

New drivers of industrialization and novel aspects of Hungarian-Chinese bilateral cooperation Chinese foreign investments in Hungary

Az iparosodás új hajtóerői és a magyar-kínai kétoldalú együttműködés újszerű vonatkozásai Kínai befektetések Magyarországon

DÁNIEL KUTTOR

Dániel KUTTOR: associate professor, Department of Regional Economics, Institute of World and Regional Economics, Faculty of Economics, University of Miskolc; H-3515 Miskolc-Egyetemváros, Hungary; kuttor.daniel@uni-miskolc.hu; <https://orcid.org/0000-0003-2229-4364>

KEYWORDS: China; industrialization; industrial policy; Flying Geese model; New Foreign Economic Strategy; Opening to the East; foreign investments

ABSTRACT: A number of foreign, partly East Asian producers have made investments into Borsod-Abaúj-Zemplén county (Northern Hungary) since the millennium. They have contributed to the renewal of the industrial structure and enlargement of manufacturing capacity. In the past decade, the meaning and significance of Chinese investment in the Miskolc agglomeration has increased. Chinese interests have been concentrated in the dominant, export-oriented branches of the regional economy. The companies (namely, Wanhua-BorsodChem, TenPao, SEG-A, JOYSON, and Chervon Auto) comprise a key and real group of members engaged in Hungarian-Chinese bilateral relations. They represent China's industrial development and expansion around the world and in Europe, as well as strengthen the high-value-added and technology-intensive market segments in the regional economy.

The study includes two main parts. In the early sections, the evolution of Chinese economic development with a special focus on industry and industrialization are introduced, while later the related political measures and initiatives are described. Presenting an understanding of the Hungarian government's reaction (the so-called New Foreign Economic Strategy) is part of the first half of the paper.

The Flying Geese Paradigm is the conceptual frame of the synthesis. The key research question concerns the nature of Chinese economic development: Does the development differ from previous East-Asian models of export-oriented industrialization? The author discusses opinions which consider the Chinese developments to be distinct from other Asian ones according to their political and market characteristics.

In the second half of the article, the Chinese companies settled in Borsod-Abaúj-Zemplén county are evaluated and their regional-level impacts and national-level lessons are identified and assessed. The listed Chinese investments, which differ in financial and legal forms, have emerged as some of the major employers and producers of the region. These considerable investments have accelerated the process of industrial renewal in key branches, although ultimately increasing the exposure and vulnerability of the entire manufacturing structure to external global factors.

The Chinese investors are bridging Borsod-Abaúj-Zemplén with diverse regions in China, East Asia. They are generating new results and raising new questions about



Hungarian-Chinese bilateral cooperation that represent original experiences and knowledge gain for both sides.

This work is an attempt to detail the creation of the cluster of Chinese companies and to draw conclusions about the entrepreneurial background, the main activities, and the stories of the respective Asian parent companies. This research will be continued to support the development and embedding of the enterprises. It is crucial effort, as the latter are not only now present but essential for Borsod-Abaúj-Zemplén and Hungary as well.

KUTTOR Dániel: egyetemi docens, Miskolci Egyetem, Gazdaságtudományi Kar, Világ- és Regionális Tudományi Intézet, Regionális Gazdaságtan Intézeti Tanszék; 3515 Miskolc-Egyetemváros; kuttor.daniel@uni-miskolc.hu; <https://orcid.org/0000-0003-2229-4364>

KULCSSZAVAK: Kína; iparosítás; iparpolitika; "repülő lúdraj" modell; Új külgazdasági stratégia; keleti nyitás; külföldi beruházások

ABSZTRAKT: Az ezredforduló óta eltelt években Borsod-Abaúj-Zemplén (BAZ) megyében (Észak-Magyarországon) számos külföldi, részben kelet-ázsiai termelővállalat hajtott végre beruházást. A beruházók hozzájárultak az ipari szerkezet megújításához és a kapacitások bővítéséhez. Az elmúlt évtizedben Miskolcon felértékelődött a kínai befektetések jelentősége és súlya. Bár a kínai érdekek különféle formában jelentek meg a térségben, közös jellemzőjük, hogy a helyi gazdaság meghatározó, exportorientált ágazatait erősítik. A vállalatok (Wanhua-BorsodChem, TenPao, SEG-A, JOYSON, Chervon Auto) a magyar-kínai kétoldalú kapcsolatok kulcsfontosságú csoportját alkotják. Kínát, az ország ipari fejlődését és térhódítását képviselik Európában, valamint erősítik a magas hozzáadott értékű és technológia-intenzív piaci szegmenseket a regionális gazdaságban.

A tanulmány két fő részből áll. Az első fejezetekben a kínai gazdaság evolúciójának bemutatására kerül sor, különös tekintettel az iparra és az iparosításra. Ezt a kapcsolódó politikai intézkedések és kezdeményezések ismertetése követi, ebből következően a magyar kormányzati reakció (Új külgazdasági stratégia) leírása is a munka első felének részét alkotja.

A repülő lúdraj modell kínálja a szintetizáló tanulmány fogalmi keretét. A legfontosabb kutatási kérdés a kínai gazdaság fejlődésének természetére vonatkozik: eltér-e a fejlődés az exportorientált iparosítás korábbi kelet-ázsiai modelljeitől? A szerző osztja azokat a véleményeket, amelyek a többi ázsiai fejlődési úthoz képest a kínai fejlődést, politikai és piaci sajátosságai okán, egyedülállóan tartják.

A cikk második felében a szerző a Borsod-Abaúj-Zemplén megyében letelepedett kínai vállalatokat mutatja be és értékeli, elemezve a regionális szintű hatásokat, levonva az országos szintű tanulságokat. Az azonosított – pénzügyi és jogi formájukat tekintve sokféle – kínai befektetések a térség jelentős munkaadójának és termelőinél jelentkeztek. A beruházások ugyan felgyorsították a kiemelt ágazatokban az ipari megújulás folyamatát, ám az érintett feldolgozóipari szegmenseket még kiszolgáltatottabbá és sebezhetőbbé tették a külső, globális tényezőknek.

A kínai befektetők Közép-Európa és Kelet-Ázsia különböző régióit kötik össze. Új eredményeket és szempontokat teremtenek a magyar-kínai kétoldalú együttműködés értékeléséhez, emellett mindkét fél számára eredeti, gyakorlati tapasztalatot és tudást szolgáltatnak. A tanulmány kísérletet tesz arra, hogy dokumentálja a kínai vállalatok BAZ megyei klaszterének létrejöttét, és következtetéseket vonjon le az ázsiai anyavállalatok működési hátteréről, fő tevékenységeiről és történetéről. A kutatás érdemes a folytatásra a vállalkozások fejlesztésének és beágyazódásának támogatása érdekében. Ez a feltárási tevékenység kulcsfontosságú, mert a vállalatok már nem csupán érzékelhetők, de jelentékeny hatást gyakorolnak Magyarország nemzetgazdasági teljesítményére.

Introduction

Among the various and diverse foreign investors in Borsod-Abaúj-Zemplén (BAZ) county, a well-distinguished group of companies of Asian origin can be identified. Their role and characteristics are unique not only regionally but also nationally, and even in Central European comparison.

This group of industrial investors, mainly from the regions of East and Southeast Asia, has been increasing moderately since the late 1990s and then in larger scale and volume since 2010. In Miskolc, Asia was the first significant foreign investor in the early stage of transition. In 1998, Shinwa from Japan created a manufacturing site in the city. Later, more Asian companies representing the so-called group of Newly Industrializing Economies (NIEs) decided to set up production capacities. The most recent decade has been dominated by investment from China.

The common feature of these companies with Asian interests (from Japan, China, and Singapore) is that they operate in the dominantly export-oriented industrial branches of BAZ county. For this reason, they are of strategic importance to the regional economy. They have contributed to the development and renewal of the region's economic structure due to their investment in the past few years. Their weight and role have increased and amplified during the different economic shocks and crises (structural, financial, pandemic) of past decades.

It is important to note that the group of companies is diverse, and the members differ in terms of ownership, legal form of operation, market position, and type of investment. Thus, both locals and foreigners have accumulated different forms of experience and learned lessons.

The article offers a review of the Chinese developments and Hungarian-Chinese relations with special attention to the secondary sector (especially manufacturing).

The article aims to answer the following research questions: 1) Did Chinese economic development follow the East Asian model? What was the national, political background to industrialization in China? 2) What has the main national political reaction of Hungary been? What are the regional impacts of Chinese industrialization in BAZ county?

The different chapters follow diverse approaches. In the next sections of the paper, the evolution of industrial policy and some related initiatives are introduced and assessed in an East Asian context. The Flying Geese (FG) paradigm is the conceptual frame of the overview. The Hungarian political reaction (the so-called 'Opening to the East') and the case of Chinese investors from BAZ county are introduced in the middle section. Finally, conclusions and statements are made based on political and entrepreneurial experiences and lessons. Some further proposals are also defined for developing these bilateral relations in the future.

The global importance of industry and the changing positions of major producers

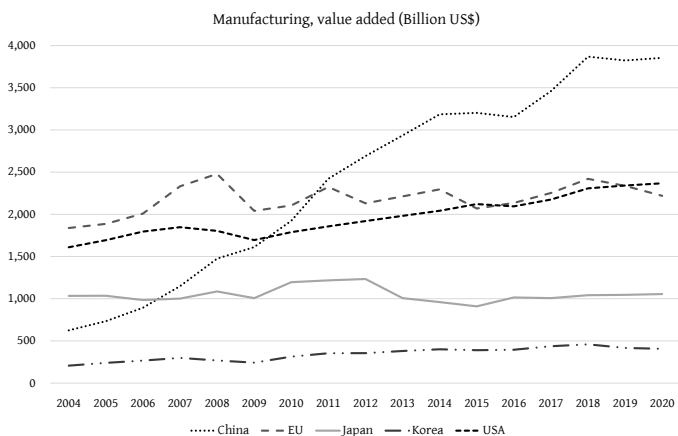
In September 2015, the United Nations General Assembly adopted the Agenda for Sustainable Development (AGENDA 2030) and the associated 17 Sustainable Development Goals (SDGs), valid until the year of 2030.

The ninth goal (SDG 9) draws attention to the importance of industry and related infrastructure and innovation, emphasizing that the added value of industry exceeds a quarter of global GDP; and that the proportion of people employed in industry is above 20 percent (in total). The analysis of the situation in both developed and developing countries emphasizes that the secondary sector (especially manufacturing) has a significant multiplier effect in employment, science, and technology and in infrastructure that promotes overall economic development.

In the past two decades (in the post-millennial period) there have been many significant sectoral and geographical shifts in the world's industrial capacity and production. The rapid economic fluctuation, different economic policy preferences, the evolution of global production chains, and the enormous development of digital technologies have led to great readjustments in world production. Both in space and time, we can witness the phenomena of industrialization and deindustrialization.

As a result of various forces, it can be said that, in addition to the traditional, influential industrial regions of the twentieth century (Western and Central Europe, North America), there has been a spectacular advance in East Asia. The rise of East Asia can be explained mainly by the industrialization of China, which has been the world's largest industrial producer (by value) since 2010/2011.

Figure 1.: Value added of TOP 5 global manufacturers, 2004-2020 (billion USD)
A világ öt legnagyobb feldolgozóipari termelőjének hozzáadott értéke, 2004-2020 (mrd USD)



Source: author's construction using WB data

***The role of manufacturing in the modernization of Asia and China –
industrialization and industrial policy***

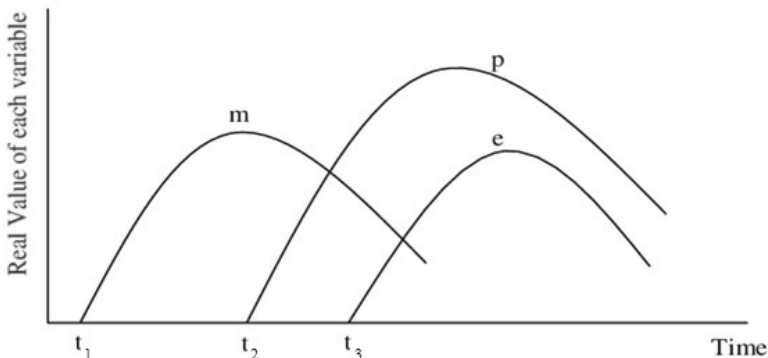
The Asian model of state-led industrialization was created by the Japanese modernization that began in the late nineteenth and early twentieth century. This first experience and success was enriched later by the Newly Industrialized Economies (NIEs – South Korea, Taiwan, Hong Kong, and Singapore), which achieved successful and sustainable convergence during the whole of the twentieth century. Did Chinese economic development follow the East Asian model?

Even if national variations and differences may be found, the key to Asian convergence and global integration is a development-supporting state that facilitates coordination and integration among industry (manufacturing), trade and innovation. The government's intervention and allocation mechanisms supported import-substituting industrialization (ISI) at an early phase to replace foreign import goods and services with domestic ones; later, export-oriented (-led) industrialization (EOI) was also supported to exploit comparative advantages associated with supplying foreign markets.

The original concept of the applied economic development model was described by Akamatsu from Japan in the mid-1930s (Schröppel, Mariko 2002). It has been named the 'Flying Geese' (FG) model of economic development after the functions that describe inverse V-shapes. The simple model uses three functions to describe the interaction of factors (exports, imports, production) over time for a selected industry and product (intraindustrial aspect). It was first developed for the woollen industry (Kumagai 2008), while other industries (branches) were incorporated afterwards.

The start of the production of a given product first induces an increase in imports, including raw materials and the necessary technologies and components

Figure 2.: Functions of the original 'Flying Geese' model
Az eredeti „repülő lúdraj“ modell függvényei



Source: Nursamsu, Hastiadi (2015, 133.) based on Kumagai (2008)

(Ozawa 2008). Increasing imports leads to the disruption of the foreign trade balance and the outflow of income. This is why, over time, it is essential to switch to production based on domestic producers and resources. During this period, support for import substitution is of the greatest importance and priority. Later, to take advantage of greater economies of scale, it is necessary to increase the export of products. Finally, the country loses its comparative advantage regarding the manufacture of products, thus exports tend to decrease, and production may even be relocated to new places (Kasahara 2013).

Over time, the FG paradigm was further developed and adapted, and even criticized. Recognizing the importance of technological development, Kojima (2000) and Ozawa (2008) pointed out that the model needs to be applied to newer sectors of production. It is important to point out that there has been a hierarchy among sectors based on their technology and knowledge intensity. The development policies of the respective Asian countries have, over time, targeted higher value-added (electronics, telecommunication, automotive, etc.) activities rather than those of lower value-added production (steel, chemicals, others).

Kojima, a scholar of Akamatsu, transformed the model from a geographical perspective, adapting it to the countries of East and South Asia. In this respect, the V-shape is created depending on when the industrialization of the state begins. Japan was the first, being followed by the NIEs in the second tier, then by the states of Southeast Asia (more or less, the members of ASEAN cooperation), and in the fourth tier, by China.

It is still debated whether Chinese industrialization can be considered a novel element of the FG model due to its size and global impact. This uniqueness of the Chinese path is emphasized by Naughton (2021), who puts it this way: especially in the early stages of opening-up (1970s), extensive government control of the Chinese state and the limited operation of central government differentiate and separate the Chinese path from others. Policies coordinating the operation of industry, or rather the policies that had an impact on it, matured in the late 1980s and early 1990s. Also, in the new era, which is said to start after the millennium, the development shows Chinese characteristics according to its institutional development and financial legal autonomy (Jin 2020).

Other authors dispute that China fully follows the so-called 'East-Asian model' and claim it is more likely to evolve differently (Lee, Hahn, Lin 2002). Corporate governance, bank-business relations, labour-market conditions and a competitive domestic market represent the most significant alterations. However, Baik (2005) states that the Chinese mode of development shares many characteristics with the East Asian developmental state model.

Industrialization with Chinese characteristics

Since the formation of the People's Republic of China in 1949, industry and the entire secondary sector have received special attention from policy makers for a variety of reasons. Not only has China's manufacturing industry undergone spectacular evolution in recent decades, but so have the related policies (Polonyi 1994). However, the goal has remained essentially unchanged: China should be able to integrate into the world economy system and global production and production chains preferably by realizing benefits and results that were previously achieved by the countries of the region (Japan, Korea and other NIEs). The success and achievements of key industries and their actors should contribute to the restoration of national pride and self-esteem. Overall, the goal was to reduce the country's exposure to foreign production, demand, advanced knowledge and technology (Xue 1986). Therefore, from the late 1970s to the present day there has been consensus about the importance and role of industry in China's government. The strategic position of the manufacturing industry is also realized due to three factors: its job-creating capacity, its role in generating technology and knowledge, and its ability to export (Defraigne 2014).

In the early decades of the People's Republic, the development of industry, guided by the Soviet model and technologies, began in line with Communist ideology (Xue 1986). Political decisions were influenced by restraints and the threat of open conflict and wars in neighbouring countries (Korea and Vietnam). The development of a spatially and sectorally diversified industry has been slow in the shadow of shocks, disasters, and crises. Determined by the unique domestic and foreign policy situation, autarchy (self-sufficiency) was called for on the basis of the use of domestic resources. The inadequacy and limits of this model eventually became clear in the last years of the 1970s, forcing new policy based on the new principle of 'Reform and Opening-up' (Brandt, Ma, Rawski 2017).

Among the priorities of the 'four modernizations' announced in parallel with the policy of 'reform and opening-up', industry, which was to be developed in order to meet domestic needs and build sufficient industrial capacity, also received special attention. It is important to emphasize that over the next four to five decades 'industrial policy' is to be interpreted as a set of decisions that reflect not only the needs of the sector, but also those that are subordinated to other social and economic goals, such as the following: reducing social and spatial inequalities; supporting social and political harmony and the system of the country; protecting the environment and ensuring energy security; and reducing social costs in the broadest sense.

All these factors explain why the term 'industrial policy' was first declared relative late in 1989, at the state level. The Council of State then issued a document entitled "Decisions on Important Issues in Industrial Policy in Our Time". In 1994,

with the approval of the Council of State, a document entitled “Outline of the National Industrial Policy of the 1990s” was published. In 2002, the 16th People’s Assembly called for a new path for industrial policy. The National Medium and Long-Term Program for Science and Technology Development was adopted in 2006, coordinating and orienting resources for the development of new domestic technologies until 2020. Although the program did not have a direct industrial focus, (especially since the post-2008 crisis) it has become an important framework and funding body for industrial restructuring and development. The experience and new goals were summarized in the programme called “Strategic Emerging Industry 2010”. Until 2020, sixteen so-called mega-projects were funded to create domestic innovation capacity and outcomes. In terms of developing domestic innovation capacity, there was a desire to give a greater role to state-owned enterprises (SOEs), which, in cooperation with universities and technology parks, are designed to promote the development of science and technology (Wu 2005).

Throughout, state-owned companies have played a key role in the creation and development of domestic industrial capacity. In spite of several programs for liberalization, privatization, and reorganization, SOEs have maintained their important role (ca. 50%) and weight in terms of industrial added value, despite the decline in the share of employment they account for (ca. 25%). The extent and intensity of state intervention varied considerably among periods and sectors but in all cases significantly altered the conditions of pure competition in the Western sense. State control, regulation, and coordination in labour-intensive light industry (manufacture of textiles, footwear, toys, household appliances) has been less than in the technology-intensive, strategic sectors. Companies operating in key areas (mining, energy, engineering, IT) were subject to special regulations (Defraigne 2014).

It was a long-lasting target of industrial development to create sufficient capital and knowledge concentration in the key market segments. From the 1990s onwards, there was a gradual change in the hierarchy of goals, which put efficiency (i.e., efficient operations) at the top of the hierarchy. In 1997, the Chinese Communist Party adopted guidelines stating that resources should be directed to large corporations and that smaller or inefficient ones were to be closed or sold (privatized). There has been strong differentiation between companies, ranging from zombie companies to those in the ‘national champions’ category (Weber 2021).

The typical weaknesses of the companies were included over employment; a low level of profitability; limited innovation capacity; limited managerial experience in the international environment (much less transnationality); and a lack of internationally known and recognized companies and their products (banking, oil, telephones) (Zhou, Lazonick, Sun 2016).

After the millennium, state interventions and subsidies were oriented to those companies that could also compete on a global market. The State-owned

Assets Supervision and Administration Commission (SASAC) of the State Council was appointed to help with the merger and acquisitions of approximately 200 mainly SOEs, resulting in 40-50 companies that are able to operate under global market conditions (Wei 2020).

The twenty-first century represents a new era not only in terms of the management and regulation of industrial companies, but also in terms of overall industrial policy, due to which factors and changes we can talk about a paradigm shift: this has included China's membership in the WTO (2001); China's reaching a dominant position on the global industrial market (since 2010); a series of crises (financial imbalances - 2008, the coronavirus pandemic - 2019) – all these factors have opened up a new era for the whole world.

All this has contributed to a fundamental change in the international business and financial environment that China has existed in since the 1970s. Falling external market demand, the fluctuation of capital flows and growing protectionism have all had a negative effect on China's export-oriented industry. Accordingly, China has been forced to change its strategy (Yu 2016).

In addition to the weakening effect of external growth factors, there was a need to increase domestic consumption and demand. The situation has attracted the attention of decision-makers and politicians to increasing the efficiency of the use and activation of domestic factors, as well as to defining key companies (e.g., petrochemicals, machinery, automotive, etc.). In line with this, it has become necessary to accelerate industrial restructuring. The creation of new industries and the introduction and adaptation of modern applied technologies had to be carried out simultaneously. Furthermore, the integration of information and communication technologies into most areas of industry has been of key priority for maintaining Chinese-style industrialization (Li, Pu 2014). The transformation of large industrial capacity into successful manufacturing operations, the elimination of outdated and harmful capacity, and the development and expansion of infrastructure and services are planned to be implemented gradually (Csanádi, Gyuris 2018).

From the mid-2010s onwards the priorities of green and sustainable development, the concept of the circular economy, and the expectation of a lower level of emissions and environmental impact were officially and prominently announced and displayed. In line with this, quality-related aspects are also starting to shape industrial policy (Weber 2021), as well as the need to increase the efficiency and sustainability of production and the use of energy and raw materials, which still represents the major challenge for most producers. Decision-makers have identified innovation as a key factor for the future, with a view to advancing industrial development and helping Chinese branches and China herself move into the high-end category and take up a more advantageous position in global production chains (Kennedy 2017).

Related Chinese initiatives

Amid fundamental changes in the world economy, China has taken up an increasingly active role in foreign markets. This advancement has been fostered by state-acknowledged and coordinated strategies and initiatives. Three of the initiatives used to increase the competitiveness and foreign market activity of Chinese companies have a special role and meaning. From an industrial viewpoint, these two are the 'Go global' program and the 'Belt and Road' initiative. The two affect the sectoral and spatial location of Chinese producers in China and globally too.

The aim of the 'Go out' or 'Go global' program announced in 1999 is to orient domestic companies towards foreign expansion, as well as support the accumulation of their intangible assets (knowledge, technology, and know-how). In the early 2000s, preferential financial instruments offered by the China Export-Import Bank and the National Development and Reform Commission made it possible to finance projects to develop human resources, acquire the necessary assets, establish supportive corporate governance, and even support market operations (acquisitions and mergers). The program has contributed to the weak but increasing trend to outflow of capital from the country for investment purposes (direct capital; Outward Direct Investment [ODI]). The program also sought investment areas of primarily national economic importance abroad, associated with five priorities and objectives: market-seeking, raw material-seeking, strategic resource-seeking, efficiency-seeking, and diversifying. Especially after the crisis of 2008, the goal was to create access to strategic values, assets, capacities, and knowledge in developed countries.

The funding program launched by the Chinese State Council for the Development of International Trade was linked to the above. The program served several priorities: cross-border outsourcing of Chinese direct capital; diversification of production; increasing the quality and validity of related projects; the operation of new financial channels; and increasing the awareness and recognition of Chinese companies and their brands, globally.

The 'Belt and Road Initiative' (BRI), which was originally called 'One Belt, One Road', was first directed at China's western neighbour, Kazakhstan, in a deliberate way and with a value-based message by Xi Jinping during a visit in 2013. The development framework, which has been slowly expanding for a decade, is now more than a vision; it is a reality. Completed or ongoing projects are funded by the Asian Infrastructure Investment Bank (AIIB) and the Silk Road Fund to complement other national and multilateral resources. The importance and status of the initiative is indicated by the fact that it has also been incorporated into the Chinese constitution since 2017.

Building on historical traditions and experience, the initiative seeks to better redefine and schematize the relations of the 'old world', primarily the individual regions of Eurasia, through hoped-for-Chinese-funded and implemented

projects (Eszterhai 2018). The spatial appearance of the concept can be interpreted more as a network or a matrix that emphasizes the realization of mutual benefits. The Chinese side hopes that the initiative will have four effects: market-enhancing, knowledge-enhancing, efficiency-enhancing, and cooperation-enhancing (Csizmadia 2017). The 'Belt and Road' initiative can be interpreted as China's economic and geopolitical response; a message it has communicated partly to its rivals and partly to actors in the developing world (Balogh 2017).

National political response: Hungary's New Foreign Economic Strategy and the 'Opening to the East'

In April 2012, the Government of Hungary announced its new foreign economic strategy in the document "The Next Step, the Széll Kálmán Plan 2.0", the aim of which is to develop a new approach and form a new perspective. The main declared task of the redefined foreign economic policy is to contribute to Hungary's growth-, employment-, and balance-related goals. Therefore, it is necessary to increase the exports of the Hungarian economy and diversify export flows both in terms of geography and product structure. Over time, reference to the so-called 'Eastern Opening' has become widespread in professional and wider communities (Bernek 2018). The government's intention is to reduce Hungary's high level of dependence on European Union markets and supplement this through collaboration with so-called emerging countries that have shown rapid economic growth, especially in Asia. The strategy draws special attention to the importance of the Indian, Chinese, and Russian markets. In addition to increasing the volume and restructuring of foreign trade, the foreign economic strategy defined the goal of encouraging foreign investors to come to Hungary. Several positive effects were expected from the new investments in the following respects: economic growth and employment; improving the international perception and market position of Hungarian economic actors; increasing the revenue side of the budget; importing modern technologies to Hungary; and strengthening the background industry of small- and medium-sized enterprises in Hungary.

In line with its economic development goals, investments were made in the eastern and southern regions of Hungary in the areas of manufacturing and R&D. The applicable instruments were investment, employment and training subsidies, and development tax incentives awarded by individual government decisions.

Economic relations in East Asia have gained new momentum with the announcement of the Foreign Economic Strategy. Accordingly, in the last decade Hungary has seen many successes in its relations with China, Japan, Korea, and even India.

Since their establishment in 1949, Hungarian-Chinese diplomatic relations have significantly fluctuated due to the changing foreign and domestic political situation of the two parties. It is undeniable that the last decade has been one of the most successful periods for bilateral relations (Péti 2017). In this and the following sections of the paper, some of the results achieved in the field of economics are presented, with special attention to industrial investment into Northern Hungary with an Asian and Chinese background (Moldicz 2017).

The favourable world economic and political environment and the dynamically expanding network of relations have made China perceptible and visible both in Hungary and across the entire Central and Eastern European region as a business partner and investor. In recent years, Hungary has attracted several institutions as well as functions, which are mainly clustered in Budapest and Central Hungary (the clearing centre of the Bank of China, the regional office of the China Tourism Bureau, etc.).

Asian countries are traditional trading partners of Hungary. Beside Russia, China dominates this group and relationship. However other emerging East and South Asian partners are visible and account for a larger share of merchandise and capital flows.

In 2020, Asian markets accounted for the largest non-European proportion of Hungary's foreign commodity trade portfolio. The aggregated numbers show a deficit. Asia attracts 8-10 percent of all Hungarian exports, led by the two Eurasian countries (Russia and Turkey) and followed by three East Asian ones (China, Japan, and South Korea). Russian, Turkish, and Chinese export volume each exceed or are near the threshold of two billion dollar. Hungary's Asia-related imports account for almost double that of exports both in value and volume (18-20%). China and Russia are the outstanding import partners for the country (the joint volume of imports of the two is more than ten billion USD).

Asia appears to be not only a trading partner of growing significance to Hungary and the entire Central European region, but an investor with an accumulated stock of capital and some new, strategic technologies. The cumulated stock of FDI inward investment from Asia into Hungary was worth more than ten billion USD in 2018 (Szunomár 2020). Japan and China had roughly the same share of the total (one-third each).

The Central European countries vary considerably in terms of the value of trade and inward investment from Asia. While Hungary's commercial performance is not outstanding at all compared to that of other Central European countries, Hungary is first in terms of Asian FDI – i.e., has the largest share of inward FDI stock from Asia (Gubik, Sass, Szunomár 2020). Those Asian manufacturing investments (especially those associated with Japanese and Chinese investors) show spatial concentration in Borsod-Abaúj-Zemplén county, clustered around Miskolc.

Evidently, the New Strategy and the 'Opening to the East' expressed the Hungarian Government's intention to diversify the country's foreign economic

relations and assign a greater role to the Asian economies. However, the outcomes of the political and economic efforts are twofold. On one hand, despite the targets, Hungary's trade relations have not been transformed considerably in the last decade, thus the country's exports certainly remain EU-dependent (Becsey 2014). Export volumes to Asia have increased, but the balance of trade with Asian countries has worsened. On the other hand, bilateral political relations have intensified through the creation of some mutual benefits and strategic joint projects. East Asian investors have become more active and account for a larger share of the total, although their weight in the overall national portfolio could not be altered (Irimescu 2019).

Regional and company-level analysis: Chinese investments into Borsod-Abaúj-Zemplén

Borsod-Abaúj-Zemplén is one of the nineteen counties of Hungary (Budapest excluded), located in North Hungary, bordered by Slovakia to the north. Among the NUTS3-level territorial units (called counties) of Hungary, BAZ is ranked second by size of population and territory as well.

During the entire transition and integration period, BAZ faced many socioeconomic crises and challenges. Due to the vulnerable socioeconomic situation, the county was particularly exposed to the collapse of the socialist economic system and coordination and later shocks (financial, pandemic) (Rechnitzer, Tóth 2014). The monostructure of regional industry, the unfavourable labour market conditions, the underdeveloped infrastructure and a changing geopolitical frame all hindered the renewal and catching up process of the region and moderated the attraction of Foreign Direct Investment (FDI) (Lux 2017b). The new and delayed investments have slowly started a change in manufacturing in the twenty-first century. However, thanks to its industrial heritage and traditions,

Table 1.: Main statistics for Borsod-Abaúj-Zemplén county (2011/2015/2020)
Borsod-Abaúj-Zemplén megye főbb adatai (2011/2015/2020)

	Figures (2011)	% of total	Figures (2015)	% of total	Figures (2020)	% of total
Population (capita)	684,793	6.87	667,594	6.77	637,064	6.55
Territory (sq. km)	7,247	7.79	7,247	7.79	7,247	7.79
GDP (PPS. m. EUR)	7,079.70	4.13	9,093.00	4.79	9,895.10	4.59
GDP per capita (PPS. EUR)	10,400	41 (of EU average)	13,700	50 (of EU average)	15,600	52 (of EU average)
Industry. production value (b. HUF)	1,921.77	8.48	2,345.03	8.57	2,913.73	8.51

Source: author's construction, using KSH data

the unexploited capacity of BAZ has become one of the key areas for the 'Opening to the East' initiative (Nagy, Lengyel, Udvari 2020).

Promotion of investment has resulted in the renewal of industry, contributing to a higher level of output, although the new production structure has greater export dependency than the national average (Lux 2017a). Renewal and growth were associated with a massive concentration of production both in space and sector (Kuttor 2011). Nowadays, three micro regions (Miskolc, Kazincbarcika, Tiszaújváros) and two branches (chemical and machine production) account for eight- to nine-tenths of total industrial value (Kiss 2016).

In an unfavourable situation, investment has created new impetus. A diverse mixture of investors from EU and Asia has helped in the reindustrialization of old, out-of-date structures. Accordingly, in 2021 BAZ became the third ranking county according to total industrial output after the Western country of Győr-Moson-Sopron, and the centrally located Pest (see Table 2) (KSH). This improved position is thanks to the attraction of new, significantly Asian investment (Kuttor, Hegyi-Kéri 2017).

The appearance of Asia in the region was not new, as Shinwa Ltd. (a second-level automotive supplier) has been operating in Miskolc since 1998, and the Singapore-based Patec Group established a production site in the city in 2008. However, the 2010s, with the advent of high-volume Chinese capital, represented a new phase (Sass et al. 2019).

In the following section, companies with Chinese investors and owners are introduced and evaluated. In 2022 there are four manufacturing corporations in Miskolc and the associated suburban areas, in addition to one more firm whose development is in progress (Table 2).

Among the Chinese investments made or in progress in Borsod-Abaúj-Zemplén County, the acquisition of BorsodChem by the Wanhua Group can be considered unique in several respects. It differs from the others partly due to the volume of the financial transactions, and partly due to its chronology (early 2010s) and its sectoral affiliation (production of chemical raw materials).

The Borsod Chemical Plant (Borsodi Vegyi Kombinát, BVK), established in 1949, was previously used mainly to produce fertilizers, and later in the production of special chemical products, mainly raw material for plastics. The company was privatized in 1991 and has since operated under the name BorsodChem in the form of a joint stock company. In 2011, Wanhua Industrial Corp. of Yantai acquired BorsodChem by buying out its previous shareholders, ushering in a new era in the history of both manufacturing companies.

The State Planning Commission approved in 1978 the construction of an imitation leather factory in the port city of Yantai in East China's Shandong Province. Construction and development progressed rapidly so within a short time the site became China's number-one producer of polyurethane. The company thus created has been called Wanhua since 1998, after several name

Table 2.: Main statistics of largest companies in Borsod-Abaúj-Zemplén with a Chinese interest
Borsod-Abaúj-Zemplén megye legnagyobb kínai érdekeltségű vállalatainak főbb adatai

<i>Name of Hungarian firm (regional ranking)</i>	<i>Main activity, profile (by TEÁOR)</i>	<i>Number of employed (2020)</i>	<i>Revenue (2020, m EUR)</i>
BorsodChem Zrt. (1.)	Manufacture of chemicals and chemical products (2010-2011)	3,000	1,400
Starters E-Components Generators Automotive Hungary Kft. (8.)	Manufacture of electric motors, generators and transformers (2018)	1,500	300
Joyson Safety Systems Hungary Kft. (10.)	Manufacture of parts and accessories for motor vehicles (2018)	2,000	350
TenPao Electronics Hungary Kft. (-)	Manufacture of electrical equipment (2017)	120	11
Chervon Auto Precíziós Technológia Kft. (-)	Manufacture of electricity distribution and control apparatus (2022)	140 (planned)	-

Source: author's construction based on "Észak-Magyarország" (2020)

changes. The company's shares have been listed on the Shanghai Stock Exchange since 2001. Today, Wanhua is one of the world's largest producers of methylene diphenyl diisocyanate (MDI) and one of Europe's leading suppliers of toluene diisocyanate (TDI). The company operates in five other important locations within China (Beijing, Shanghai, Chengdu, Macao, and Ningbo). It has been in China's TOP500 national and Forbes 2000 international listings since 2019. According to financial data for 2021, its sales exceeded 10 billion US dollars (USD), and it accounts for 17,000 jobs worldwide.

The Kazincbarcika site is an important part of Wanhua's network, which it is developing now and in the future with a view to diversifying. The largest of the investments, an aniline project with a total value of almost HUF 50 billion, involves the establishment of three new production plants. In addition, the production of HPM (High Performance Material), a thermoplastic polyurethane plastic (a more processed version of MDI), will continue to be used to produce a range of products for everyday use. This HPM will be the first product in Hungary to be manufactured under the Wanhua license, and has not been manufactured by BorsodChem before.

In addition to economic results, close economic and political ties have developed in recent years between Borsod-Abaúj-Zemplén County and the Chinese province of Shandong, home to Wanhua (Szabados 2013).

Nowadays, Chinese investors have also appeared behind the two large employers in Miskolc. Chinese interest in companies previously owned by Japan and Germany has risen in recent years.

The former Japanese-German auto parts supplier Takata settled in Miskolc earlier in 2014. The Miskolc plant started and continues to manufacture complete

airbags and airbag systems (complete airbag modules, airbag components, and inflator products). Production quickly picked up and the employment of thousands of workers in the original plan was implemented quickly, and over time the number of workers doubled to include hundreds of development engineers.

In June 2017, the situation of the then Japanese parent company, which dates back more than 80 years, faltered, and the company demanded financial protection as bankruptcy was imminent. This is because millions of cars had to be recalled worldwide due to defective airbags. This crisis put the new investor in a difficult position. By the end of 2017, a deal between Key Safety Systems (KSS) and Japan's Takata soon occurred, according to which the former undertook to buy almost all the latter's assets (including the Miskolc unit). The Miskolc factory did not use the technology that caused the fatal error or problem.

Key Safety Systems is in fact a US subsidiary of Ningbo Joyson Electronics in China. With the completion of the business, Joyson Electronics has become not only Miskolc's but one of the world's largest industrial players in the security equipment supplier market. The company has 50,000 employees in about 30 countries. Joyson Electronics was established in 2004 with headquarters in Ningbo. Since 2011, a significant number of foreign acquisitions have been carried out, giving access to both KSS and Takata. The company manufactures electric car parts (heating and safety systems, electric motors) for the needs and orders of the largest European and North American car brands. The company is committed to developing and deploying new technologies and patents.

The other Chinese investor emerged through the acquisition of a long-established company with significant capacity in the Miskolc area. The company, formerly known as Bosch SG (Starter Motors & Generators), has been present in Miskolc since 2003 and is known for building starters and generators in the county seat, building on a tradition of about 100 years. The company was engaged in the development and manufacture of automotive products. The organization, which was formed from the renowned Bosch division in early 2018, became known as SEG-Automotive both globally and locally. The new-format company is building a strategy to preserve and further develop more than a century of automotive knowledge and innovation, from creating starters, generators, and start-stop systems to new hybrid solutions. As a key player (at 16 sites), SEG-Automotive is shaping the development of the entire automotive industry on the path of development from combustion engines to electric propulsion. It aims to provide efficient technologies by delivering low-carbon solutions. In terms of the automotive industry, it is present in the most important market segments of the world, employing more than 8,000 people. It operates a network of high quality, modern engineering solutions and products from Germany to China. The company will continue to operate successfully under the direction of Zhengzhou Coal Mining Machinery Group Co. Ltd. as an owner and an investment group.

Zhengzhou Coal Mining Machinery Group Co., Ltd. (ZMJ) was established in 1958 and is currently one of the largest mining machinery development and manufacturing companies in the world. ZMJ shares are also listed on the Shanghai and Hong Kong stock exchanges. Today, the leading Chinese automotive supplier, thanks to its successful acquisitions, has become an important player in the automotive industry. The acquisition of SEG-Automotive also fits this path of development, further strengthening the automotive presence. The group has 22 subsidiaries, joint stock companies, and holding companies worldwide.

Over time, Starters E-Components Generators Automotive Hungary moved from Miskolc to Szirmabesenyő (a suburb of Miskolc). Production, which has been relocated to a modern, smart facility (with the largest production capacity in Europe), is an integral and important part of the company's global growth and production strategy.

In 2017, TenPao Electronics, a family business that arrived as a brown-field investment, made a smaller investment in volume than those mentioned above. The electronics manufacturing unit was the company's first location outside of Asia. The choice came down to Miskolc at the time, and since then the parent company has not had any companies elsewhere in Europe.

TenPao's parent company was founded in 1979 in Hong Kong. Its main activity was the production of electrical components (transformers). Within a decade, production had spread to other Chinese locations, mostly in southern China. In parallel with this geographical expansion, the product range also increased, supplemented by other products (adapters, chargers, switches, industrial devices, and other applications). Innovation has always played a key role in the life of the company. Since 2004 laboratory and R&D capacities have constantly expanded. The company's securities have been traded on the Hong Kong Stock Exchange since 2015. TenPao was the first company to produce hand-tool chargers for European manufacturers (especially Bosch). Production has developed a lot in recent years and today they also produce printed circuit boards and electrical switches. Development is continuous, and since 2019 the Miskolc plant has been expanded several times. This was due to the arrival of new projects, so capacities had to be expanded using a new hall. In addition to the expansion of capacity, another important step in the history of the factory was the establishment of a research and development department. Thus, in addition to pre-existing products, the domestic company also participates in the development and research of new, innovative products.

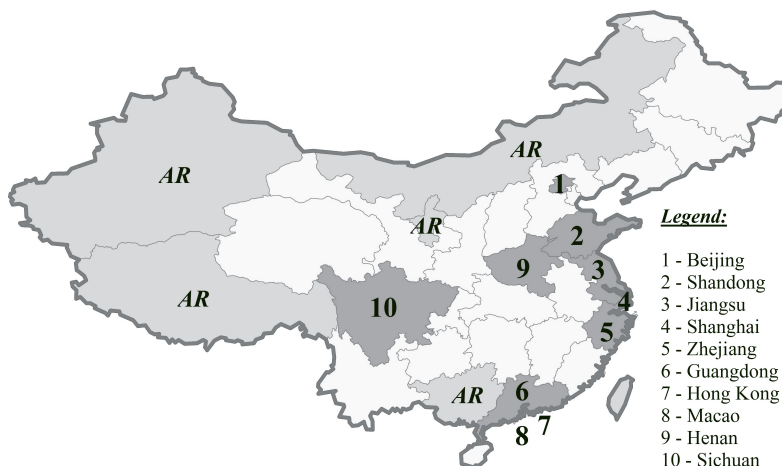
Finally, Chervon Auto's ongoing investment, is expanding China's presence in the Borsod-Abaúj-Zemplén secondary sector. Chervon Auto is currently setting up its first plant outside of China in Miskolc, which is planned to produce parts exclusively for electric cars using die-casting and other metalworking equipment. The company's die-casting equipment will have unique dimensions both in Hungary and in the region, with a capacity many times that of the average machine commonly used in die casting.

The Chervon Group was founded about 30 years ago and originally traded in power tools. Shortly after its foundation it manufactured contracted products for major brands in the field of power tools. Its most influential partner was Bosch. Today, it has developed its own portfolio in the field of power tools and automotive electrical components. Over time, the group has accumulated significant manufacturing capacity, experience, and expertise in the field of die casting and metalworking of smaller parts, which it has been able to utilize in the field of washing machine parts in addition to automotive parts. Founded in China in 2012, Chervon Auto is a relatively new, dynamically developing part of the Nanjing-based Chervon Group. The company has grown rapidly since its inception, and from 2019 the company will be listed on the Shanghai Stock Exchange.

Chervon Auto manufactures parts for both electric vehicles and internal combustion-engine cars. Today, the electric vehicle parts are part of a dynamically growing business. The Hungarian factory will focus exclusively on the components of electric cars (battery housings, axles, and gears). They focus primarily on serving the mid- and premium segment, with automakers fulfilling orders from direct and Tier 1 suppliers. Once completed, the plant is expected to employ 140 people. The Chervon Group's innovative yet traditional culture is clearly characterized by the fact that most senior executives have worked for the company from the beginning.

It is important to note that the above-mentioned companies are not only main producers and employers in the local economy, but bridge different regions in Hungary and China as well. The most advanced and industrialized areas of

Figure 3.: Centres and locations of the production of companies in China by province
(AR = Autonomous Region)
Vállalati központok és telephelyek elhelyezkedése Kína tartományaiban
(AR = autonóm régió)



Source: author's construction (with ARCMAP 10.1)

China are represented in Hungary. Thus, the companies are forming and creating stable connections between European and Asian territories.

The main motivation for Chinese investments being localized in North Hungary are as follows: free access and proximity to EU markets; constructive logistical situation and cost levels; state-of-the-art infrastructure in industrial parks; favourable supply chain structures and environmental conditions; government orientation and subsidies; the role of the Hungarian Promotion Agency (HIPA); and the presence of the University of Miskolc (with technical engineering faculties, laboratories, and testing capacities, and a Chinese Institute).

To sum up, the current Chinese investments have internationalized the business environment in BAZ, created new economic ties with East Asia, and additionally renewed and enlarged the county's traditional industrial capacities and structures (re-industrialization). Moreover, the companies have created new activities and technologies in local manufacturing branches, resulting in so-called neo-industrialization of the secondary sector.

Conclusions

Investors from East Asia have been represented and played an active role in Central Europe's economy since the early 1990s. They have contributed to the integration and diversification of these economies; modernized the manufacturing sector; and finally maintained and enlarged export capacity.

First, Japanese companies appeared in the region, then other industrialized Asian countries and territories (Korea, Singapore, etc) also became the origin of direct investment. In recent years China has appeared as a new investor; the volume of Chinese investment has been significantly increased and is now third in size after Japan and South Korea. The recent Chinese investments have stabilized and developed the secondary sector in BAZ county, while at the same time fostering the vulnerability and exposure of the local economy to external actors and global factors. The strong dependency on the performance of machinery and chemical industry branches has not been reduced.

In the present paper the author has attempted to create the conceptual background for the correct interpretation of the Chinese companies' (especially the SOE's) appearance based on the traditional model of export and innovation-driven industrialization. China can be considered part of the FG model, although it follows a different path and trajectory due to the particular effect of an enormous home market and state-coordinated policies combined with national strategies and initiatives. The Chinese development model can be said to be special yet different, and distinct from other East Asian ones. The industrial and entrepreneurial cases and companies' practices verify this statement.

Borsod-Abaúj-Zemplén county has witnessed the evolution of Asian investments and now become a place for the unique merger of Asian industrial investors. The situation can be partly considered a consequence of the Hungarian national initiative called 'Opening to the East', besides other market mechanisms like M&As (Mergers and Acquisitions) and the localization of supply chains. The cases of the companies and their evolution show some evidence of the FG paradigm and verify its intra and inter-industrial aspects. The Japanese, Singaporean, and Chinese companies demonstrate wide variety from different perspectives (main activity, legal form, size, etc.), but all are producers in the export-oriented branches of the regional economy. They are main employers and producers, playing essential roles in the future socioeconomic development of Northern Hungary.

Hungary's New Foreign Economic Strategy and the 'Opening to the East' have had a minor impact on commodity flows at the national level so far but have apparently achieved more at regional and local levels in BAZ. The government's efforts to attract and settle new investors have fortunately met with some approving and supportive business decisions, thereby creating a cluster of functioning Asian industrial firms in and around Miskolc city. This group of companies can be a bridgehead for further Asian investment, although it is important to note that this non-EU/non-European entrepreneurial community needs special attention and treatment from national and local governments, organs, and institutions in the future.

Due to these companies, BAZ represents a unique place to observe and understand China's foreign investment in practice and existence. The firms are of regional and national significance. It is essential to help them develop. The regional and national Chinese Institution can guarantee the exchange of professionals, employees, educators, and students, and the flow of information, as well as continuous communication. Dialogue and communication have to be maintained between political parties, especially during this conflictual and stressful period.

In view of the mutually beneficial commercial and financial relations and benefits, the University of Miskolc intends to support bilateral cooperation with further (linguistic, engineering, and management) training, programs, and courses. This group of companies with East Asian interests is playing an important role and having a special effect on the national and local economic situation and employment, and accordingly deserve more attention from decision makers and academic and business actors.

References

- Baek, S.-W. (2005): Does China follow "the East Asian development model"? *Journal of Contemporary Asia*, 4., 485-498. <https://doi.org/10.1080/00472330580000281>

- Balogh, L. S. (2017): Could China Be the Winner of the Next Industrial Revolution? *Financial and Economic Review, Special Issue*, January, 16., 73-100.
- Becsey Zs. (2014): A keleti nyitás súlya a magyar külgazdaságban. *Polgári Szemle*, 1-2., 428-443.
- Bernekek Á. (2018): Hazánk keleti nyitási politikája és a 21. századi geopolitikai stratégiák összefüggései. *Külgügyi Szemle*, 2., 122-144.
- Brandt, L., Ma, D., Rawski, T. G. (2017): Industrialization in China. In: O'Rourke, K. H., Williamson, J. G. (eds.): *The Spread of Modern Industry to the Periphery since 1871*. Oxford Scholarship DOI: 10.1093/acprof:oso/9780198753643.003.0009
- Csanádi M., Gyuris F. (2018): Átalakuló pártállam és egyenlőtlen túlfűtöttség Kínában a globális válság idején. *Tér és Társadalom*, 1., 50-75. <https://doi.org/10.17649/TET.32.1.2897>
- Csizmadia N. (2017): Az Új Selyemút geopolitikai jelentősége – a XXI. századi Selyemút. In: Péti M. (szerk.): *Az Új Selyemút Gazdasági Övezet geostartégiai és földrajzi dimenziói*. Corvinus Printing, BCE, Budapest, 37-63.
- Defraigne, J. C. (2014): *China's Industrial Policy*. Europe China Research and Advice Network (ECRAN) 2010/256-524, 2014 June
- Eszterhai, V. (2018): One Belt One Road: New International Rules and Values. In: Hamar I., Besenyő J. (szerk.): *Kína a globális kihívások tükrében = China in the Light of Global Challenges*. ELTE Konfuciusz Intézet, Budapest, 252-265.
- Gubik, A., Sass, M., Szunomár, Á. (2020): Asian Foreign Direct Investments in the Visegrad Countries: What Are Their Motivations for Coming Indirectly? *DANUBE: Law, Economics and Social Issues Review*, 3., 239-252. DOI:10.2478/danb-2020-0014
- Irimescu, L. (2019): *Hungary's Eastern Opening: Political and Economic Impacts*. KKI Series of the Institute for Foreign Affairs and Trade. Policy Brief, Institute for Foreign Affairs and Trade, 57.
- Jin, B. (2020): *China's Path of Industrialization Endeavours and Inclusiveness*. Springer Singapore
- Kasahara, S. (2013): *The Asian Developmental State and the Flying Geese Paradigm*. 2013 November, United Nations
- Kennedy, S. (2017): *The Fat Tech Dragon: Benchmarking China's Innovation Drive*. Center for Strategic & International Studies, Washington
- Kiss, É. (2016): W-crisis in Hungarian industries: effects and strategies from the viewpoint of enterprises. In: Wilson-Flores, O. (ed.): *Economic crises: risk factors, management practices and social impacts*. Nova Science Publishers, New York, USA, 45-81.
- Kojima, K. (2000): The "flying geese" model of Asian economic development: origin, theoretical extensions, and regional policy implications. *Journal of Asian Economics*, 4., 375-401. [https://doi.org/10.1016/S1049-0078\(00\)00067-1](https://doi.org/10.1016/S1049-0078(00)00067-1)
- Kumagai, S. (2008): *A journey through the secret history of the Flying Geese Model*. IDE Discussion Papers 158, Institute of Developing Economies, Japan External Trade Organization (JETRO)
- Kuttor, D., Hegyi-Kéri, Á. (2017): Reason for and Effects of the Deindustrialization in Visegrad Countries. In: Bildirci, M., Zehir, C., Kayıkçı, F. Karagöz, M., Bakırtaş, T. (eds.): *Istanbul as a global financial center*. Cambridge Scholars Publishing, Newcastle upon Tyne, UK, 291-306.
- Kuttor, D. (2011): Spatial effects of industrial restructuring in the Visegrád countries. *Theory, Methodology, Practice*. Miskolc, 51-57.
- Lee, K., Hahn, D., Lin, J. (2002): Is China Following the East Asian Model? A "Comparative Institutional Analysis" Perspective. *China Review*, 1. The Chinese University of Hong Kong Press, 85-120. DOI:10.1080/00472330580000281
- Li, J., Pu, P. (2014): *Reconstructing China*. Beijing Jinghua Hucais Printing
- Lux G. (2017a): A külföldi működő tőke által vezérelt iparfejlesztési modell és határai Közép-Európában. *Tér és Társadalom*, 1., 30-52. <https://doi.org/10.17649/TET.31.1.2801>
- Lux, G. (2017b): Regional development paths in Central and Eastern Europe and the driving forces of restructuring. In: Lux, G., Horváth, Gy. (eds.): *The Routledge Handbook to Regional Development in Central and Eastern Europe*. New York (NY), USA, London, UK Routledge, 1-12.
- Moldicz, Cs. (2017): *China's attraction: the Case of Central Europe*. Budapest, Budapest Business School, OBIC

- Nagy, B., Lengyel, I., Udvari, B. (2020): Reindustrialization patterns in the post-socialist EU members: a comparative study between 2000 and 2017. *European Journal of Comparative Economics*, Cattaneo University (LIUC), December, 2., 253-275.
- Naughton, B. (2021): *The Rise of China's Industrial Policy, 1978 to 2020*. Universidad Nacional Autónoma de México
- Nursamsu, S., Hastiadi, F. F. (2015): Analysis of International R&D Spillover from International Trade and Foreign Direct Investment Channel: Evidence from Asian Newly Industrialized Countries. *Journal of Economic Cooperation and Development*, 2., 125-154.
- Ozawa, T. (2008): *History repeats itself: Evolutionary structural change and investment in infrastructure overseas, flying geese style*. Working Paper Series No. 261. Center on Japanese Economy and Business, Columbia Business School
- Ozawa, T. (2011): The (Japan-Born) 'Flying-Geese' Theory of Economic Development Revisited – and Reformulated from a Structuralist Perspective. *Global Policy*, 3., October, 272-285. <https://orcid.org/10.1111/j.1758.2011.00093.x>
- Péti M. (2017): *Az Új Selyemút Gazdasági Övezet geostartégiai és földrajzi dimenziói*. Budapest, Corvinus Printing, BCE
- Polonyi P. (1994): *Kína története*. Maecenas Kiadó, Budapest
- Rechnitzer, J., Tóth, T. (2014): Regional Economic Growth Paths: Theories and Practice. *Journal of Business and Economics*, 12., 2341-2351. DOI:10.15341/jbe(2155-7950)/12.05.2014/015
- Sass, M., Szunomár, Á., Gubik, A., Kiran, S., Ozsvald, É. (2019): Employee Relations at Asian Subsidiaries in Hungary: Do Home or Host Country Factors Dominate? *East European Journal of Society and Politics*, 3., 23-48. <https://doi.org/10.17356/ieejsp.v5i3.562>
- Schröppel, C., Mariko, N. (2002): The changing interpretation of the Flying Geese model of economic development. *Japanstudien*, 1. German Institute for Japanese Studies <https://doi.org/10.1080/09386491.2003.11826895>
- Szabados M. (2013): A BorsodChem szerepe a Wanhua Industrial Group nemzetközi stratégiájában. *Geopolitika a 21. században*, 4., 214-222.
- Szunomár, Á. (2020): Home and host country determinants of Chinese multinational enterprises' investments into East Central Europe. In: Szunomár, Á. (ed.): *Emerging-market multinational enterprises in East Central Europe*. (Studies in Economic Transition) Palgrave Macmillan, Cham, Switzerland, 51-86.
- Weber, I. M. (2021): *How China Escaped Shock Therapy - The Market Reform Debate*. Routledge
- Wei, J. (2020): *China's Industrial Policy: Evolution and Experience*. United Nations, ECIDIC, Project Paper No. 11
- Wu, J. (2005): *Understanding and Interpreting Chinese Economic Reform*. Thomson Seng Lee Press, Singapore
- Xue, M. (1986): *China's Socialist Economy*. Foreign Languages Press, Beijing -Revised
- Zhou, Y., Lazonick, W., Sun, Y. (2016): *China as an Innovation Nation*. Oxford University Press

Online sources

- World Banka database: <https://data.worldbank.org/>
- MERICs: Mercator Institute for China Studies Chinese FDI in Europe: 2020 Update: <https://merics.org/en/report/chinese-fdi-europe-2020-update>
- Hungarian Central Statistical Office: <https://www.ksh.hu/>

Other sources

Transforming our World. The 2030 Agenda for Sustainable Development. A/RES/70/1, United Nations, NY

Észak-Magyarország 2021. TOP100: A 100 legjelentősebb Borsod-Abaúj-Zemplén megyei székhelyű vállalkozás

Companies' websites

Joyson Electronics: <https://www.joyson.cn/en/>

Nanjing Chervon Auto Precision Technology Co., Ltd: <http://www.chervonauto.com/en>

Tenpao Group Holdings Limited: <https://www.tenpao.com/>

Wanhua Chemical Group Co.,Ltd: <https://en.whchem.com>

Zhengzhou Coal Mining Machinery Group Co., Ltd: <http://www.zmj.com/>