
COMPARATIVE ANALYSIS OF FDI DURATION IN THE VISEGRÁD GROUP MEMBER STATES, USING MORTALITY TABLES: A SECTORAL APPROACH*

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Abstract: FDI is an important part of the ‘bloodstream’ of many countries’ economies, and it would be difficult to overestimate the benefits of FDI for the states that receive them. The processes of FDI influx and their effects have been the subject of numerous studies and analyses in the fields of both economic theory and empirical research. However, less attention has been paid to the process of divestment, which in many cases may result in adverse changes in the economies of FDI recipient countries. This article proposes that event history analysis methods can be used to study the survival of FDI projects. FDI is launched at a certain point in time by investors, last for some time, and then can be either terminated or continued. In this context, we may come across complete as well as truncated observations, much like in the analyses of population processes, therefore the use of demographic methods to study the survivability of FDI projects is justified. The purpose of this article was to present specially constructed FDI life tables and to compare the ‘survivability’ patterns of foreign direct investments in selected economic sectors of the Visegrád Group countries. For many years, these countries have enjoyed considerable interest from foreign investors and have often competed with each other for new FDI projects. Therefore, comparing them not only in terms of the processes related to FDI influx, but also in terms of the processes of divestment appears interesting and important to economists, market analysts and the investors themselves. The study used data from the Orbis and Zephyr databases.

Keywords: life table, hazard rate, FDI, divestment.

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1. Introduction

Event history analysis has now been in use for years to study many issues in economics. Analogies between demographic units and companies that go bankrupt, or unemployed people who come out of unemployment, encourage the use of demographic analysis tools of this kind in fields other than the analysis of population processes. This is why life tables, Kaplan–Meier survival functions (Kaplan and Meier, 1958) and Cox’s proportional hazard model (Cox, 1972) have been applied in economics. Though researchers analyse the survival of companies – including those with foreign capital – studying the duration of the investment projects themselves using the demographic methods of event history analysis is not common. This is especially true for foreign direct investments, although they meet all the prerequisites for their survival time to be studied this way. FDI projects are launched by investors at a certain point in time, last for some time and then may be divested or continued. One may come across complete observations but some are truncated, much like in analyses of population processes. Applying these methods in the analysis of FDI projects’ duration might be considered a novelty. Although studies have been conducted on the survivability of foreign-funded enterprises (Demirbaga, Apaydin, and Tatoglu, 2011; Farah, Elias, Chakravarty, and Beamish, 2021; Gaur and Lu, 2007; Meschi, Phan, and Wassmer, 2016), those studies concerned companies and not the FDI investment projects themselves. Meanwhile, foreign direct investments are a very important part of the economic ‘bloodstream’ in both developed and developing countries. Thanks to an influx of FDI, it is possible to modernize many economies, strengthen their export competitiveness, improve the situation on the labour market, bring production and management techniques up to date and stimulate economic growth. Thus, the withdrawal of any major foreign investor from the market may, in many cases, result in adverse changes in economies of the countries that receive FDI.

One of the ways in which FDI is reduced is through the phenomenon of divestment. Foreign direct divestment is considered to be the voluntary or forced reduction in the activities pursued by a direct investment enterprise, by ceasing part of these activities or selling all of their shares in that enterprise. Divestment processes are studied in literature mainly in terms of their scale, scope and consequences. Econometric models have been applied in such research (Bergh, 1997; Haynes, Thompson, and Wright, 2003). However, in order to fully analyse the phenomenon of ‘FDI mortality’, it is advisable to use the previously mentioned methods of event history analyses that allow the structure of the entire phenomenon to be thoroughly tracked. The purpose of this article was to present specially constructed FDI life tables and to compare the ‘survivability’ patterns of foreign direct investment in selected economic sectors of the Visegrád Group countries. The said countries occupy an important place on the world map of foreign investment projects, and they show considerable involvement in acquiring foreign investors. Therefore, comparing them

in terms of both processes related to FDI influx and processes of divestment appears to be of interest to economists, market analysts and investors alike. By using event history analysis methods, this article attempts to fill the research gap in the analysis of divestment processes in the Visegrád Group countries.

2. Research methodology

The basic research tool used for the purposes of this article is life tables. The mortality tables used in demographics represent the natural process of populations' dying. They are based on study of a model population that forms a cohort, or group, of people born at the same time (Balicki, 2006). Many mortality tables refer to the concept of a 'stationary population', i.e. one whose total size and age distribution do not change over time (a stationary population is closed to migration, for example) (Holzer, 2003). For that reason, two types of mortality tables are most commonly constructed: cohort tables, which depict the actual mortality process of a selected generation, and cross-sectional tables, which depict the hypothetical process of the dying of a population that consists of various generations (the so-called hypothetical cohort), based on the observation of their mortality over a certain period of time (e.g. in specific years). Mortality tables are also constructed separately for sub-populations defined by specific characteristics, such as gender or place of residence. Typical mortality tables may include the following: age in years, number of survivors, number of deaths, probability of living to a specific age, probability of death, total life expectancy fund, average life expectancy, hazard rate and median survival (Holzer, 2003).

The concept of the mortality tables presented here was adapted to the construction of 'foreign direct investment life tables' that, to put it simply, can be regarded as tables of FDI numbers' distribution. Here, survival time is divided into disjoint intervals; the absolute and relative numbers of FDI projects that fall into each interval 'alive', are terminated in each interval or are truncated/lost between intervals, are determined next. The concept of FDI duration tables is appropriate because of the fact that investment projects, like demographic units, have a determined starting point, last for some time and may either continue or be terminated during the observation period – this is referred to as censored and complete observations, respectively. There are three types of data censoring: left censoring, right censoring and double censoring. If the initial event (the execution of an FDI project) occurs before the observation begins, then one is dealing with left censoring. If the observation period ends before the final event (divestment) occurs, or if one cannot observe the given object during the observation period, then this is right censoring. Both types of censoring occurring together is considered as double censoring (Sokołowski, 2010). In the case of FDI projects, all three types of observations were encountered, so applying techniques used in survival analysis to study the process of 'FDI mortality' with an adequate supply of data seems justified.

These life tables for FDI projects include, among others, probability of FDI projects death (q_t) in ranges $[T_t; T_{t+1})$ where $t = 1, 2, \dots, s$. This is the proportion of the number of FDI projects that fail (die) during the interval, and the number of FDI projects exposed to risk. Using probabilities of FDI failure, the cumulative proportion surviving can also be determined, which is computed using the formula (Elandt-Johnson and Johnson, 1999):

$$G(T_t) = G(T_{t-1})p_t \text{ and } G(T_1) = 1. \quad (1)$$

Standard error of this estimate is the following:

$$SE(G(T_t)) = G(T_t) \sqrt{\sum_{j=1}^{t-1} \frac{(1-p_j)}{n_j p_j}}, \quad (2)$$

where:

$$p_t = 1 - \frac{d_t}{n_t},$$

$$n_t = n'_t - 0.5(l_{t-1} + w_{t-1}) \text{ and } n'_t = n'_{t-1} - (l_{t-1} + w_{t-1} + d_{t-1}),$$

p_t – the estimate of the conditional probability of surviving through the interval $[T_t; T_{t+1})$, d_t – the number of FDI projects that fail (die) during the interval, n_t – the number of FDI projects exposed to risk, w_t – the number of FDI projects that had not died by the end of the study, l_t – the number of FDI projects that were lost to observation during this interval.

The FDI life tables also include the median survival time (ME_t). This is the time value at which exactly one-half of those who survived until T_t are still alive. Formula (3) was used to calculate the median remaining life (Elandt-Johnson and Johnson, 1999).

$$ME_t = (T_j - T_t) + \frac{(T_{j+1} - T_j)(G(T_j) - 0.5G(T_t))}{G(T_j) - G(T_{j+1})}, \quad (3)$$

where: j – time indicators such that $G(T_j) > 0.5G(T_t)$ and $G(T_{j+1}) < 0.5G(T_t)$.

The standard error of this estimate can be computed using the formula:

$$SE(ME_t) = \frac{G(T_t)(T_{j+1} - T_j)}{2G(T_j)(1-p_j)\sqrt{n_i}}. \quad (4)$$

A component of the constructed FDI life tables is also the hazard rate. The hazard rate (Barlow, Marshall, and Proschan, 1963) is defined as the probability per unit of time that a case that survives to the beginning of a given interval will fail within that interval. In particular, it is calculated as the number of foreign divestment per unit time in an interval, divided by the average number of survivors in the middle of the interval. The hazard rate and the standard error of the hazard rate were computed using the formulas (Elandt-Johnson and Johnson, 1999):

$$h(T_{mt}) = \frac{2(1 - p_t)}{(T_{t+1} - T_t)(1 + p_t)}, \quad (5)$$

$$SE(h(T_{mt})) = \frac{h(T_{mt})}{\sqrt{n_t(T_{t+1} - T_t)}} \sqrt{1 - \left[\frac{h(T_{mt})(T_{t+1} - T_t)}{2} \right]^2}, \quad (6)$$

where: T_{mt} – time interval midpoint (halfway through the interval).

The life tables are a popular event history analysis tool that provides a simple summary of a large set of data. It is a technique competing with the Kaplan-Meier method in which the survival function from continuous time is estimated.

The study covered foreign direct investments in member states of the Visegrád Group since 1996, which concerned various economic sectors. The choice of Poland, Czechia, Slovakia and Hungary for this research resulted from their geopolitical location, common historical identity, and the similar structure of their economies.

3. Results of empirical research

The study used data from the Orbis and Zephyr databases¹. The numbers of FDI projects considered for this study from the individual Visegrád Group countries were as follows: Poland – 326 projects, Hungary – 309 projects, Czechia – 317 projects and Slovakia – 319 projects. The time window of observation was from 1996 to 2021. For the purposes of this study, the end-point for the duration of each FDI project was assumed to be when the foreign investor's shares fell to below 10% of the shares of the investment project. Shares may be sold to a resident or to a non-resident. The 10% limit results from the fact that the OECD defines an FDI as a non-resident acquiring at least 10% of the shares in a direct investment enterprise.

Tables 1 to 4 present the FDI mortality process in each Visegrád Group country by sector. These tables are in fact extracts from complete FDI mortality tables, but

¹ The Orbis (<https://orbis4.bvdinfo.com/>) and Zephyr (<https://zephyr.bvdinfo.com/>) databases contain information about millions of companies on mergers and acquisitions, public offerings, private equity and venture capital transactions, as well as rumours of such.

the items included here suffice for a comparative analysis of FDI duration to meet the established research objective. In Poland (Table 1), in individual age intervals of up to 10 years, FDI projects carried out in the financial and insurance services sector had the highest probability of foreign divestment of all the sectors under study. In the case of investment projects older than 13 years, the highest risk of divestment was demonstrated by FDI projects carried out in the sector 'other services'. In the manufacturing sector, the highest risk of divestment (0.429 probability) was faced by FDI projects between 10 and 13 years old; in the trade sector, the most affected projects between 13 and 15.5 years old (0.222 probability). In the financial and insurance services sector, projects between 2.5 and 5 years old had the highest risk of divestment (0.585 probability), while for other services it was projects between 13 and 15.5 years old (0.625 probability). The highest values for median survival of FDI projects in each of the age groups were found for investments made in wholesale and retail trade; the lowest median survival values for projects older than 8 years were recorded in the sector of other services. The highest median survival values in both trade and the financial and insurance services were attributed to projects between 5 and 8 years old (median survival was approximately 105.9 and 184.1 months, respectively). In turn, the sector of other services had its highest value of median survival in projects no older than 2.5 years (the median was 113.4 months), and manufacturing had its highest median value at 93.6 months, for projects commenced between 13.0 and 15.5 years ago. An analysis of the hazard rate values led to the conclusion that the highest probabilities of foreign divestment in Poland for FDI projects no older than 13 years fell to investments made in the financial and insurance sector, while for projects older than 13 years the lowest hazard rate was shown by investments made in wholesale and retail trade. In the financial and insurance sector in Poland, the greatest probability of foreign divestment (0.028 ± 0.007 in each subsequent year) occurred in the age group of 2.5-5 years. On the other hand, in other services and in trade it was investments between 13 and 15.5 years of age that had the highest chance of 'dying' in each subsequent year of that interval (the hazard rates were 0.033 ± 0.013 and 0.008 ± 0.006 , respectively). In manufacturing, the highest value of the hazard rate was recorded in the age interval of 10-13 years, where in each subsequent year the risk of divestment amounted to 0.033 ± 0.01 .

After analysing the FDI life tables for Czechia (Table 2), one must conclude that the greatest probability of foreign divestment from all the selected sectors of the economy occurred in projects in existence for at least 21 years; this figure was 0.5 in financial and insurance services, trade and manufacturing and 0.4 in other services, retail and wholesale trade. Additionally, the hazard rate for projects at least 21 years old was the highest in four sectors of the Czech economy. The chance of divestment in each subsequent year of this interval was 0.025 ± 0.023 in the financial and insurance services sector, 0.018 ± 0.01 in the other services sector, 0.023 ± 0.019 in manufacturing and 0.016 ± 0.02 in wholesale and retail trade. The highest median FDI survival in the Czech financial and insurance services and wholesale and retail

Table 1. The FDI life table for Poland by selected economic sectors

Lower limit of the age (months)	Financial and insurance services				Other services				Manufacturing				Wholesale and retail trade			
	q_t	ME_t	$h(T_{mt})$	$SE(h(T_{mt}))$	q_t	ME_t	$h(T_{mt})$	$SE(h(T_{mt}))$	q_t	ME_t	$h(T_{mt})$	$SE(h(T_{mt}))$	q_t	ME_t	$h(T_{mt})$	$SE(h(T_{mt}))$
0.00	0.156	49.37	0.006	0.003	0.054	113.38	0.002	0.001	0.119	93.45	0.005	0.002	0.091	174.47	0.003	0.002
31.11	0.585	24.86	0.028	0.007	0.400	91.43	0.018	0.003	0.390	88.81	0.017	0.004	0.163	154.36	0.006	0.003
62.22	0.111	105.89	0.004	0.006	0.043	95.07	0.002	0.002	0.048	86.37	0.002	0.002	0.040	184.18	0.001	0.002
93.33	0.143	84.42	0.005	0.007	0.065	68.60	0.002	0.002	0.071	68.92	0.003	0.004	0.042	161.59	0.001	0.002
124.4	0.167	69.86	0.006	0.009	0.250	42.76	0.010	0.006	0.429	56.00	0.019	0.011	0.174	138.00	0.006	0.004
155.5	0.333	58.22	0.014	0.013	0.625	22.31	0.033	0.013	0.125	93.60	0.005	0.007	0.222	124.44	0.008	0.006
186.6	0.250	67.92	0.010	0.014	0.333	48.80	0.014	0.014	0.250	78.40	0.010	0.010	0.077	93.33	0.003	0.004
217.7	0.250	58.22	0.010	0.014	0.333	41.83	0.014	0.020	0.167	56.00	0.006	0.009	0.091	62.22	0.003	0.004
248.8	0.333	29.111	0.014	0.019	0.500	13.944	0.024	0.032	0.250	28.000	0.010	0.014	0.167	31.111	0.006	0.008

Source: own work.

Table 2. The FDI life table for Czechia by selected economic sectors

Lower limit of the age (months)	Financial and insurance services				Other services				Manufacturing				Wholesale and retail trade			
	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$
0.00	0.114	83.77	0.004	0.002	0.141	67.54	0.006	0.002	0.084	84.03	0.003	0.001	0.101	113.35	0.003	0.001
31.11	0.145	68.37	0.006	0.003	0.337	52.79	0.015	0.004	0.204	62.83	0.008	0.002	0.217	96.80	0.008	0.002
62.22	0.320	54.66	0.014	0.005	0.267	88.45	0.011	0.004	0.346	60.43	0.014	0.003	0.203	113.94	0.007	0.003
93.33	0.258	61.17	0.011	0.005	0.095	78.58	0.004	0.003	0.226	82.62	0.009	0.003	0.190	146.55	0.007	0.003
124.44	0.273	61.34	0.012	0.007	0.176	59.63	0.007	0.004	0.133	87.60	0.005	0.003	0.200	136.00	0.007	0.004
155.56	0.267	70.36	0.011	0.008	0.381	72.43	0.017	0.008	0.296	66.29	0.012	0.006	0.053	118.33	0.002	0.002
186.67	0.222	64.34	0.009	0.009	0.111	78.47	0.004	0.003	0.167	52.00	0.006	0.009	0.071	89.52	0.002	0.003
217.78	0.200	47.05	0.008	0.012	0.143	54.88	0.006	0.005	0.500	28.88	0.023	0.021	0.200	61.56	0.007	0.007
248.89	0.500	13.44	0.025	0.023	0.400	27.44	0.018	0.010	0.500	14.44	0.023	0.019	0.400	31.77	0.016	0.02

Source: own work.

trade sectors was demonstrated by the youngest FDI projects, namely those less than 2.5 years old. Half of these projects in the financial and insurance services sector were subject to divestment after 83.8 months, and in the trade sector after approximately 113.4 months. In other services, the projects that had the highest median survival value were those aged between 5 to 8 years, while in manufacturing it was FDI projects aged 10-13 years. In the former sector, half of the FDIs 'live to the age' of approximately 88.5 months, while in the latter sector it was about 87.6 months.

Based on the results in Table 3, it can be concluded that in Slovakia the highest probability of foreign divestment in the financial and insurance services sector occurred in projects 10 to 13 years old. Out of 100 FDI projects with such duration, about 35 were subject to divestment. Likewise, the hazard rate for projects in this age group was the highest in this sector: the risk of divestment in each subsequent year of this interval was 0.015 ± 0.01 . On the other hand, in the remaining sectors of the Slovak economy it was FDI projects of at least 21 years of duration that had the highest chance of divestment. Out of 100 FDI projects of such age, divestment was the fate of 40 projects in the sector of other services, 50 projects in manufacturing and 40 projects in wholesale and retail trade. Similarly, the hazard rates in the sectors mentioned here were the highest for FDI investments of at least 21 years. The probability of divestment for projects in each subsequent year of this interval was 0.018 ± 0.01 in the other services sector and 0.016 ± 0.02 and 0.01 ± 0.009 in manufacturing and wholesale/retail trade, respectively. The largest median FDI survival in the Slovak sector of financial and insurance services, as well as in other services, was demonstrated by the youngest FDI projects, namely those less than 2.5 years old. Half of these projects in the financial and insurance services sector were subject to divestment after approx. 115 months, and after approximately 107.6 months in the other services sector. In manufacturing, the projects that had the highest median survival value (approximately 102.5 months) were those about 13 to 15.5 years old, while in wholesale and retail trade it was FDI projects aged 8-10 years (approximately 152.8 months).

In Hungary (Table 4), the highest risk of divestment in the manufacturing sector affected projects of between 10 and 13 years of age. Out of 100 FDI projects with such duration, about 38 projects were subject to divestment. At the same time, the hazard rate for FDI projects of that age in this sector was the highest – the risk of divestment in each subsequent year of this interval was 0.015 ± 0.01 . In the financial and insurance services sector, the highest FDI divestment risk of 0.5 was faced by projects aged 18 years or more. In the other sectors of the Hungarian economy, the highest divestment risk affected investment projects older than 21 years. Out of 100 FDI projects with such duration, divestment was the fate of 50 projects in the sector of other services and around 29 projects in wholesale and retail trade. Likewise, the hazard rates in the sectors of other services and wholesale/retail trade for FDI investments of at least 21 years duration were the highest (0.017 ± 0.016 and 0.025 ± 0.014 , respectively).

Table 3. The FDI life table for Slovakia by selected economic sectors

Lower limit of the age (months)	Financial and insurance services				Other services				Manufacturing				Wholesale and retail trade			
	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$
0.00	0.035	114.97	0.001	0.001	0.038	107.64	0.001	0.001	0.040	86.23	0.001	0.001	0.046	123.09	0.001	0.001
31.11	0.114	89.20	0.004	0.002	0.104	80.56	0.004	0.001	0.286	56.76	0.010	0.003	0.134	96.92	0.004	0.001
62.22	0.241	69.49	0.010	0.003	0.250	57.46	0.010	0.003	0.385	48.33	0.015	0.005	0.280	118.60	0.010	0.003
93.33	0.222	59.89	0.009	0.004	0.353	44.33	0.015	0.005	0.364	54.09	0.014	0.007	0.200	152.76	0.007	0.003
124.44	0.353	95.46	0.015	0.006	0.455	54.18	0.020	0.009	0.308	86.04	0.011	0.008	0.108	142.86	0.004	0.002
155.56	0.067	106.79	0.002	0.003	0.100	101.59	0.004	0.005	0.125	102.50	0.004	0.006	0.040	121.27	0.001	0.002
186.67	0.111	82.54	0.004	0.006	0.111	76.66	0.004	0.006	0.250	79.72	0.009	0.009	0.100	92.41	0.003	0.003
217.78	0.200	57.11	0.008	0.011	0.200	51.72	0.008	0.011	0.167	44.64	0.006	0.008	0.267	64.88	0.009	0.007
248.89	0.333	28.55	0.014	0.019	0.500	14.77	0.023	0.020	0.400	31.88	0.016	0.015	0.286	32.44	0.010	0.009

Source: own work.

Table 4. The FDI life table for Hungary by selected economic sectors

Lower limit of the age (months)	Financial and insurance services				Other services				Manufacturing				Wholesale and retail trade			
	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$	q_t	ME_t	$h(T_{mp})$	$SE(h(T_{mp}))$
0.00	0.024	86.80	0.001	0.001	0.147	70.95	0.005	0.002	0.066	87.72	0.002	0.001	0.074	136.36	0.002	0.001
31.11	0.149	65.45	0.007	0.002	0.353	57.76	0.014	0.005	0.215	58.80	0.007	0.002	0.208	115.74	0.007	0.002
62.22	0.311	73.15	0.015	0.004	0.240	124.04	0.009	0.005	0.440	68.85	0.018	0.005	0.171	109.22	0.006	0.002
93.33	0.200	71.06	0.009	0.004	0.071	110.88	0.002	0.004	0.059	105.61	0.002	0.003	0.146	90.73	0.005	0.003
124.44	0.074	70.47	0.003	0.003	0.083	84.95	0.003	0.004	0.375	82.34	0.014	0.008	0.194	75.55	0.007	0.004
155.56	0.333	50.76	0.017	0.009	0.167	59.33	0.006	0.006	0.100	121.13	0.003	0.005	0.348	80.40	0.013	0.006
186.67	0.200	41.80	0.009	0.009	0.400	59.33	0.017	0.012	0.200	96.66	0.007	0.007	0.154	80.00	0.005	0.005
217.78	0.500	23.88	0.028	0.019	0.167	41.53	0.006	0.009	0.143	64.44	0.005	0.007	0.200	53.92	0.007	0.007
248.89	0.500	11.94	0.028	0.026	0.400	29.66	0.017	0.016	0.250	32.22	0.009	0.012	0.571	28.48	0.025	0.014

Source: own work.

The highest median FDI survival in the Hungarian financial and insurance services sector, as well as in wholesale and retail trade, was demonstrated by FDI projects aged up to 2.5 years. Half of these projects in the financial and insurance services sector were subject to divestment after approximately 86.8 months, and in trade after approximately 136.4 months. In the sector of other services, the projects that had the highest median survival value (approximately 124 months) were those about 5 to 8 years of age, while in manufacturing it was FDI projects aged 13-15.5 years (approximately 121.1 months).

When comparing the results of the FDI mortality tables among member states of the Visegrád Group, it should be noted that in Poland the highest risks of FDI divestment among practically all sectors of the economy were generally found in projects lasting from 13 to 15.5 years, or shorter (in the financial and insurance services sector), while the risk of foreign divestment in Czechia, Slovakia and Hungary generally (with some exceptions) affected projects older than 21 years. The same applied to the risk of divestment per unit of time as measured by the hazard rate – in Poland, its highest values were generally found for projects between 13 and 15.5 years of age (or younger), whereas in the other V4 countries the highest hazard rate was generally for projects at least 21 years' duration. In the financial and insurance sectors of Czechia, Slovakia and Hungary, the highest median survival values were associated with projects with the shortest duration in the economy (up to 2.5 years), while in Poland these were older projects, lasting 5 to 8 years. As for other services, in both Poland and Slovakia the highest median survival values were for projects not exceeding 2.5 years, whereas in the case of Czechia and Hungary these were FDI projects of 5 to 8 years' duration. In the Polish, Slovak and Hungarian manufacturing sectors, the highest median survival was recorded for FDI projects that had been ongoing for 13 to 15.5 years, while in Czechia the highest median value was observed for younger projects, namely those aged between 10 and 13 years. With regard to wholesale and retail trade, Czechia and Hungary saw the highest median survival among FDIs up to 2.5 years old. In Poland, in this sector, the highest median value was found for older projects, aged 5-8 years; in Slovakia, these were even older projects, such as those lasting 8-10 years.

4. Conclusion

The life tables used in this article allow the pace of FDI projects' 'dying' to be assessed and compared among the Visegrád Group countries. In addition, the sectoral approach to this issue makes it possible to identify the structure of divestment in these countries. In light of these results, it can be concluded that the distribution of probabilities of 'FDI death' in individual sectors shows some variation, both within and among the countries. In addition, the distribution of the median values of duration of FDI projects in particular age intervals shows a significant variation among the states in question. In particular, it was demonstrated that in Poland the

highest risk of FDI divestment in virtually all sectors of the economy was generally found in projects lasting between 13 and 15.5 years (or younger), while in the other V4 countries the age of FDI projects that were most likely to be divested was higher. In Poland, the best chances of projects being continued were for those that had existed for 5 to 8 years (in all the sectors under study), whereas in the other member states of the Visegrád Group it was usually younger projects (up to 2.5 years old) that faced the lowest risk of divestment.

Knowledge of FDI life tables makes it easier to identify the changes in investment processes involving foreign capital among the Visegrád Group countries; it may be useful to both market analysts and potential foreign investors when fulfilling their investment plans. Therefore, FDI life tables allow comparisons and assessments to be made of the degree of riskiness of an FDI project according to the economic sector, which may be important for investors when it comes to diversifying investment risk and useful when managing the FDI location process. This study should be treated as an introduction to further research and an exploration of the factors that shape the 'survival' of FDI projects and determine the risk of them being terminated within a given period of time.

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ANALIZA PORÓWNAWCZA TRWANIA BIZ W KRAJACH WYSZEHRADZKICH Z WYKORZYSTANIEM TABLIC WYMIERANIA – UJĘCIE SEKTOROWE

Streszczenie: Bezpośrednie inwestycje zagraniczne są uruchamiane w określonym momencie przez inwestorów, trwają pewien czas, a potem mogą zostać zakończone lub trwać dalej. Mogą zatem występować obserwacje zarówno kompletne, jak i ucięte, podobnie jak w analizach procesów ludnościowych, stąd zastosowanie metod demograficznych do badania przeżywalności projektów BIZ jest uzasadnione. Celem artykułu jest przedstawienie specjalnie skonstruowanych tablic trwania życia BIZ i porównanie wzorców „przeżywalności” bezpośrednich inwestycji zagranicznych według wybranych sektorów gospodarczych w krajach Grupy Wyszehradzkiej. Kraje te od lat cieszą się dużym zainteresowaniem inwestorów zagranicznych i często rywalizują ze sobą o nowe projekty BIZ. Stąd porównanie ich nie tylko pod względem procesów związanych z napływem BIZ, ale i pod względem procesów dezinwestycji wydaje się interesujące i ważne zarówno dla ekonomistów, analityków rynku, jak i dla samych inwestorów. W badaniu wykorzystano dane pochodzące z baz danych Orbis oraz Zephyr.

Słowa kluczowe: tablice trwania życia, stopa hazardu, BIZ, dezinwestycje.