estimators (PPML, LSDV or others) which might provide a more definitive, and perhaps broader, perspective.

5. Conclusion and policy implications

Analysis of empirical data has revealed a slowdown in the growth rates of the foreign direct investment in North Macedonia over the last two decades. This trend reflects the global trend of modest growth in cross-border investment activity due to rising geopolitical uncertainty and numerous global economic challenges, as well as domestic factors hindering Macedonian FDI growth. Nevertheless, the long-term upward trend remains in place and FDI remains a vital part of the Macedonian economy. The case of North Macedonia confirms that small developing countries can attract and accumulate significant amounts of FDI relative to the size of their economies.

Distribution across countries and economic sectors reflects high dependency on European sources and investment related to the automotive industry. Despite the fact that North Macedonia's successful integration into European and global automotive

value chains had a positive impact on GDP and exports growth rates, this dependency diminishes its resilience to exogenous shocks, especially from ones coming from key European partners. In this context, the main policy implication is that North Macedonia should make efforts to diversify its inward FDI flows in order to achieve a more balanced and diversified stock. In line with the results of the gravity model, the diversification model should be based on attracting and accumulating export-oriented FDI in different technology-intensive industries from countries with suitable economic dimension and higher relative economic distance, given that North Macedonia has the potential to draw FDI by leveraging its comparative advantages in cost differentials for conventional factor endowments among multinational enterprises seeking such benefits. Although geographical distance indeed negatively impacts FDI, Asia (in particular China, Singapore, South Korea) and the Middle East (Saudi Arabia and United Arab Emirates) can be considered as prospective sources for FDI. In line with the OLI framework (Dunning 1979) and other studies on FDI localization determinants (for instance Franco et al. 2008) the Macedonian strategy for promoting its investment potential should leverage the fact that the country could be viewed as an export platform given its location advantages i.e. proximity and duty-free access to the EU market. In this way, North Macedonia could capitalize on foreign companies intending to enter or expand their presence on the European market, while exploiting the differences in factor endowments.

This paper indirectly identifies some important policy implications for other developing economies, especially for ones having limited market size and experiencing capital scarcity. Evidence from North Macedonia suggests that developing countries can increase the probability of attracting and accumulating FDI by pursuing deeper integration based on FTAs and investment-related treaties with better developed, geographically close economies, leveraging differences in factor endowments and creating suitable environment for export-oriented FDI using special economic zones. This will allow the countries to attract and accumulate FDI not just from multinational enterprises from those better developed, geographically close economies wishing to optimize their value chains but also from geographically more distant countries wishing to move production closer to larger target markets. However, the policy should not omit the need to maintain diversified FDI stock across industries and source countries in order to avoid increasing exposure to country-sector-specific exogenous shocks and to increase the general economic resilience.

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APPENDIX 1: Description of variables and data sources.

Variables	Measurement units	Source
$\ln FDI_{h,i,t}$	FDI stocks of source country i in host country at current year, in millions of US dollars, in logarithm	National Bank of North Macedonia
$\ln Y_h$	GDP per capita of host country, US dollars, in logarithm	UNCTAD
$\ln Y_i$	GDP per capita of investing country, US dollars, in logarithm	UNCTAD
$\ln DIST$	Air distance in kilometers between capitals of host and source countries, in logarithm	www.geobytes.com
$\ln RED$	Relative economic distance using Mazurek (2012) methodology, in logarithm	Author's calculations based on UNCTAD
$\ln CPI$	Consumer price index, %, in logarithm	State Statistical Office of North Macedonia
$\ln PCI$	Political corruption index, %, in logarithm	Varieties of Democracy (V-dem institute)
$\ln GII$	Global Innovation Index	WIPO
EU	European Union membership of source country. Value 1 at year t if the country was an EU member, 0 otherwise	Own knowledge
$HIST$	Historical and cultural aspects. Value 1 if host country was a part of the same entity with source country or has strong historical and cultural ties, 0 otherwise	Own knowledge
BIT	Bilateral Investment Treaties. Value 1 at year t if the host country had a BIT in force with source country, 0 otherwise	UNCTAD Investment Policy Hub
$DTAA$	Double Taxation Avoidance Agreement. Value 1 at year t if the host country had a BIT in force with source countries, 0 otherwise	Public Revenue Office of North Macedonia

APPENDIX 2: Dataset of FDI stock in North Macedonia across countries: descriptive statistics.

Nº	Country	Mean	Minimum	Maximum	Standard deviation	Observations
1	Austria	772.40	453.49	1,324.51	265.04	14
2	Greece	609.44	488.5	829.83	98.88	14
3	Turkey	333.88	64.13	790.36	190.37	14
4	Germany	326.47	94.74	719.98	200.53	14
5	Netherlands	729.61	445.69	1,123.41	258.63	14
6	Slovenia	474.16	388.43	595.07	60.22	14
7	UK	454.76	51.39	932.51	318.96	14
8	Switzerland	213.30	99.29	331.06	69.59	14
9	Bulgaria	204.48	141.80	320.32	59.06	14
10	Hungary	297.49	188.20	460.62	104.54	14
11	USA	92.62	49.71	192.04	39.26	14
12	British Virgin Islands	116.19	59.09	174.48	39.28	14
13	Italy	125.68	77.75	174.89	36.97	14
14	Serbia	107.29	91.76	134.31	14.66	14
15	Belgium	71.82	1.56	128.51	44.30	14
16	Estonia	54.81	0.01	128.37	39.37	14
17	Cyprus	106.16	59.40	196.93	42.08	14
18	China	76.31	-3.82	177.04	73.65	14
19	Bahamas	37.09	0.00	105.39	48.10	14
20	Croatia	95.16	76.22	126.91	15.99	14
21	Albania	45.42	28.66	86.35	14.55	14
22	Luxembourg	53.36	19.70	102.31	29.51	14
23	Liechtenstein	49.35	23.63	68.77	15.64	14
24	Poland	16.19	0.53	47.22	14.02	14
25	Kosovo	10.67	0.00	41.03	11.98	14
26	Romania	11.85	0.78	35.45	11.10	14
27	Hong Kong	12.44	-0.42	33.36	11.46	14
28	Bosnia	17.08	4.50	29.54	7.89	14
29	Russia	24.63	5.89	41.57	10.10	14
30	Sweden	19.51	3.70	30.25	9.62	14
31	Australia	10.84	2.63	18.33	4.96	14
32	Norway	4.86	0.34	16.44	5.12	14
33	Portugal	4.56	1.04	11.99	3.70	14
34	France	72.30	4.60	189.09	71.21	14
35	Israel	7.94	1.91	11.57	2.70	14

Source: compiled by author based on data from the National Bank of North Macedonia

APPENDIX 3: GDP per capita of North Macedonia and investing countries: descriptive statistics.

Nº	Country	Mean	Minimum	Maximum	Standard deviation	Observations
	North Macedonia	6,109.9	4,585.0	8,606.0	1,193.4	14
1	Austria	49,650.1	43 908.0	56 042.0	3 307.8	14
2	Greece	20,990.4	17,885.0	26,645.0	2,756.0	14
3	Turkey	10,654.8	8,367.0	12,814.0	1,345.6	14
4	Germany	47,015.0	41,711.0	53,528.0	3,413.7	14
5	Netherlands	47,015.0	41,711.0	53,528.0	3,413.7	14
6	Slovenia	25,074.6	20,733.0	32,642.0	3,213.8	14
7	UK	43,363.9	39,448.0	49,224.0	2,935.6	14
8	Switzerland	87,200.9	76,523.0	100,831.0	6,093.8	14
9	Bulgaria	9,334.7	6,815.0	15,068.0	2,544.6	14
10	Hungary	15,554.6	12,729.0	21,954.0	2,722.2	14
11	USA	60,256.4	48,379.0	80,706.0	9,736.1	14
12	British Virgin Islands	38,656.7	35,705.0	41,589.0	1,845.0	14
13	Italy	34,631.1	30,465.0	38,672.0	2,453.8	14
14	Serbia	7,208.9	5,525.0	11,101.0	1,648.7	14
15	Belgium	46,873.1	40,890.0	55,049.0	3,840.8	14
16	Estonia	21,791.4	14,673.0	30,201.0	4,694.9	14
17	Cyprus	20,818.5	16,318.9	25,194.8	2,651.3	14
18	China	8,791.8	4,504.0	12,547.0	2,605.2	14
19	Bahamas	29,930.6	25,156.0	35,896.0	2,905.0	14
20	Croatia	15,184.9	12,072.0	21,661.0	2,508.8	14
21	Albania	5,086.2	3,928.0	8,172.0	1,218.5	14
22	Luxembourg	117,299.4	105,475.0	133,668.0	8,338.9	14
23	Liechtenstein	175,179.6	156,145.0	202,659.0	13,570.9	14
24	Poland	15,009.3	12,369.0	20,876.0	2,543.9	14
25	Kosovo	4,238.4	2,988.0	6,157.0	899.2	14
26	Romania	11,584.6	8,323.0	18,348.0	3,014.2	14
27	Hong Kong	43,132.6	32,195.0	51,166.0	6,025.2	14
28	Bosnia and Herzegovina	5,803.6	4,506.0	8,639.0	1,264.2	14
29	Russia	12,448.6	8,758.0	15,853.0	2,380.4	14
30	Sweden	55,565.9	51,196.0	61,173.0	3,675.8	14
31	Australia	61,347.0	52,010.0	69,651.0	6,402.3	14
32	Norway	87,995.4	68,343.0	108,805.0	13,377.0	14
33	Portugal	22,607.4	19,193.0	27,718.0	2,177.2	14
34	France	40,712.2	36,411.0	44,451.0	2,490.7	14
35	Israel	43,385.1	32,668.0	57,968.0	8,093.2	14

Source: compiled by author based on UNCTAD data