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IMPACT OF FOREIGN CAPITAL INFLOWS ON THE ECONOMY OF A HOST COUNTRY THROUGH LENSES OF EMPLOYMENT

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Abstract. The expansion of multinational corporations has a significant impact on such small economies as Lithuania. While structural changes in the economy indicate the shifts in the sectoral composition of employment and production, the transfer from labour-intensive to knowledge-intensive sectors substantially contributes to the economy's growth and, therefore, its economic security. The paper aims to determine the impact of the expansion of Nordic capital companies in different sectors on sectorial employment in Lithuania. The study aims to fill this gap by conducting an empirical analysis to investigate patterns and interactions between MNC expansion and employment. The research applied correlation, the Augmented Dickey–Fuller and Granger causality tests. Further, to evaluate the impact of sectorial FDI on sectorial employment, we have applied the Clark-Fisher three-sector model by classifying sectors into primary, secondary, and tertiary. A particular emphasis was placed on the need to evaluate the effect of the expansion of MNCs in different sectors from the single country on the host economy's sectorial employment. Thus, inward sectorial FDI might have a distinct impact on sectorial employment. Our findings prove that the expansion of Norwegian capital companies in the secondary sector affects employment in the secondary sector. Meanwhile, secondary sector employment affects Danish capital companies' expansion in the secondary sector. Our study integrates the Clarks-Fisher model of structural changes and internationalization theory, which extends and fills the gap in the interaction between these two theories.

Keywords: Lithuania; Nordic countries; multinational corporations (MNCs); foreign capital; FDI; sectorial employment; structural changes; Lithuania

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JEL Classifications: O1, O15, O19

1. Introduction

The movement of foreign capital has become a driving force for economic development worldwide. Previous studies focussed on the performance of FDI-related firms and the impact of foreign capital on economic growth (Morales & Moreno, 2020). Little research addresses the relationship between foreign capital companies' expansion (movement) in different economic sectors and employment. The number and size of foreign capital companies may significantly impact the employment structure. Some studies have not found a causal relationship between unemployment and FDI in certain European countries, including Lithuania. The spillover effects of FDI have traditionally been seen as a key contributor to the economic development of host countries. The impact of foreign capital on the decrease of unemployment may not always be straightforward, as evidenced by studies showing weak correlations between FDI and decreasing unemployment rates (Vasa & Angeloska,

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2020). The movement of foreign capital and expansion of MNCs abroad is often linked with job creation, which increases labour utilization by opening new businesses and sectors in the host country. MNCs impact various business areas, including structural economic changes. Studies have shown that FDI as the form of the MNC expansion can transfer workers from primary and informal sectors to more modern sectors like manufacturing and services, thereby affecting employment patterns (Habanabakize & Mncayi, 2022). China's foreign capital companies have constantly increased since the 1990s. In addition, it has been found to influence employment in the manufacturing sector, indicating the role of foreign firms in shaping employment dynamics (Karlsson et al., 2009). MNCs in sectors like mining can impact employment through factors such as capacity utilization, labour, and sectorial contributions to GDP (Gochero, 2018). Sectoral analysis MNCs in countries like China and Vietnam has shown varying impacts on different sectors, with some sectors benefiting more from foreign capital in growth and employment (Vu et al., 2008). In regions like Beijing, the coupling mechanism between the volume of foreign capital and an employment structure has been studied, revealing that expanding the number of MNCs can promote employment in certain sectors like services in the long run while showing negative spillover effects in the short term (Liu & Lee, 2020). Understanding the relationship between foreign capital and sectorial employment can provide valuable insights into the mechanisms by which global capital flows affect local economies. For example, the Organisation for Economic Cooperation and Development (OECD) and the International Monetary Fund (IMF) regularly conduct research and analysis on FDI, the labour market, international trade, and economic development issues (OECD, 2022). Both the OECD (2022) and the IMF (2020) generally acknowledge the positive contribution of foreign capital to job creation and economic growth. It is often pointed out that FDI can contribute to more active economic activity and, thus, higher employment levels. International organizations recognize that the impact of foreign capital flows on labour use can vary from region to region. Additionally, the volume of foreign capital, number, size, and age of companies matter. The concentration of MNCs in some regions can create many jobs and widen regional employment-level disparities. Furthermore, the OECD and IMF acknowledge that foreign direct investment can contribute to transferring knowledge and technology. Such relocation can increase the productivity and efficiency of the local workforce, which can affect the skills set up in the labour market. The OECD also recognizes potential challenges of expanding companies to the host country, such as the risk of redundancies due to technological developments and the importance of countering negative externalities to ensure a sustainable impact on the labour market. The OECD (2022) has often stressed the importance of flexibility in the labour market. Foreign capital companies can also contribute to increasing labour market dynamism and resilience by fostering competition and adapting to changing economic conditions. The OECD (2022) and the IMF (2020) often recommend that countries maximize the benefits of attracting labour use. This may include creating a business-friendly environment, investing in education and skills development, and ensuring inclusive growth through labour market policies. The paper aims to determine the impact of the expansion of Nordic capital companies in different sectors on sectorial employment in Lithuania. The paper briefly overviews the importance of foreign capital in the global economy. It presents the main topic of the study – the relationship between sectorial FDI and sectorial employment. The paper consists of several parts. An empirical research plan and research results follow a literature review. Finally, we will present concluding remarks and other areas of research.

2. Literature review

2.1. The impact of FDI on the structure of employment

Structural changes in employment drive economic development and growth, which conditions economic security in longer terms. These changes involve the transformative processes that occur alongside economic expansion, including shifts in the sectoral distribution of production and employment, organization of industries, income distribution, and demographic changes (Olczyk & Kordalska, 2018; Bello, 2021; Androniceanu et al., 2021). The theory of structural changes goes back to 1935–1940 when Clark and Fisher improved the Lewis model of structural changes by stating that economic progress would stimulate the expansion of the service sector. Thus, structural changes in the economy stimulate the contribution of different sectors to growth, employment, and productivity (Aggarwal, 2018). Foreign capital impacts various sectors, including the primary sector, influencing economic development and employment. Research indicates that FDI in the primary sector can lead to technological advancements, potentially causing shifts in employment due to automation and increased efficiency (Bogliaccini & Egan, 2017). Moreover, FDI in the primary sector has been found to significantly affect net emigration significantly, indicating its influence on migration patterns (Sanderson &

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Kentor, 2009). Studies focusing on specific regions, such as Ethiopia, have investigated structural changes from an employment perspective, providing insights into the speed and nature of these changes within the labour market (Martins, 2014). Structural changes in employment are dynamic and can be influenced by various factors, such as business cycles, which can either speed up or slow down structural changes depending on economic conditions (Storesletten et al., 2019). Meanwhile, the transformation in sectoral employment contributes to changes in labour productivity and convergence within economies. Furthermore, structural changes in employment have been explored in the context of formal sector growth in countries like Indonesia, where the shift from informal to formal employment has substantially impacted economic development (Naticchioni et al., 2008). In sub-Saharan African countries, studies on employment growth have underscored the importance of structural changes and demographic transitions in shaping labour market dynamics (Herrero, 2021). Additionally, research on gender employment equality in the UK has delved into the influence of individual worker characteristics and the structural changes in the industry on advancements towards employment equality (Adegboye & Ighodaro, 2021). Thus, the structural changes in employment significantly influence economic landscapes and labour market dynamics. The movement of foreign capital is understood as one of the most significant means to promote structural economic changes in developing countries since it has the impact of reducing poverty and solving the problem of resource scarcity (Hauge, 2019). Additionally, expanding many MNCs into a particular host country can bring about substantial structural changes within economies. Recent trends indicate a shift in the destination of FDI and an increased involvement of developing economies in FDI, which are key developments contributing to structural transformations. The impact of foreign capital on structural change varies depending on the region and type of economy. While the investment of MNCs has led to notable structural changes in new EU Member States, its effects have been less pronounced in Balkan countries (Estrin & Uvalic, 2014). Studies have also emphasized the role of FDI in driving agricultural economic growth and its implications for socio-economic development in emerging nations. Furthermore, the expansion of MNCs has been linked to positive outcomes in labour markets, influencing employment rates and average net wages (Perić & Stanisic, 2020). The relationship between the attracted number of large MNCs and structural changes in economies is intricate and multifaceted. Foreign capital companies can indirectly spur technological advancements, foster economic growth, and facilitate sectoral transformations (Kannen, 2020; Bergougui & Murshed, 2023). Promotion and attracting foreign capital companies are often associated with enhancements in infrastructure, institutional reforms, and energy consumption, all of which contribute to structural changes within economies (Zeng et al., 2020; Tsheola et al., 2023; Yalçınkaya, 2024). Structural economic changes mean transforming from labour-intensive to knowledge-intensive sectors, encouraging economic growth (Thirión, 2020). Even many foreign small and medium-sized enterprises (SMEs) might result in structural changes in the economy by assisting host countries in receiving investments for expanding market opportunities, increasing tax revenue flows, accumulating capital, and creating new jobs. It is emphasized that the expansion of foreign capital companies, especially MNCs, influences structural changes in the economy by developing production capacity through creating greater competition for domestic companies, innovations, knowledge and technology transfer, even moving the labour force to the greater productivity sectors (Emako et al., 2022). In such circumstances, MNCs can encourage labour re-allocation within business sectors. Thus, it might be noted (Elekes et al., 2019) that increasing the number of foreign SMEs and MNCs capital companies promotes more intensive competition and forcing domestic companies to innovate, can have an indirect effect on the host economy and structural changes in it, since, depending on the stage of economic development, countries attract foreign capital companies to the different economic sectors. Thus, the scope of analysis on the influence of the expansion of MNCs in different sectors on economic growth has been constantly increasing. A study by Tanaka (2017) investigates the impact of the expansion of foreign capital companies on temporary workers in Japan. It finds that initiating foreign capital among Japanese manufacturers increased the share of temporary workers in total wages and employment. This suggests that many MNCs can have implications for the composition of the workforce in terms of temporary and permanent employment. The expansion of MNCs in the host countries impacts the prices of final goods and investments (Ni et al., 2022). A country's labour force is a significant factor in determining higher foreign capital flows. Thus, the importance of education in the context of investment attraction becomes evident. According to Shahbaz et al. (2021), an educated and highly qualified labour force increases the country’s investment attractiveness towards foreign investors due to the opportunities to find employees with the necessary qualifications, ensuring higher work productivity and efficiency. For example, a high unemployment rate and a low average wage can be among the factors that attract investment, as investors associate it with an abundance of potential workers and lower operating costs,

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respectively (Anderson et al. 2019). It was observed that there is an inverse relationship between the unemployment rate and foreign direct investment, which is based on the idea that a decrease in the unemployment rate is associated with higher wages; therefore, due to the improvement of labour market conditions, more jobs are created for skilled labour, and these factors, from the point of view of the authors of the article, attract a greater number of foreign capital companies (Gawrysiak et al., 2019). Given that foreign investment in different sectors results in the redistribution of medium- and low-skilled labour to more productive sectors, the expansion of foreign capital companies in employment may differ in individual economic sectors (Mühlen & Escobar, 2020). The entry of foreign companies into the market can affect union membership, bargaining power, and employment patterns. An increasing number of attracted MNCs or foreign capital medium-size companies typically contributes to urbanization and attracts mobile workers to urban areas where the industry is booming (Li et al., 2020). This phenomenon changes the demographic structure of urban centres and affects residential and commercial purposes (Hudala et al., 2020). Large MNCs affect different sectors of the economy because the structure of employment varies from sector to sector. For example, a study in the Czech Republic highlighted the effects of territorially concentrated foreign capital companies on local labour market outcomes (Dinga & Münich, 2010). Similarly, research in Italy has demonstrated that FDI is linked to accelerated local employment growth compared to the national industry average (Federico & Minerva, 2007). Moreover, investigations in Serbia have sought to estimate the influence of foreign capital inflows on average wage and employment, emphasizing the connection between FDI and labour market dynamics (Perić, 2019; Perić & Filipovic, 2021; Perovic et al., 2021). The relationship between FDI and employment structure is intricate and can vary based on factors like industry composition and regional characteristics. While some studies suggest that attracting foreign capital companies, especially MNCs, might lead to increased employment rates, others have found that FDI may decrease median weekly wages (Kim, 2020). Additionally, the impact of attracting large MNCs on employment growth can be influenced by factors such as labour market regulations and the skill intensity of sectors (Bellak & Leibrecht, 2009). Meanwhile, the inward flow of FDI may play a pivotal role in the emergence and advancement of high-tech industries, leading to technological improvements (Czaller & Lőcsei, 2018). This demonstrates how foreign capital companies can drive changes in sectoral employment by fostering the growth of specific industries through investments in technology and innovation. Moreover, the sectoral analysis of FDI by the source country can provide valuable insights into the diverse effects of FDI on different sectors of the economy. Research focusing on the divestment of Spanish FDI in Morocco underscored the importance of examining FDI impacts at a sectoral level to understand the varied consequences across industries better (Soussane et al., 2022). By delving into sector-specific implications, policymakers and stakeholders can better understand how many foreign capital companies influence employment dynamics within different sectors.

2.2. Collaboration between Nordic Countries and Lithuania

The Nordic countries have historically maintained economic ties with the Baltic Sea region. This relationship has led to Nordic investments being significant in the inward Western flow of FDI into the former Soviet area of the Baltic Sea. Moreover, Nordic companies rapidly expanded into the Baltic States and the St Petersburg area of Russia (Johansen et al., 2000). The interest in the interlinkages between attracted foreign capital and the economic growth of the Baltic States has been growing since the collapse of the Soviet Union. FDI analysis has led to the conclusion that cumulative inflows of FDI had a positive and significant effect on the economic growth in the Baltic States (Tvaronavičienė & Grybaitė, 2007).

The tendencies of expansion of Nordic companies in Lithuania, Latvia, and Estonia, as well as outward FDI from the three Baltic States, reveal similarities and differences between these neighbouring countries. Various factors, including the economic ties with the Nordic nations, influence the patterns of FDI in the Baltic States. The impact of inward Nordic FDI on the structural changes in the Lithuanian economy has been a recent subject of interest (Tvaronavičienė et al., 2023). The Baltic States, including Lithuania, have attracted large amounts of Nordic FDI, and some studies have been carried out to acknowledge the implications of this investment on the economies of these countries (Hlaváček & Bal-Domańska, 2016). The other recent study based on primary data proved that attracted Nordic capital companies have less impact on innovations in the secondary sector in Lithuania. However, it has an extremely high impact on employment in the financial industry. Swedish capital companies made the most significant impact on the financial sector.

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Meanwhile, Estonia primarily benefited from the Finnish capital. However, it was found that in Estonia, Nordic capital companies do not significantly impact wages. Nevertheless, the inward FDI had a substantial impact on the productivity of firms (Šimelytė & Tvaronavičienė, 2022). Furthermore, another study based on firm-level data proved that Nordic SMEs and MNCs positively increase productivity due to knowledge spillover. Hence, The vulnerability of the Baltics when dealing with the Nordics, particularly Sweden, during the 2008/9 crisis has also been highlighted (Hilmarsson, 2021). Classical foreign capital models suggest that foreign capital flows from more affluent to poorer countries, and only poorer countries may benefit. Thus, it is unsurprising that the Baltic States attract more FDI from a more prosperous region, such as the Nordic countries, although the countries of both areas are defined as high-income countries. Burinskas et al. (2021) found that Nordic capital companies treat the Baltic States similarly. In conclusion, Nordic companies have had a notable effect on the economies of the Baltic countries, including Lithuania. The positive impact of FDI on economic growth and productivity spillover has been observed, and the historical and economic ties between the Nordic and Baltic countries have further strengthened the relationship, extending to such areas as defence cooperation.

3. Methodology

The fact that foreign capital is considered one of the drivers for economic structural changes might impact the relocation of labour from low-tech to high-tech, from manufacturing to service sectors. FDI has been chosen as a variable defining foreign capital. Thus, FDI leads to structural changes in the economy by raising new capital, creating jobs, increasing tax revenue flows, generating greater GDP and promoting exports in different sectors (Tvaronavičienė et al., 2023). We have chosen to analyze how inward Nordic FDI in various economic sectors influences employment in Lithuania. The Nordic countries cover the areas of Iceland, Denmark, Finland, Sweden, and Norway. We used sectorial data from 1999 to 2022 from the State Data Agency of Lithuania. Our research is based on the Clark-Fisher three-sector model. The sectoral data have been classified into the primary, secondary, and tertiary sectors. The primary sector involves business activities in the earliest stages of the production cycle, such as agriculture, forestry, fisheries, mining, and quarrying.

The secondary sector refers to the companies that produce goods from natural resources, and the tertiary sector includes various services and trade. Data collection and classification are based on the NACE standards. The research has been performed in three stages. First, an analysis of the performance of the Nordic companies has been conducted. We have then estimated the correlation between inward Nordic FDI and Lithuanian employment. For the detailed analysis, we have estimated the correlation between inward Nordic FDI in the secondary sector and Lithuanian employment in the secondary sector. The interlinkages between inward Nordic FDI in the tertiary sector and Lithuanian employment in the tertiary sector were also evaluated. We further performed the ADF test and the Granger causality test.

The Granger causality test is commonly applied to find the direction of causality between different economic variables (Chowdhury & Mavrotas, 2006). For instance, in the context of FDI, these tests have been employed to investigate the causal links between FDI and various economic factors such as inflation, government spending, unemployment, trade openness, economic growth, tourism, renewable energy investment, sustainability, etc. The results of these tests have revealed diverse causal relationships. Some studies have found unidirectional causality, such as from trade openness to FDI, while others have reported bidirectional causality, for example, between economic growth and FDI. Additionally, there are inconclusive findings where the causality between FDI and economic growth was not firmly established.

The Granger causality tests have been applied in various geographical contexts, including China, Central Europe, Turkey, North Africa, Canada, etc., indicating the widespread use of these tests in examining the FDI relationships across different regions. The application of the Granger causality tests has also extended to investigating the nexus between FDI and other variables, such as circular economy, pollution and waste management, and other sustainability issues. It is essential to point out that the choice of statistical techniques, such as the multivariate regression method and the Toda-Yamamoto causality test, has been crucial in these studies to identify associations and causal links between FDI and other economic indicators. Using panel data and vector error correction models has also allowed for a comprehensive analysis of the interlinkages between FDI and other financial variables in different countries and regions. Applying the Granger causality tests in the

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context of FDI has provided valuable insights into the causal relationships between FDI and various economic factors, contributing to a better understanding of the dynamics of FDI and its impact on economic variables in different settings. The Granger test (1969) shows whether the independent variable X causes dependent Y by testing how much the current dependent variable Y can be predicted by using the value of past dependent variable Y and the lagged values of independent variable X. Thus, the Granger causality between Y and X exists if past values of X allow to estimate current Y or if the coefficient of the lagged values of X is statistically significant. The causality might be in any direction or even both. According to the Granger test, two conditions should be fulfilled. First of all, X should make a statistically significant contribution to the prognosis of Y, and the second Y should not make a statistically significant contribution to the prediction of X.

The Granger test discloses a causal link between the allocation of FDI from Nordic countries across economic sectors and employment, considering the stationary nature of the time series of variables. To estimate Granger's causal link, we first examined whether the variables satisfy the assumption of stationarity. These tests are based on the belief that when the process is integrated, it has at least one unit root of the characteristic polynomial. The stationary test is carried out using a single root ADF test to ensure that the mean, variance, and covariance of the variables' time series remain constant. There are three variations of ADF.
With no constant and no trend:

$$\Delta Y_t = \gamma_1 Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \mu_i \quad (1)$$

With constant and no trend:

$$\Delta Y_t = \gamma_0 + \gamma_1 Y_{t-1} + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \mu_i \quad (2)$$

With constant and trend:

$$\Delta Y_t = \gamma_0 + \gamma_1 Y_{t-1} + \gamma_2 t + \sum_{i=1}^{m} \alpha_i \Delta Y_{t-i} + \mu_i \quad (3)$$

Where μ_i is a pure noise error, $\Delta Y_t$is the first difference of the dependent variable, ΔY_{t-i} is the lagged difference form of the dependent variable. Additionally, it has been included in the equation as an explanatory variable for checking the autocorrelation. The ADF can be used when the errors are autocorrelated and homoscedastic.

After estimating the parameters of the equation, the null hypothesis is tested. The significance of the parameter is tested using the t-statistic, but in the case of a correct null hypothesis, the distribution of this statistic is not Student's, but the asymmetric Dickey-Fuller distribution.

The Granger theorem states causality exists if variables cointegrate with the error correction. To determine the direction of causality between sectorial FDI and sectorial employment, we have created the following equations:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \cdots + \alpha_p Y_{t-p} + \beta_1 X_{t-1} + \cdots + \beta_p X_{t-p} + \vartheta_{1,t} \quad (4)$$

$$X_t = a_o + a_1 X_{t-1} + \cdots + a_p X_{t-p} + B_1 Y_{t-1} + \cdots + B_p Y_{y-p} + v_{2,t} \quad (5)$$

Where $\alpha_1$to α_p and $a_1$to a_p are coefficients of the lagged dependent variable, and $\beta_1$to β_p and $B_1$to B_p are coefficients of the independent lagged variables.

The results of the Granger causal test are estimated in line with the Fischer criterion. If p value exceeds 0.05, the null hypothesis will be rejected, and the alternative hypothesis will be accepted. Meanwhile, if the p values of the F statistics are more significant than 0.05, the null hypothesis is rejected, meaning that one variable causes the other.

4. Research and results

Lithuania's average labour force between 1999 and 2023 comprised 1.533 million people. Out of this number, 26% were employed in the secondary sector, 8% in the primary sector and the rest in the tertiary sector, which made up 73%. Over this period, 2.6% of all companies operating in Lithuania were controlled by foreign capital. Moreover, 11.9% of all companies operating in the primary sector were controlled by foreign capital. Meanwhile, this number was more significant in the secondary and tertiary sectors, accounting for 13% and

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22.94%, respectively. Hence, 15% of all employees in Lithuania have worked in foreign capital companies, of whom 47.9% were in the IT sector and 26.8% in manufacturing. In contrast, a similar percentage (25%) have worked in mining and quarrying. In general, the amount of foreign-controlled capital has constantly increased since the collapse of the Soviet Union and the opening of the market. At the end of 2021, more than 6,200 foreign-controlled enterprises have been operating in Lithuania. Fifty-two per cent of all foreign-controlled companies were from the European Union, including some Nordic countries. The most significant number of foreign capital enterprises were from Belarus (577), Germany (526), Russia (506), Latvia (492), Ukraine (420), Estonia (350), Sweden (288), the United Kingdom (286), Denmark (275), Norway (251). Unfortunately, the data about the number of foreign capital companies provided by the State Data Agency of Lithuania ends in 2021. Thus, the structure of the top 10 investing countries might be different due to the Russia–Ukraine war. The number of Belarusian capital companies has increased since the fraudulent elections in Belarus in 2020. The turnover of foreign-controlled companies is presented below in Fig. 1.

However, 951 Nordic capital-controlled enterprises were operating in Lithuania, which makes 15.3% of all foreign capital enterprises. Swedish capital companies made the highest turnover (1,781,097,294 thousand euros) from 2005 to 2021; Finland took second place with an average turnover of 1,509,985,059 thousand euros. The lowest turnover was from Icelandic capital companies, as it is the lowest number of companies controlled by Iceland's capital (see Fig. 2).

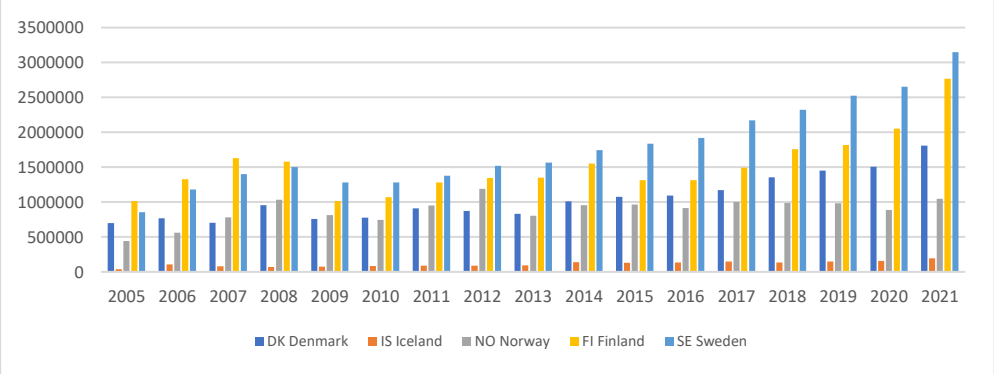

Fig. 1. The turnover of foreign-controlled companies in thousands of euros.

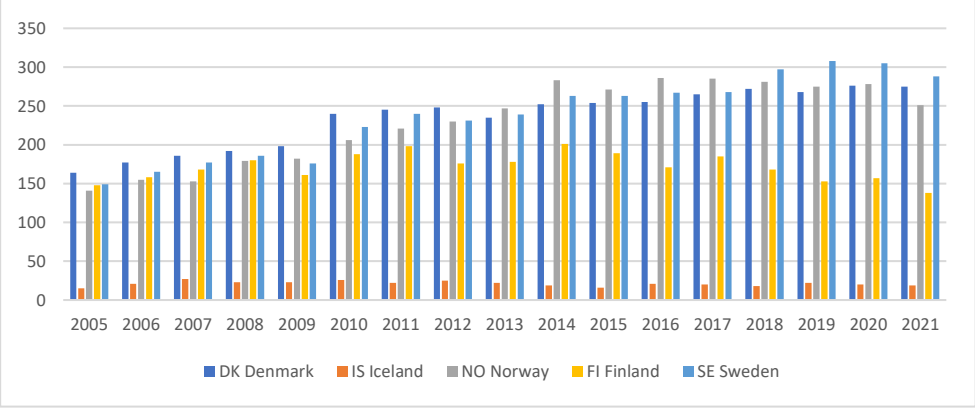

Fig. 2. The number of Nordic capital-controlled companies

From 2005 to 2022, the calculated average of annual inward FDI showed that Lithuania received the greatest FDI flows from Sweden (57%), followed by Denmark (18%), Finland (13%), and Norway (12%). FDI from Iceland accounted for just 1%. In Lithuania, Sweden invested the most in the tertiary sector, i.e. service and knowledge-intensive business sector, which accounted for an average of 93%. Swedish companies mainly invest in the finance (54%) and IT (24%) sectors. Finland (67%), Denmark (73%) and Norway (75%) targeted the tertiary sector less during the considered period. Moreover, 29% of Danish, 71% of Icelandic, and 34% of

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Norwegian FDI have been attracted to manufacturing sectors. Meanwhile, less than half of inward Finnish FDI (41%) targeted wholesale and retail trade (WIPO, 2023). Iceland invested only 54% in the tertiary sector in Lithuania. Yet, the total flow of inward Nordic FDI during 2005–2022 accounted for 31.26% of all investments. The flows of inward Nordic FDI fluctuated over the whole period. The presented data show that Lithuania attracted the least amount of FDI from Iceland compared to other Nordic countries. Meanwhile, during the global crisis, Lithuania suffered a loss of FDI from the Nordic countries. For example, compared to 2007, Denmark's FDI declined by 61%, Finland's – 2%, and Iceland's – 48% in 2008. Since 2005, Denmark's FDI in Lithuania has grown by 78%, Finland's – 65%, Sweden's and Norway's – 87%, and Iceland's – 80%. Further, the study evaluates the relationship between FDI from each Nordic country and employment in Lithuania. The correlation is statistically significant in all cases, as it is below p=0.05. However, the strongest relationship exists between employment in Lithuania and Finnish FDI (r=0.643), although Finland's inward FDI makes up 13% of all FDI flows in Lithuania, less than Swedish and Danish FDI. The second most robust relationship between Lithuanian employment and FDI from Sweden has been estimated (r=0.438). The weakest relationship exists between employment in Lithuania and Norway's inward FDI (r=0.208). This result is unexpected, as Norway takes 10th place among foreign investors in terms of the number of companies established in Lithuania. Thus, it might be concluded that Norwegian companies are not significant. Furthermore, the relationship between inward FDI from each Nordic FDI in the secondary sector and employment in the secondary sector was estimated (Table 1). The results prove that inward Nordic FDI and employment in the secondary sector have a statistically significant relationship (p<0.05). In particular, the correlation between Nordic FDI and Lithuania's secondary-sector employment was assessed (Table 2).

Table 3. Relationship between Nordic foreign capital in the secondary sector and Lithuanian employment in the secondary sector

		Lithuanian employment in the secondary sector
Denmark's foreign capital, the Lithuanian secondary sector	Correlation coefficient	0.403
	p-value	<0.001
Iceland's foreign capital in Lithuania's secondary sector	Correlation coefficient	0.310
	p-value	0.007
Finland's foreign capital in Lithuania's secondary sector	Correlation coefficient	0.684
	p-value	<0.001
Norway's foreign capital in the Lithuanian secondary sector	Correlation coefficient	0.862
	p-value	<0.001
Sweden's foreign capital in Lithuania's secondary sector	Correlation coefficient	0.421
	p-value	<0.001

Source: authors

The results show a moderate positive correlation between Danish (r=0.403), Finnish (r=0.684), Swedish (0.421) and Icelandic (0.310) FDI in the secondary sector and secondary-sector employment. The strongest relationship between employment in the secondary sector and inward FDI has been found in the case of Norway (r=0.842). Thus, the strongest interlinkages are determined in the case of Norway, Finland, and Sweden. Further, the research estimates the relationship between FDI from each Nordic country in the tertiary sector and employment in the tertiary sector in Lithuania (Table 4).

Table 4. Correlation between Nordic foreign capital in the tertiary sector and Lithuanian employment in the tertiary sector

		Employment in the tertiary sector
Denmark's foreign capital in the Lithuanian tertiary sector	Correlation coefficient	-0.391
	p-value	<0.001
Finland's foreign capital in Lithuania's tertiary sector	Correlation coefficient	0.491
	p-value	<0.001
Iceland's foreign capital in Lithuania's secondary sector	Correlation coefficient	0.034
	p-value	0.769
Norway's foreign capital in Lithuania's secondary sector	Correlation coefficient	0.258
	p-value	0.025
Sweden's foreign capital in Lithuania's tertiary sector	Correlation coefficient	0.699
	p-value	<0.001

Source: authors

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The results reveal that only in the case of Iceland, the correlation between Iceland's inward FDI in the tertiary sector and Lithuanian employment in this sector is statistically insignificant (p=0.769). A low Iceland FDI flow in the tertiary sector might explain this. The strongest relationship has been observed in the case of Sweden (r=0.699, p<0.001), followed by Finland (r=0.491, <0.001) and Denmark (r=-0.391, p<0.001). Hence, the correlation between Nordic FDI in the tertiary sector and employment in the tertiary sector in Lithuania is statistically significant for Denmark, Finland, Sweden, and Norway. Nevertheless, Norway's FDI in the tertiary sector and Lithuanian employment in the tertiary sector have the weakest correlation (r=0.258). Before carrying out the Granger causality analysis, the stationarity of the time series of the selected variables – Danish, Finnish, Swedish, Icelandic, Norwegian FDI and Lithuanian employment – has been evaluated by employing the ADF test (Table 5).

Table 5. Results of the ADF test

Indicator	Sector	Constant		1st level differentiation (constant)	
		ADF t-statistics	p-value	ADF t-statistics	p-value
Denmark's foreign capital	Secondary	-1.0381	0.7357	-9.3026	0.0000
	Tertiary	-2.2047	0.2064	-5.4954	0.0000
Finland's foreign capital	Secondary	-2.3090	0.1719	-10.2489	0.0001
	Tertiary	-2.9619	0.0432	-	-
Iceland's foreign capital	Secondary	-1.3847	0.5854	-14.9506	0.0001
	Tertiary	-1.9408	0.3122	-8.8428	0.0000
Norway's foreign capital	Secondary	-1.2969	0.6272	-9.6579	0.0000
	Tertiary	-1.6161	0.4694	-8.5146	0.0000
Sweden's foreign capital	Secondary	-1.4847	0.5359	0.5359	0.0001
	Tertiary	-1.5181	0.5191	0.5191	0.0000
Lithuanian employment	Secondary	-1.6634	0.4455	-5.4163	0.0000
	Tertiary	-0.4187	0.8998	-7.8459	0.0000

Source: authors

If the p-values of the transformed variables are below the significance level (p<0.05), the data satisfy the stationarity condition. Since the stationarity of the data has been evaluated, the VAR models are constructed to estimate the number of lags to be used in the Granger causality test. In the first step, the Granger causality test has been applied to assess causal links between the distribution of Nordic FDI in the secondary sector and employment in the same industry (Table 6). We further employ the Granger causality test to determine causal links between Nordic FDI in the tertiary sector and jobs in the tertiary sector.

Table 6. Results of the Granger causality test

Sector	Null hypothesis	Observations	F statistics	P value	The null hypothesis is accepted or rejected
Denmark					
Secondary	Denmark's foreign capital _2sec ⇏ Lithuanian Employment_2sec	73	0.26281	0.7697	Accepted
	Lithuanian Employment_2sec ⇏ Denmark's foreign capital _2sec		4.13582	0.0202	Rejected
Tertiary	Denmark's foreign capital _3sec ⇏ Lithuanian Employment_3sec	65	1.79701	0.0895	Accepted
	Lithuanian Employment_3sec ⇏ Denmark's foreign capital _3sec		1.01901	0.4434	Accepted
Finland					
Secondary	Finland's foreign capital _2sec ⇏ Lithuanian Employment_2sec	74	1.70324	0.1961	Accepted
	Lithuanian Employment_2sec ⇏ Finland's foreign capital _2sec		0.00156	0.9686	Accepted
Tertiary	Finland's foreign capital _3sec ⇏ Lithuanian Employment_3sec	74	0.00012	0.9914	Accepted

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	Lithuanian Employment_3sec ⇏ Finland's foreign capital _3sec		0.00954	0.9225	Accepted
Iceland					
Secondary	Iceland's foreign capital _2sec ⇏ Lithuanian Employment_2sec	74	0.00285	0.9576	Accepted
	Lithuanian Employment_2sec ⇏ Iceland's foreign capital _2sec		0.00987	0.9211	Accepted
Tertiary	Iceland's foreign capital _3sec ⇏ Lithuanian Employment_3sec	67	0.39933	0.9157	Accepted
	Lithuanian Employment_3sec ⇏ Iceland's foreign capital _3sec		0.79510	0.6095	Accepted
Norway					
Secondary	Norway's foreign capital _2sec ⇏ Lithuanian Employment_2sec	66	2.42358	0.0237	Rejected
	Lithuanian Employment_2sec ⇏ Norway's foreign capital _2sec		1.19525	0.3204	Accepted
Tertiary	Norway's foreign capital _3sec ⇏ Lithuanian Employment_3sec	67	0.76056	0.6385	Accepted
	Lithuanian Employment_3sec ⇏ Norway's foreign capital _3sec		0.62915	0.7494	Accepted
Sweden					
Secondary	Sweden's foreign capital _2sec ⇏ Lithuanian Employment_2sec	74	0.10619	0.7455	Accepted
	Lithuanian Employment_2sec ⇏ Sweden's foreign capital _2sec		0.32163	0.5724	Accepted
Tertiary	Sweden's foreign capital _3sec ⇏ Lithuanian Employment_3sec	69	1.73682	0.1294	Accepted
	Lithuanian Employment_3sec ⇏ Sweden's foreign capital _3sec		0.58973	0.7371	Accepted

Source: authors

The results of the Granger causality test revealed that Lithuanian employment in the secondary sector impacts Denmark's foreign capital inflows to the secondary sector. Meanwhile, Norwegian foreign capital inflows into the secondary sector are also estimated to affect Lithuanian employment in the secondary sector.

Discussion

Over the years, Nordic FDI has contributed positively to the Lithuanian economy. This has been proven in previous studies. The research aimed to disclose the relationship between sectorial FDI from Nordic countries and sectorial employment in Lithuania. In this study, the sectors have been divided according to the Clark-Fisher three-sector model. Two (Denmark and Norway) of the five Nordic countries are among those that opened most of the companies in Lithuania, although the leading country in the flows of FDI is Sweden. However, the strongest correlation between employment in Lithuania and inward FDI from each Nordic country has been estimated in the case of Finland.

Meanwhile, the strongest relationship between employment in the secondary sector has been observed in the case of Norway ($r=0.862$, $p<0.001$) and Finland ($r=0.684$, $p<0.001$). Hence, only inward Norwegian FDI in the secondary sector impacts employment in the secondary sector in Lithuania. In the meantime, the FDI from other Nordic countries has no effect on employment in the secondary sector. Nevertheless, employment in the secondary sector impacts the FDI inflows from Denmark. Causal links do not exist between Nordic FDI and employment in the tertiary sector. Thus, it might be concluded that Nordic countries do not tend to invest in the tertiary sector compared to other countries. Yet, Swedish FDI has been mainly attracted to the financial sector. However, in general, it does not have an impact on employment in the tertiary sector. Thus, Norwegian FDI flows to the secondary sector are appropriate for predicting Lithuanian employment in the secondary sector. It is also confirmed that changes in Danish FDI in the secondary sector can be used to predict Lithuania's employment, which is in line with the results of Inekwe (2013). The study found a positive long-term relationship between the manufacturing sector's FDI and Lithuania's employment rate. However, FDI in the service sector was found to have a negative association with the employment rate (Inekwe, 2013).

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The results are partially different, as Inekwe (2013) analyzed Nigeria as a developing country. Hence, the study of Tvaronavičienė & Grybaitė (2007) suggests that FDI has significantly driven economic growth and employment in Lithuania. However, this paper has not focused on a specific FDI donor country and jobs in a particular sector. Overall, the literature suggests that FDI has positively impacted employment in Lithuania. FDI in the manufacturing sector has been found to improve the employment rate, while FDI in certain economic activities has been shown to drive economic growth. However, the impact of FDI on employment may vary depending on the sector and the specific characteristics of the economy. For instance, FDI was found to have a positive but modest impact on manufacturing employment in Mexico (Waldkirch et al., 2009), which is partially in line with the results of our study since the secondary sector mainly covers manufacturing and construction. In contrast, the impact of FDI on employment in developing countries can be more significant, with capital or technology-intensive FDI potentially leading to job losses, especially in developing nations (Sinha et al., 2022). Meanwhile, a moderate to weak relationship exists between inward FDI from the Nordic countries to the tertiary sector and employment in the tertiary sector.

Conclusions

The study has proven that attracting Norwegian FDI into the secondary sector, such as manufacturing or construction, would positively impact employment. Hence, increasing employment in the secondary sector would look promising for Danish investors in this sector. Thus, the Lithuanian government should fund and promote studies related to manufacturing sectors or the most required professions to promote the manufacturing sector. It is essential for policymakers to understand the factors that attract FDI and to create an environment that encourages investment and job creation. In addition, stimulating the manufacturing sector and tightening relationships with the Nordic countries may promote the development of innovation or attract more FDI into these sectors from the Nordic countries. Meanwhile, there is a weak link between technology and knowledge transfer (Šimelytė & Tvaronavičienė, 2023).

Theoretical and practical implications. Finally, this study complements the existing literature by examining interlinkages between sectorial FDI and employment. Thus, the study extends the internalization theory by integrating the Clarks-Fisher model of structural changes, expanding and filling the gap in the interaction of these two theories and summarizing the main findings. According to the Clarks- Fisher development theory, the emergence of the service sector would stimulate economic growth, and most of the labour force would be distributed in the service sector. Studies find (Tvaronavičienė et al., 2023; Burinskas et al., 2021) that Finnish, Swedish, and Norwegian FDI positively impact Lithuania's GDP. These results align with the previous study by Hlavacek and Bal-Domanska (2016), which found that inward Nordic FDI positively impacts the Lithuanian economy. Meanwhile, 73% of the labour force in Lithuania is concentrated in the service sector. Hence, less than half of employees working in a foreign capital company are employed in the tertiary sector. Thus, the study fills the gap in the interaction between internationalization and structural changes theory, as empirical results confirm the existence of the relationship between FDI as a form of internationalization and the structure of employment. It confirms the relationship between foreign direct investment and the importance of labour force distribution across different sectors. The study uses a rigorous empirical analysis to explore the nuances of these relationships. It provides valuable insights to policymakers, investors, companies, and researchers interested in the intersection of foreign investment and work dynamics. The article stresses the need for a differentiated approach to optimizing the functioning of the labour market and considering the positive aspects of foreign direct investment. The policy towards FDI attraction might have had an impact on the relationship between sectoral FDI and sectorial employment. Thus, governments and policymakers can use the study results to formulate strategies to attract foreign direct investment while ensuring economic growth and promoting jobs in the most promising or promotional sectors. The study examines how governments can use foreign direct investment to maximize job creation, develop skills, and encourage inclusive labour market growth. This study contributes to the academic debate on the impact of foreign direct investment on the economy. It provides valuable insights into how foreign direct investment shapes the labour market and generally affects employment patterns.

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*Future research and limitations***.** The study has some limitations. First of all, the research has focused only on inward Nordic FDI. Thus, the impact of FDI from other countries has been eliminated. The results focus on the impact of Nordic FDI on employment.

FDI from a particular country may significantly impact other economic factors such as sectorial value-added, GDP, international trade, or even migration. Meanwhile, the study covers the data until 2021 and does not evaluate the impact of the Ukraine–Russia war, which started in 2022. Historical data show that Belarus and Russia are in the top three regarding the number of companies opened in Lithuania. However, after the fraudulent presidential election in 2020, some Belarusian companies transferred their business to Lithuania. Meanwhile, Russian capital companies were closed after February 24, 2022. Thus, a recent geopolitical event has changed the distribution of foreign capital companies. Hence, further research should focus on the sectorial inward FDI from other countries. In addition, the study should be replicated within five years to estimate the impact of geopolitical events.

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