VILNIUS TECH
Vilnius Gediminas Technical University

13th International Scientific Conference

BUSINESS AND MANAGEMENT 2023

May 11–12, 2023, Vilnius, Lithuania

ISSN 2029-4441 / eISSN 2029-929X
ISBN 978-609-476-333-5 / eISBN 978-609-476-334-2
Article Number: bm.2023.1128
https://doi.org/10.3846/bm.2023.1128

FINANCE AND INVESTMENT: NEW CHALLENGES AND OPPORTUNITIES *http://vilniustech.lt/bm*

THE IMPACT OF NORDIC FOREIGN DIRECT INVESTMENT ON INNOVATION AND KNOWLEDGE TRANSFER IN THE BALTIC COUNTRIES

Agnė ŠIMELYTĖ [1*], Manuela TVARONAVIČIENĖ [2]

[1]*Department of Economics Engineering, Faculty of Business Management, Vilnius Gediminas Technical University, Saulėtekio al. 11, Vilnius, Lithuania*
[2]*Department of Business Technologies and Entrepreneurship, Faculty of Business Management, Vilnius Gediminas Technical University, Saulėtekio al. 11, Vilnius, Lithuania*

Received 19 January 2023; accepted 27 April 2023

Abstract. The FDI from the Nordic countries dominate in the Baltic Countries. The Nordic companies invest in various business sectors including the industry and high-tech. Nordic countries are one of the leaders in innovation, patent, industry design and trademark registration. Internalization theories state that host countries benefit from the foreign capital due to "know-how". The technology and knowledge transfer from the foreign capital companies are defined as even driving force for the economic growth. Thus, the aim of the article is to determine the impact of FDI from the Nordic countries on stimulation of innovations in the Baltic Countries and the interlinkages with the economic growth. The article applies, descriptive statistics and correlation-regression modelling. The findings of the research full fills the gaps in internalization and knowledge transfer theories.

Keywords: innovation, foreign direct investment, Nordic capital, knowledge transfer.

JEL Classification: O32.

Introduction

Foreign direct investment as well as innovations and technology transfer are referred as the drivers for economic growth and technology development (Abbes et al., 2015). Knowledge and technology transfer and the ability to absorb use it, is essential for every enterprise. Thus, it is assumed that host country would benefit from FDI due to job creation, know-how or development of innovations. FDI or collaboration between domestic and international capital companies or universities, such as developing networks or joint projects is one of the channels for know-how transfer (Šimelytė et al., 2021). Besides, considering to the business sector, privatisation process, licenses and agreements, FDI encourages the modernisation pace of manufacturing technology (Huang et al., 2022). Many studies proved that the foreign ownership of affiliates is related to the boost of local firms in terms of total factor productivity: it increases after local firms have been bought by foreign firms, and it decreases after being sold back to local ownership (Burinskas et al., 2021). Thus, the countries target to attract FDI into their economies as they expect long-term economic growth from additional stable resources in the host countries (Šimelytė et al., 2017). The collaboration within the Baltic-Nordic region has started after the collapse the Soviet Union The recent study of Tvaronavičienė and Burinskas (2022) found that Baltics countries attracts FDI mostly in the financial, telecommunications, and manufacturing sectors. In addition, it has been noticed that FDI is an integrating factor for countries, more so with their western neighbours than with the closest neighbours. For example, Estonia attracted more FDI from Nordic countries than other two Baltic Countries. Estonia and Latvia had a high level of investment security and were among the countries that have strengthened their investment security positions. Thus, macroeconomic stability and stable dynamics of socio-economic growth were the factors determining investment opportunities in the Baltic Countries.

Even though, host country does not benefit from FDI as it has been expected, it is rarely questionable

* Corresponding author. E-mail: *agne.simelyte@vilniustech.lt*

whether the FDI has paid back or what is the successfully attracted FDI. Does the host country benefit from "know-how"? Debates on such question involve more than one knowledge success-influencing factor (Šimelytė & Tvaronavičienė, 2022). The aim of the paper is to is to determine the impact of FDI from the Nordic countries on stimulation of innovations in the Baltic Countries and the interlinkages with the economic growth.

1. The theoretical concepts of interlinkages between foreign direct investment and innovation

Innovation means creating something new or something old in a new way. Innovations are classified as follows product innovation, process innovation, organizational innovation and marketing innovation, or social innovations. International technology transfer can occur through various channels: trade in products; international movement of people; FDI; trade in technology markets (e.g. through licensing) joint ventures, and planned assignment of personnel (Kowalski et al., 2017). Other mechanisms, such as reverse engineering, research based on freely available or paid information (e.g. published patent applications, published research, conferences) or personal movement of key individuals may. Furthermore, informal technology transfer channels include joint research projects or specific projects related to FDI, exchanges of staff, or even hiring of new university graduates. Technology transfer is based on institutional – business cooperation. However, scientific literature mostly focuses on knowledge transfer through business – university cooperation (Pertuz et al., 2021). It is believed that business enterprises may effectively absorb transferred knowledge from research institution or university and gain competitive advantage. Studies proved (Howells, 2006; Villani et al., 2017) that intermediary institutions (university incubators, hubs, clusters, research centres, technology transfer office) even more may boost knowledge transfer from universities to business enterprises. Thus, involvement into the networks that include intermediary institutions positively influence transfer-absorption of knowledge and technology even from large to small enterprise. Intermediary organizations connect potential partners. Anyway, the success of knowledge transfer form universities, public institutions, or research centres extremely depends on the absorptive capacity of the recipient (Martin, 2019). The studies (D'Este & Patel, 2007; Grimaldi et al., 2011) revealed that university researchers very often collaborate as consultants, or join contract projects or work on joint university-business projects. Thus, university research has great potential in collaboration with business enterprises, especially large corporation which are willing to keep innovatory leadership and to ensure high incomes. Foreign direct investment is very often mentioned as the source of international technology and knowledge transfer (Jude, 2016; Kowalski et al., 2017; Lis, 2020; Šimelytė et al., 2021; Burinskas et al., 2021; Tvaronavičienė & Burinskas, 2022). Scientific studies recognized both positive and negative impact of FDI on the host economy. Earlier studies of FDI and internationalization theory claimed that only poor and / or emerging economy may gain benefit from FDI on economic growth or technology transfer as relatively poor countries may inherit production and consumption of products abandoned by the country where they were originally developed (Uche et al., 2023). In addition, due to transferring technologies and know-how, FDI boost economic growth by increasing productivity and competition between domestic and foreign capital companies (Šimelytė et al., 2021). Recent studies reported (Torrecillas & Fernández, 2022; She & Mabrouk, 2023) that imitation, labour mobility, vertical linkages or even increased competition may work as the channels of technology transfer through FDI. In addition, the studies (Jude, 2016) revealed that domestic firms gain more benefits from horizontal knowledge diffusion rather than from imitation or foreign competition. Hence, the intensity of FDI might be different or event not all FDI tend to stimulate technology transfer (Kowalski et al., 2017). At the same time, the direction and intensity of horizontal FDI spill-overs highly relies on absorptive capacity of domestic firms as well. Inward FDI may encourage domestic research and development activities and become a driving force for imitation, adoption of know-how (Fetscherin et al., 2010).

However, some study (Yokota & Tomohara, 2010) revealed that less developed countries benefit from FDI spill-overs only in low-tech as they lack highly qualified labour force. Less developed countries with relatively high-skilled labour force benefit from technology transfer through FDI in high-tech. Furthermore, technology transfer through FDI full fills technological gap in less developed country and promotes its absorptive capability. However, even the geographical dispersion is extremely important for successful technology transfer through FDI for business groups. According to the study of Umit and Alkan (2016), the positive spillovers existed in more technologically advanced sectors or in more industrialized countries. It might be explained that foreign investor acquires a strong domineering company in the host market and stand outs of the other actors in the market. New entering company, which productivity is greater, encourages the existing companies in the market to catch up and in this way the competition in a host country is increasing.

Summarising, it might be stated the even if it was expected that the host country would gain benefits from FDI, however, FDI does not positively affect itself, since MNCs invest seeking to benefit. Thus, intensive flows of inward FDI does not guarantee the growth of host economy or technology and knowledge transfer.

2. Methodology

Previous scientific studies disclosed that researchers faced with the problems measuring technology transfer. For example, Schroer et al. (1995) noticed the need to measure technology transfer performance, and determined the quantitative criteria for measurement of technology transfer such included job created or saved, increase in revenues, decrease in operating costs, new products, process improvements, new partnerships, number of company startups, and royalties. Although, the evaluation of the impact on the economic growth is more clearly defined in the scientific literature. Most the researchers chose to describe economic growth as the real GDP per capital, the real GDP, or GDP growth in percentage. Tvaronavičienė and Burinskas (2022) defined FDI as a complex phenomenon. They have applied various FDI measurements, even per sector such as: net outward FDI for services, FDI income for manufacturing, FDI income for services, return of FDI in percentage for services, net outward FDI for manufacturing, return of FDI in percentage for manufacturing and have constructed three-tier model. The other researchers (Huang et al., 2022) analysed economic impact by assessing both outward foreign direct investment (OFDI) and inward foreign direct investment (IFDI) by constructing a panel fixed effects model using Chinese industrial firm-level data for the period 1998–2013. They have explored on the impact of combining outward FDI and inward FDI and on firm productivity in China. Our research focused on the collaboration between Nordic and Baltic Countries in the context of technology and knowledge transfer through FDI. Additionally, we analysed the impact of inward Nordic FDI on the economic growth of the Baltic Countries. For the analysis we used 2012–2021 period. This period has been chosen as the most of the needed data was available at this period. For the analysis we applied fixed factor panel data regression by using SPSS 28. In the modelling as the outcome of the innovation was expressed ad exports of high-tech. Further, as the independent variables we included number of patents per one million of inhabitants, employment into knowledge-intensive sectors in percentage of total employed people as the measurement of available highly qualified and experience labour force. Further we included business enterprises investing in research and development. Inward Nordic FDI covers data for inward FDI from Denmark, Iceland, Norway, Sweden and Finland in all three Baltic Countries.

3. Results and discussion

Nordic countries including Denmark, Iceland, Sweden, Finland and Norway, actively develop international economic relations through the collaboration in various business sectors. According the Eurostat (Figure 1), Swedish capital dominates in Latvia and Lithuania, while in Estonia the main Nordic investor is Finland.

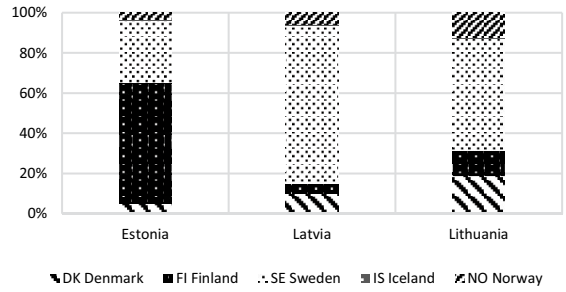

Figure 1. Distribution of Nordic FDI in the Baltic Countries at the end of 2022 (source: Bank of Lithuania, 2023; Bank of Latvia, 2023; Bank of Estonia, 2023)

The Swedish capital makes 22% of total inward FDI in Estonia is from Finland, 20% of inward FDI in Lithuania. Thus, the most significant volume of inward FDI flows from the Nordic countries to the Baltics. In Lithuania, the manufacturing sectors attract the greatest part of inward FDI from Denmark (29%), Finland (31%), and Norway (34%). While Swedish companies mainly invest in banking, insurance (54%), and information technologies (24%). The wholesale and retail trade business sectors attract 41% of Finnish inward FDI (World Intellectual Property Organization [WIPO], 2021). The Swedish capital occupies approximately 80% of insurance and the banking sector in Estonia, the second largest sector that is attractive to the greatest number of Nordic capital companies is construction and real estate, while the manufacturing makes 13%, and logistics and transportation are the most popular among Finish capital companies. Statistics shows that Baltic and Nordic capital enterprises from various business sectors tend to collaborate on R&D and innovation activities with each other, involve into networks in home country and abroad. Enterprises tend to be involved in collaboration within the group of public enterprises or government entities, consultancy firms, labs, universities research centres or other higher institutions, competitors or suppliers (Figure 2).

29% of all enterprises in Finland and Norway are cooperating with the other enterprises for R&D and development. This number increases nearly double for

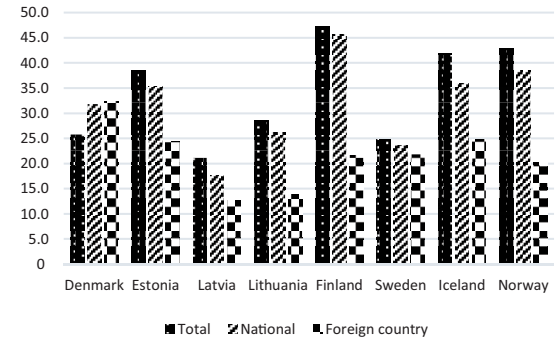

Figure 2. Enterprises that co-operated on R&D and other innovation activities with other enterprises or organisations, by kind and location of co-operation partner (source: Eurostat, 2018)

the innovative enterprises in Finland. Meanwhile, in Latvia only 6% of all enterprises are involved in collaboration for R&D and innovative activities. In Lithuania 14% of all enterprise population are involved in collaboration for R&D and innovation, while for innovative enterprises this number increases up to 29%. In comparison to Estonia, 38% of innovative enterprises tend to co-operate for R&D. For Iceland and Norway this number is slightly higher 41%, and 42% respectively. And only, 25% of innovative enterprises are involved in collaborating in Denmark and Sweden. However, Danish innovative enterprises out of all Nordic and Baltic countries tend to collaborate more often with universities and research centres, which makes 30% of innovative companies. Only 6.8% of enterprises in Latvia and 8% in Lithuania are in cooperation for R&D and innovation with universities and research centres. Similar numbers are in Iceland (8.3%) and Norway (9%). While 24% of Finish, 12% of Swedish and 15% of Estonian capital enterprises collaborate with universities. Further, the lowest number of innovative companies are in cooperation with competitors or other enterprises in the same number are in Estonia (2.7%), followed by Latvia (4.3%) and Sweden (4.8%). Approximately 5–6% of innovative companies tend to cooperate on R&D and innovation, in Lithuania (5.6%), Norway (5.5%) and Iceland (5.8%). The greatest number of innovative companies collaborate on R&D and innovation in Denmark (29.5%). Analysis shows that in Nordic and Baltic innovative companies do not trust competitor or other companies in the same business sector. Although, innovative companies are actively participating in cooperation with other entities and network for R&D in home country and abroad. The greatest number of innovative companies involve in collaboration are in home countries, rather than abroad. Except Denmark, where 32.4% of enterprise population that are involved in cooperation for R&D, cooperate in the international level and 31.8% are in collaboration in domestic market. Meanwhile, the greatest number among the Nordic and Baltic countries involved in cooperation for R&D are in Finland which makes 47%, followed by Norway (42.8%) and Iceland (41.9%). In Latvia, only 21% of all enterprise population are in cooperation for R&D, followed by Sweden (24.8%) and Denmark (25.8%), while in Lithuania it makes 28.5% and Estonia – 38%. Although, half of the enterprises are involved in cooperation in Finland and only one-fifth in Latvia, in all of Nordic and Baltic countries (Figure 3) significant number of product innovative enterprises developed product innovation, goods, services, new or significantly improved products that were new to the enterprise or even to the market.

In the period of 2018–2020, from 45% (Norway) to 32% (Denmark) of Nordic product innovative enterprises introduced product innovation while the greatest number of new or significantly new to the enterprise and to the

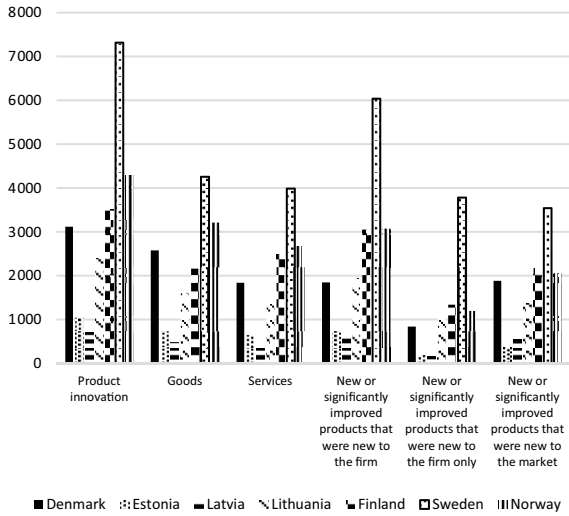

Figure 3. Product innovative enterprises that have introduced at least new or significantly improved product by type of innovation, NACE Rev. 2 activity and size class (2020) (source: Eurostat, 2020)

market were introduced in Finland (24%), followed by Norway (21.9%) and Denmark (19.4%). Among the Baltic countries, the most of product innovations were implemented in Lithuania by 31.1% of all product innovative companies, followed by Estonia (27.8%) and least of product innovations were introduced in Latvia (14.4%). 18% out of all product innovation were new or significant improved and new to the market in Lithuania, 11% of that kind of innovations or improvements were produced in Latvia. Meanwhile, the lowest number of new or significant improved and new to the market products among Nordic and Baltic countries were developed in Estonia, which made only 9%. The turnover from new or significant improved products in Finish enterprises made up 19%, in Denmark up to 15%, followed by Sweden (12.7%) and Lithuania (11.4%). The lowest turnover from new or significant improved products were generated in Norway (6%) and Latvia (6.4%). In the Baltic Countries, during the period of 2016–2020, the average turnover in thousands of euros, in comparison to Estonia (2753194) and Latvia (1993752,67) were the greatest in Lithuania (5751330). Furthermore, in both regions, business enterprises invest in Research and Development (further – BERD). The largest volume in million of euros of BERD were in the Nordic countries by leading Sweden (12964,15) while Finish (5152) and Norwegian enterprises (4325) invested nearly 50% less in comparison to Sweden. Hence, the BERD in the Baltic countries were much significantly lower than in the Nordic countries. For example, in Lithuania in made up 305.272 and Estonia – 307.654. However, in Latvia, this number was four times lower in comparison to Lithuania and Estonia and made up 76.2 million of euros. Meanwhile, the BERD of smallest of Nordic Countries – Iceland were 434.439 millions of euros. High-tech trade is very often defined as the outcome of innovations, as it shows sales abroad.

In the Baltic Countries during the period of 2012–2021, the largest volume of high-tech exports as the share of all export was generated in Estonia (13.74%), and least in Lithuania (7.45%), in Latvia this share was 9.87%. Hence, the average of high-tech exports as the share of total exports were similar or even much lower in Nordic Countries. The least exported high-tech products were from Iceland and Norway which made approximately 3% in both countries. The major high-tech products in Nordic Countries were exported by Sweden which made up 12.5% of all exports, in Denmark this number was a bit lower (10.25%). Although, Nordic Countries invest more in R&D, develop more new products, however, the exports of high-tech are similar to the Baltic Countries or even much lower. Even more, during the period of 2011–2021, the Nordic countries were among the most innovative and had the highest number of patents, trademarks, and industrial designs (Burinskas et al., 2021). The most significant average number one million of population of registered patents was in Sweden (24102), followed by Finland (12506). Meanwhile, the average number of patents per one million of people registered in Lithuania and Estonia makes only 232 and 276, respectively (Figure 4).

Secondary data shows the close collaboration between Nordic countries, Lithuania, and Estonia. However, effective know-how transfer from Nordic countries to Lithuania and Estonia is ambiguous. Thus, further we focused on the relationships between the factors determining innovation, knowledge transfer and the outcomes of the innovation such as high-tech trade. We have not used the turnover of innovative products as the outcome due to the limitation of the data. Hence, we included additional factor (employment in knowledge-intensive sectors) which may have relationship or impact on innovations. The results of correlation are provided in the Table 1.

The results revealed that between the most of the factors exist strong or moderate positive and significant relationship at the level 0.01. The strongest relationships were estimated between BERD and real GDP per capita (0.830); Inward Nordic FDI and real GDP per capita (0.830). BERD has strong positive correlation with high-tech trade (0.812). However, the correlation between patents and high-tech trade is low (0.237) and insignificant (p = 0.204). Furthermore, weak and insignificant correlation also was estimated between inward

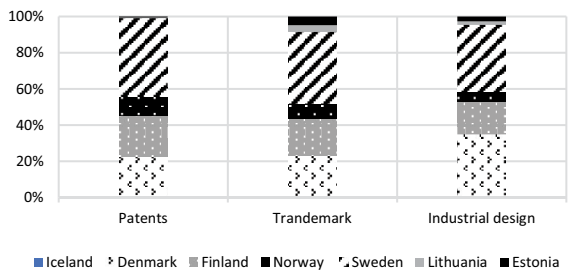

Figure 4. Average number of applications of patents, trademarks, and industrial design per capita (2011–2020) (source: WIPO, 2021)

Table 1. Correlation among chosen factors

	GDP	Patents	High-tech trade	Employment in KI sectors	BERD	Inward Nordic FDI
GDP	1					
Patents	0.639**	1				
High-tech trade	0.744**	0.237	1			
Employment in KI sectors	0.661**	0.134	0.747**	1		
BERD	0.830**	0.586**	0.812**	0.651**	1	
Inward Nordic FDI	0.830**	0.815**	0.314	0.127	0.606**	1

Note: ** Correlation is significant at the 0.01 level.

Nordic FDI and high-tech exports in the Baltic Countries (0.314, p = 0.11), similarly the weak and insignificant relationship was estimated between employment in knowledge intensive sectors and inward Nordic FDI (0.127, p = 0.504). Further, insignificant relationship was observed between employment in knowledge-intensive sectors (0.134, p = 0.403). Since Baltic Countries produce very low number of patents, but receive inwards Nordic FDI, it might refer that Nordic countries do not invest a lot in knowledge-intensive sectors. Thus, there is no significant relationship neither with patents, nor high-tech exports or employment in knowledge-intensive sectors.

Further, we used collected data and performed panel regression modelling with three fixed factors while using SPSS 28 package. The first panel regression was performed when the value of high-tech exports was dependent variable and the independent: patents, BERD, employment in knowledge-intensive sectors, and inward Nordic FDI. We included two dummy fixed variables. Thus, we received to regression models (Table 2).

R and R^2 for both models show that the models are reliable and the model explain 88.7% and 91.8% of results. Patents had negative linear impact on the exports of high-tech. For the second model patents as the factor is insignificant with the p value of 0.117. BERD and employment in knowledge-intensive sectors had significant and positive linear impact on export of high-tech sales. The interesting result that inward Nordic FDI is insignificant for exports of high-tech, but for the model 2, it had significant but negative linear impact.

Thus, the results of panel modelling confirmed our earlier assumption that Nordic enterprises do not invest in high-tech or knowledge-intensive sectors.

Further, we were interested in the impact of the factors determining innovation on real GDP per capita. Thus, for the model 3 and model 4 we chose dependent variable real GDP per capita and independent variables: patents, BERD, employment in knowledge-intensive

Table 2. Summary of panel regression modelling when dependent variable is high-tech trade

	Model 1	Model 2
Constant	640.68**	1395.11***
Patents	–0.291* (5.648)	–0.294 (6.016)
BERD	0.755*** (0.981)	0.430** (1.197)
Employment in knowledge intensive sectors	0.298** (8.82)	0.550*** (9.744)
Inward Nordic FDI	0.056 (0.028)	–0.469** (0.042)
R	0.887	0.918
R^2	0.787	0.843
ΔR^2	0.787	0.057
F	23.701	20.644

Note: Dependent variable high-tech trade. Standard errors are in the parentheses. Significant at ***$p > 0.01$, **$p > 0.05$, *$p > 0.1$.

Table 3. Summary of panel regression modelling when dependent variable is real GDP per capita

	Model 3	Model 4
Constant	5240***	4520***
Patents	0.094 (14.22)	0.002 (16.13)
BERD	–0.072 (3.179)	0.098 (3.299)
Employment in knowledge intensive sectors	0.392*** (23.567)	0.259*** (31.02)
Inward Nordic FDI	0.568*** (0.068)	0.679*** (0.114)
High-tech trade	0.305** (0.450)	0.428** (0.529)
R	0.954	0.964
R^2	0.910	0.930
ΔR^2	0.910	0.19
F	48.782	41.487

Note: Dependent variable real GDP per capita. Standard errors are in the parentheses. Significant at ***$p > 0.01$, **$p > 0.05$, *$p > 0.1$.

sectors, inward Nordic FDI and High-tech trade. The results are provided below in the Table 3.

Both models are significant and reliable with the R and R^2 0.954 and 0.910 respectively for the model 3 and 0.964 and 0.930 for the model 4. The results revealed that patents and BERD are insignificant for the model 3 and 4. The other factors had significant and positive linear impact on real GDP per capita in the Baltic Countries. Thus, increasing volume of inward Nordic FDI would increase real GDP per capita in the Baltic Countries. Thus, this once proved that collaboration between the Nordic Countries and Baltic Countries is important although, it does not have significant impact on patents, high-tech or development of knowledge-intensive sectors.

Conclusions

In the global economy, multinational enterprises and foreign direct investments may stimulate economic growth through trade, knowledge transfers and sharing of common resources and value chains However, the intensity of international technology and knowledge transfer differs or even FDI does not generate any technology transfer. It is highly depends on various factors such as: the goal of investment in the country, the absorptive capacity of the recipient, the efficiency or intermediary institution, investment into R&D, availability of highly educated labour force etc. Our study revealed that inwards FDI from Nordic Countries has significant impact on economic growth of the Baltic Countries, however, it does not play significant role in high-tech trade which is the opposite results in the comparison to Torrecillas and Fernández (2022). This might have been explained that multinationals form Nordic Countries less tend to share technologies or work on joint project for developing innovation. Hence, strong relationship exists between inwards Nordic FDI and development of patents and business enterprise investment in research and development. Thus, the cooperation between Nordic and Baltic Countries is important. *Limitations and future research*. Our study is limited on inward Nordic FDI to the Baltic Countries in general, however it does not analyse the impact of FDI form Nordic Countries to the specific business sectors. Thus, the results might be different.

Acknowledgements

The authors are grateful to the paper reviewers for their valuable suggestions which shaped a better version of the paper.

Funding

The research is funded by Iceland, Liechtenstein and Norway through the EEA Grants. Project Title: "The Economic Integration of The Nordic-Baltic Region Through Labour, Innovation, Investments and Trade" (LIFT). Project contract with the Research Council of Lithuania (LMT) No is S-BMT-21-7 (LT08-2-LMT-K-01-070).

Authors contributions

Conceptualization, A. Š. and M. T.; methodology, M. T; validation, A. Š., investigation, A. Š. and M. T.; data curation, A. Š.; writing–original draft preparation, A. Š.; writing–review and editing, M. T.; visualization, A. Š.; supervision, M. T.; project administration, M. T.; funding acquisition, M. T. All authors have read and agreed to the published version of the manuscript.

Disclosure statement

Authors are required to include a statement at the end of their article to declare whether or not they have any competing financial, professional, or personal interests from other parties.

References

Abbes, S. M., Mostéfa, B., Seghir, G. M., & Zakarya, G. Y. (2015). Causal Interactions between FDI, and Economic Growth: Evidence from Dynamic Panel Co-Integration. *Procedia Economics and Finance*, *23*, 276–290. https://doi.org/10.1016/S2212-5671(15)00541-9

Bank of Estonia. (2023). *Direct investment position in Estonia and abroad by country*. https://statistika.eestipank.ee/#/en/p/146/r/2293/2122

Bank of Latvia. (2023). *01 DI data by country tables*. https://statdb.bank.lv/lb/Data/128

Bank of Lithuania. (2023). *Tiesioginių užsienio investicijų statistika*. https://www.lb.lt/lt/tiesioginiu-investiciju-statistika?ff=1&date_interval%5Bfrom%5D=2021

Burinskas, A., Holmen, R. B., Tvaronavičienė, M., Šimelytė, A., & Razminienė, K. (2021). FDI, technology & knowledge transfer from Nordic to Baltic countries. *Insights into Regional Development*, *3*(3), 31–55. https://doi.org/10.9770/IRD.2021.3.3(2)

D'Este, P., & Patel, P. (2007). University–industry linkages in the UK: What are the factors underlying the variety of interactions with industry? *Research Policy*, *36*(9), 1295–1313. https://doi.org/10.1016/j.respol.2007.05.002

Eurostat. (2018). *Community innovation survey 2018*. https://ec.europa.eu/eurostat/databrowser/view/INN_CIS11_COOP/default/table?lang=en&category=scitech.inn.inn_cis11.inn_cis11_inno

Eurostat. (2020). *Community innovation survey 2020*. https://ec.europa.eu/eurostat/databrowser/view/INN_CIS12_PRODN/default/table?lang=en&category=scitech.inn.inn_cis12.inn_cis12_inno

Fetscherin, M., Voss, H., & Gugler, P. (2010). 30 Years of foreign direct investment to China: An interdisciplinary literature review. *International Business Review*, *19*, 235–246. https://doi.org/10.1016/j.ibusrev.2009.12.002

Grimaldi, R., Kenney, M., Siegel, D. S., & Wright, M. (2011). 30 years after Bayh–Dole: Reassessing academic entrepreneurship. *Research Policy*, *40*(8), 1045–1057. https://doi.org/10.1016/j.respol.2011.04.005

Howells, J. (2006). Intermediation and the role of intermediaries in innovation. *Research Policy*, *35*, 715–728. https://doi.org/10.1016/j.respol.2006.03.005

Huang, Y., Zhong, C., & Chen, H. (2022). The combined effect of foreign direct investment on firm productivity. *Economic Research-Ekonomska Istraživanja*. https://doi.org/10.1080/1331677X.2022.2139278

Jude, C. (2016). Technology spillovers from FDI: Evidence on the intensity of different spillover channels. *World Economy*, *39*(12), 1947–1973. https://doi.org/10.1111/twec.12335

Kowalski, P., Rabaioli, D., & Vallejo, S. (2017). *International technology transfer measures in an interconnected world: Lessons and policy implications* (OECD Trade Policy Papers No. 206). OECD Publishing. https://doi.org/10.1787/ada51ec0-en

Lis, A. M. (2020). Development of proximity in cluster organizations. *Entrepreneurship and Sustainability Issues*, *8*(2), 116–132. https://doi.org/10.9770/jesi.2020.8.2(7)

Martin, D. P. (2019). Knowledge transfer models and poverty alleviation in developing countries: Critical approaches and foresight. *Third World Quarterly*, *40*(7), 1209–1226. https://doi.org/10.1080/01436597.2019.1597340

Pertuz, V., Miranda, L. F., Charris-Fontanilla, A., & Pertuz-Peralta, L. (2021). University-industry collaboration: A scoping review of success factors. *Entrepreneurship and Sustainability Issues*, *8*(3), 280–290. https://doi.org/10.9770/jesi.2021.8.3(16)

Schroer, B. J., Farrington, P. A., Messimer, S. L., & Thornton, J. R. (1995). Measuring technology transfer performance: A case study. *Journal of Technology Transfer*, *20*, 39–47. https://doi.org/10.1007/BF02280406

She, W., & Mabrouk, F. (2023). Impact of natural resources and globalization on green economic recovery: Role of FDI and green innovations in BRICS economies. *Resources Policy*, *82*, 103479. https://doi.org/10.1016/j.resourpol.2023.103479

Šimelytė, A., Dudzevičiūtė, G., & Liučvaitienė, A. (2017). Scandinavian foreign direct investment and economic growth of the Baltic States. *European Journal of Sustainable Development*, *6*(3), 105–118. https://doi.org/10.14207/ejsd.2017.v6n3p105

Šimelytė, A., Tvaronavičienė, M., Holmen, B. R., & Burinskas, A. (2021). Knowledge and technology transfer as driving force for social innovations. *Polish Journal of Management Studies*, *23*(2), 512–536. https://doi.org/10.17512/pjms.2021.23.2.31

Torrecillas, C., & Fernández, S. (2022). Exports and outward FDI as drivers of eco-innovations. An analysis based on Spanish manufacturing firms. *Journal of Cleaner Production*, *349*, 131243. https://doi.org/10.1016/j.jclepro.2022.131243

Tvaronavičienė, M., & Burinskas, A. (2022). Review of studies on FDI: The case of Baltic States. *Journal of International Studies*, *15*(2), 210–225. https://doi.org/10.14254/2071-8330.2022/15-2/14

Uche, E., Das, N., Bera, P., & Cifuentes-Fauras, J. (2023). Understanding the imperativeness of environmental-related technological innovations in the FDI – Environmental performance nexus. *Renewable Energy*, *206*, 285–294. https://doi.org/10.1016/j.renene.2023.02.060

Umit, A. O., & Alkan, H. I. (2016). The effects of foreign direct investments and economic growth on employment and female employment: A time series analysis with structural breaks for Turkey. *Journal of Business and Economic Sciences Applied Research*, *9*(3), 43–49.

Villani, E., Rasmussen, E., & Grimaldi, R. (2017). How intermediary organizations facilitate university–industry technology transfer: A proximity approach. *Technological Forecasting & Social Change*, *114*, 86–102. https://doi.org/10.1016/j.techfore.2016.06.004

World Intellectual Property Organization. (2021). *Intellectual property statistical country profile*. https://www.wipo.int/directory/en/

Yokota, K., & Tomohara, A. (2010). Modelling FDI-induced technology spillovers. *The International Trade Journal*, *24*(1), 5–34. https://doi.org/10.1080/08853900903442897