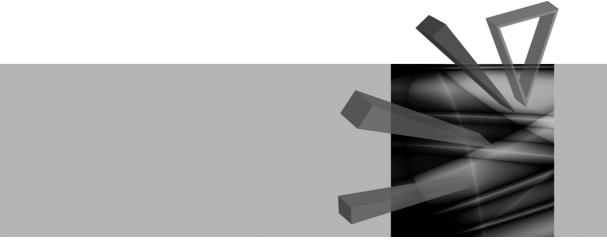
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Innovation Sources of Economies in Eastern Asia



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Contents

Introduction	9
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Part 1. International trade as a factor of innovation in Asian economies

Jerzy Dudziński, Jarosław Narękiewicz, Iwona Wasiak: Price movements	
in the international trade and Asian developing countries' exports	13
Guenter Heiduk: Is innovation-based competitiveness in trade crisis-	
resistant? The case of China	23
Bartosz Michalski: Technological intensity of the international trade.	
The case of the second-tier Asian Tigers	36
Paweł Pasierbiak: Technological intensity of Japanese merchandise trade	47
Ewa Mińska-Struzik: Learning by exporting as a source of innovation in	
Asian companies	59

Part 2. Foreign direct investment as a source of innovation in Asian economies

Magdalena Kinga Stawicka: Economic and Technological Development	
Zones (ETDZ) as a place of FDI location in China	75
Maciej Żmuda: The determinants of Chinese outward foreign direct	
investment to developing countries	86
Tadeusz Sporek: Foreign direct investment in Nepal. Strategy and	
promotion	98
Aleksandra Kuźmińska-Haberla: Promotion of foreign direct investment.	
Examples from the Asia-Pacific region	109

Part 3. Innovativeness of network in Eastern Asia

Sebastian Bobowski, Marcin Haberla: Networked clusters in the context	
of knowledge-seeking strategy of international business	121
Jerzy Grabowiecki: Zaibatsu conglomerates as organisational innovations	
at the time of the modernisation of Japan's economy	132
Małgorzata Wachowska: The importance of the Japanese keiretsu groups	
for knowledge spillover	144
Małgorzata Dolińska: Network-centric innovations. The case of China	153
Anna H. Jankowiak: Chinese industrial clusters	164

Karolina	Łopacińska:	Cultural	differences	in the	context of managing	5
an inte	ernational corp	oration w	ith a Swedis	h and C	Chinese capital	174

Magdalena Broszkiewicz: Innovations in corporate governance system as	
a necessary improvements of capital market in Japan	187
Jacek Pera: Modern trends in financial innovations on the Asian market.	
An attempt of assessment	198
Artur Klimek: Sovereign wealth funds in the global economy	208
Pawel Folfas: Dubai – an emerging and innovative offshore financial centre	217

Streszczenia

Jerzy Dudziński, Jarosław Narękiewicz, Iwona Wasiak: Ruch cen w hand- lu międzynarodowym a eksport azjatyckich krajów rozwijających się	22
Guenter Heiduk: Czy konkurencyjność w handlu oparta na innowacjach jest	LL
odporna na kryzys? Przykład Chin	35
Bartosz Michalski: Technologiczna intensywność handlu międzynarodowe-	
go. Przypadek tygrysów azjatyckich drugiej generacji	46
Paweł Pasierbiak: Intensywność technologiczna japońskiego handlu towa- rowego	58
Ewa Mińska-Struzik: Uczenie się przez eksport jako źródło innowacji	
w przedsiębiorstwach azjatyckich	71
Magdalena Kinga Stawicka: Ekonomiczne i technologiczne strefy rozwoju	
jako miejsce lokowania bezpośrednich inwestycji zagranicznych w	
Chinach	85
Maciej Żmuda: Motywy bezpośrednich inwestycji zagranicznych Chin w krajach rozwijających się	97
Tadeusz Sporek: Zagraniczne inwestycje bezpośrednie w Nepalu. Strategia i	
promocja	108
Aleksandra Kuźmińska-Haberla: Promocja bezpośrednich inwestycji za-	
granicznych. Rozwiązania z krajów regionu Azji i Pacyfiku	118
Sebastian Bobowski, Marcin Haberla: Usieciowione klastry w kontekście	
strategii knowledge-seeking biznesu międzynarodowego	131
Jerzy Grabowiecki: Konglomeraty zaibatsu jako innowacje organizacyjne	
okresu modernizacji gospodarki Japonii	143
Małgorzata Wachowska: Znaczenie japońskich grup keiretsu dla rozprze-	
strzeniania się wiedzy	152
Małgorzata Dolińska: Innowacje powstające w sieci na przykładzie Chin	163

Anna H. Jankowiak: Chińskie klastry przemysłowe	173
Karolina Łopacińska: Różnice kulturowe w kontekście zarządzania firmą	
wielonarodową z kapitałem szwedzkim i chińskim	184
Magdalena Broszkiewicz: Innowacje w systemie ładu korporacyjnego jako	
konieczne udoskonalenie funkcjonowania rynku kapitałowego w Japonii	197
Jacek Pera: Współczesne tendencje w zakresie innowacji finansowych na	
rynku azjatyckim. Próba oceny	207
Artur Klimek: Rola państwowych funduszy majątkowych w gospodarce	
światowej	216
	226

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ECONOMIC AND TECHNOLOGICAL DEVELOPMENT ZONES (ETDZ) AS A PLACE OF FDI LOCATION IN CHINA

Summary: The goal of this paper is to present operations of the Economic and Technological Development Zones (ETDZ) on the territory of China as places which are attractive enough to attract foreign capital and which are "carriers" of modern technologies. This issue is a rare subject of research studies compared to privileged economic zones; therefore, examination of the problem seems to be interesting. The author describes operations of three first ETDZs established in the eastern, central and western regions. In the conclusions section the author tries to determine an innovation rate of the solutions implemented in the aforementioned zones and an opportunity for their use in the zones in the European Union.

Keywords: China, Economic and Technological Development Zones, foreign direct investments.

1. Introduction

The economic development of the People's Republic of China has been observed since the end of 1970s and it is recognised to be something exceptional on the world's scale. There exists a high and regular tempo of the economic growth which oscillates around 10%, which surely and significantly affected the change of China's position in the international arena. Therefore, one may conclude that the small, closed and underdeveloped state was "replaced" by the state which is presently a leader of the Asian region, also rated better and better in the list of the world economies. The dynamic growth of the Chinese economy is a result of the reforms initiated at the end of the 1970s, when authorities accepted a radical programme of "four modernisations" – in agriculture, industry, national defense as well as science and technology.¹ Moreover, a decision that the state will be open for external impacts was made; hence, there was a trial of establishing special economic zones. In this manner at the beginning of the 1980s there appeared four first pilot economic zones where foreign

¹ T. Kowalik, *Systemy gospodarcze. Efekty i defekty reform i zmian ustrojowych*, Fundacja Innowacja, Warszawa 2005, p. 222.

capital (enterprises) had a serious freedom of business. As a result of such actions, China (and mainly Hong Kong) attracted a lot of foreign direct investments as well as new technologies and management systems.² Chinese authorities encouraged by the positive effects of the inflow of foreign capital to special economic zones started to establish other zones in 1990s, seeing opportunity for development of the economy.

In China the development zones cover 13 700 km² and their number exceeds 2000. They can be divided into ten types of organised economic zones, such as Special Economic Zones (SEZ), Economic and Technological Development Zones (ETDZ), High-tech Industrial Development Zones (HIDZ), Free Trade Zones (FTZ), Border Economic Cooperation Zone (BECZ), Export Processing Zone (EPZ), technology parks, investments zones and logistics parks. Moreover, due to the government's consent, local authorities and provincial authorities may also establish their own economic zones.

The goal of this paper is to present operations of the Economic and Technological Development Zones (ETDZ) on the territory of China as places which are attractive enough to attract foreign capital and which are "carriers" of modern technologies. This issue is a rare subject of research studies compared to privileged economic zones; therefore, examination of the problem seems to be interesting. The author will describe operations of three first ETDZs established in the eastern, central and western regions. In the conclusions section the author will try to determine an innovation rate of solutions implemented in the aforementioned zones and an opportunity for their use in the zones in the European Union.

2. Economic and Technological Development Zones in China

An idea of establishing privileged economic zones emerged at the end of the 1970s as a result of a discussion regarding optimal conditions for the Chinese economy. Until 1980 the General Chinese Association of People's Representatives approved an idea of establishing modern industrial centres whose superior goal was to attract foreign capital.³

A definition of an economic zone in China is still not clear and it is difficult to associate it with definitions existing in available literature since the founders of the zones tried to use their own solutions which, with reference to the success of autonomic economic zones, have become a sort of their distinguishing symbol.⁴

² K. Gawlikowski (Ed.), *Azja Wschodnia na przełomie XX i XXI wieku. Przemiany polityczne i społeczne*, TRIO, Warszawa 2004, p. 118.

³ K. Starzyk (Ed.), Zagraniczne inwestycje bezpośrednie w gospodarkach Azji i Pacyfiku. Problemy gospodarki światowej 1, Wydawnictwo Naukowe Semper, Warszawa 2001.

⁴K. Wong, International factor movements, repatriation and welfare, *Journal of International Economics* 1986, Vol. 21, p. 49.

At the beginning a decision was made to set up four special economic zones in the south of the China, in Guangdong (Shenzen, Zhuhai and Shantou) and Fujian (Xiamen) provinces, which were recognised as the most successful economic centres of the state. Establishing the economic zones was a sort of an experiment for the Chinese authorities and a prelude for the transformation of the remaining part of the province.⁵ In the preliminary period of the life of the zones, their specialisations could be observed. For instance, Shenzen and Zhuhai zones concentrated their efforts on import of goods, and subsequently they balanced the import with the export. From the very beginning Shantou focused on import of manufactured goods and since 1996 it has exported goods as well. Xiamen zone has been active in both fields – export and import – from the very beginning.⁶ The experiment in the form of the special economic zones appeared to be a success after a few years. China has become a very attractive economic partner and the investments made on the territory of the zones in 1984 equalled nearly 30% of all the foreign investments located in the China.

Positive results of the existing zones in the field of foreign trade and technology transfer stimulated the establishing of other economic zones, in particular, so-called "open cities". The status of the open city was assigned to a place which had special privileges in the field of cooperation with foreign partners, in particular, in order to attract foreign investments.⁷ Economic and Technological Development Zones are a result of the "opening" of 14 harbour towns on the territories of which 12 ETDZ were established. Presently 127 State-level Economic and Technological Development Zones exist under the supervision of the Ministry of Commerce (MOC), among which one may enumerate: Suzhou Industrial Park, Shanghai Jinqiao Export Processing Zone, Ningbo Daxie Economic and Technological Development Zone, Xiamen Haicang Investment Zone and Hainan Yangpu Development Zone, which all enjoy the same preferential policies. The number of zones has been growing constantly. In 2010 there were 90 zones and one year later – 116.⁸ The zones under examination are also characterised by the following attributes: they maintain a regular tempo of local GDP, there exists a well-balanced development of the eastern region as well as the central and western regions; in the recent years one has observed growth in the export and import of high-tech products on the territories of the zones; enterprises operating in the zones warrant a regular increase in employment.

Statistical data presented by CADZ cover information by September 2011; however, these are the sole indexes which characterise 90 state-level ETDZs, not including 41 newly approved ETDZs after November 2010; such data will be used by the author for the needs of the examinations herein. In the eastern region there are

⁵ C. Knoth, *Special Economic Zones and Economic Transformation. The Case of the People's Republic of China*, Dissertation, University of Konstanz, 2000, p. 89.

⁶ Shenzen Statistical Yearbook, Pekin 1998, p. 96; China Statistical Yearbook, Beijing 1998, p. 108; Statistical Yearbook of Zhuhai, Pekin 1998, p. 97.

⁷K. Starzyk (Ed.), op. cit., p. 64.

⁸China Development Zones (CADZ), www.cadz.org.cn (accessed: 16.04.2012).

47 zones, including the oldest one – Dalian ETDZ, which was set up in 1984. The central region has 21 EDTZ (the first one was Harbin EDTZ, which has operated since 1993), and the western one – 22, also operating since 1993 – the first one was Chongqing ETDZ. Examining the timeframes of the Economic and Technological Development Zones in China, one may conclude that in the 1980s the total number of 15 zones in the eastern area was established but it is significant that 10 of them were set up in 1984. As many as 22 ETDZs were established in the 1990s, again, the largest number in the eastern regions, 4 ones in the western region and 2 zones in the central region. It is worth mentioning that the dates of establishing of those zones include just the first half of the decade, that is, 1990–1994. The beginning of the twenty first century faced intensification of actions which headed for setting up new ETDZs. Finally, by the end of 2010, the total number of 53 zones was established in the area of three regions referred to above. In this period, the largest number of zones occurred on the western territories.

The aforementioned (in the characteristic attributes section) quick tempo of development of all Economic and Technological Development Zones in China is impressive in fact. Just in the period from January to September 2011, 90 zones subject to examination managed to increase their local GDP averagely by 9.10%, and, compared to the same time from the previous year, the production went up by more than 30%. What is also worth mentioning is a constantly growing tempo of the use of foreign capital within zones, which in the first three zones of 2011 was estimated at approx. 24.442 billion USD and, compared to the previous period, it increased by approx. 25%. The global tempo of growth in the Economic and Technological Development Zones is higher than the average one in the state by 15%. The largest share in the GDP is for the eastern region, on the territory of which there operate 47 ETDZs. In the examined period GDP reached 1.689966 trillion Yuan, including an industrial added value of 1.140012 trillion Yuan. A region which was developing the most quickly in the period from January to September 2011 was the central region, where the increase in GDP compared to the same period of the previous year reached approx. 55%. In 21 existing ETDZs also tax incomes have been growing; during a year they went up by more than 50%. Also the export and import of enterprises operating on the territory of zones have been growing regularly. Total export and import from January to September 2011 amounted to 399.716 billion USD; the value of the exported goods amounted to 198.86 billion USD, and the imported ones to 200.856 billion USD. The numbers are higher by 23.37% for the export and 14.39% for the import compared to the same period of the previous year. Also foreign direct investments located on the territory of the zones show a strong growth trend. The largest growth in FDIs in relation to 2010 occurred in the central and western regions, growth by at least 50%, and in the case of the eastern region - by 18%.

Thus, summarising totally the basic macro-economic indexes, which characterise the Economic and Technological Development Zones, one may conclude that development of all three zones is sustainable since the indexes that they achieve are very similar. Moreover, as already mentioned, the enterprises operating on the territory of ETDZs export and import a wide range of goods, with special consideration to high-tech products. Approx. 65% of the total export of the zones and 53% of the import concern goods which are classified as the goods originating from this sector. Moreover, annually, the total growth in import and export of high-tech goods amounts to approx. 20%. When it comes to the last attribute, which describes the zones under study, which is regular growth in employment in the enterprises operating in Economic and Technological Development Zones, serious progress has been observed as well. At the end of 2011 the number of employees hired in companies operating on the territories of the zones under study exceeded 9 million persons and annually, in the period of last 5 years the observed growth was equal to 9.7%.

3. Characteristics of selected Economic and Technological Development Zones in China

When the Chinese economy was opening itself to the world, there was an increase in the number of enterprises with foreign capital and special economic zones, which were established in order to promote inflow of foreign investments into China. ETDZs established in the seaside areas were different from the previously operating special economic zones which were situated mainly in sub-regions and their strategic cities. Three zones, which were established first in particular regions: eastern, central and western ones are presented in Table 1. They will be a subject of further discussion.

Name	Approved time	Region	GDP January– –Septem- ber 2011 (Unit: 10,000 Yuan)	GDP growth 2011/2010 (%)	Exports (Unit: 10,000 USD)	Imports (Unit: 10,000 USD)	Actual utilisation of foreign capital (Unit: 10,000 USD)
Dalian ETDZ	1984	Eastern	9 483 666	8.10	561 958	889 530	246 576
Harbin ETDZ	1993	Central	4 108 680	45.37	77 893	167 125	43 700
Chongqing ETDZ	1993	Western	1 643 480	-28.37	18 836	6 211	853

Table 1. Some macroeconomic values selected for the Economic and Technological Development

 Zones in China, 2010 and 2011

Source: author's own work based on the data originating from China Development Zones (CADZ), www.cadz.org.cn (accessed: 16.04.2012).

The first zone, which was established in 1984, was Dalian Eco&Tech Development Zone, being a part of Dalian Development Area (DDA), situated on the Dagushan Peninsula in the northeast of Dalian city, Liaoning Province, 27 km from the centre of the Dalian city.9 DDA covers 405 km², including 50 km² belonging to Dalian Eco&Tech Development Zone, on the territory of which there are 200 000 employees. The operation of DDA focuses mainly on industrial sectors and a comprehensive supply chain. As a rising hi-tech and modernised industrial base, Dalian Eco&Tech Development Zone has a multi-functional and complete infrastructure. For the time being, eight industrial sectors have been formed including petrochemical industry, automobile and components, equipment manufacturing, electronics and information, shipbuilding and components, bioengineering and pharmaceuticals, materials and light industry. Due to hi-tech and world-renowned companies coming in Dalian Eco&Tech Development Zone, the zone is characterised by a new industrial system led by hi-tech and new industries, supported by four "pillar" industries: large petrochemical industry, electronic information and software industry, advanced equipment manufacturing and shipbuilding industry. Currently, DDA already has more than 2300 foreign-funded companies from 47 countries and regions, among which more than 42 are from Global 500 companies. Among the most significant enterprises operating on the territory of the zone one may enumerate: Intel, West Pacific, Toshiba, Canon, NIDEC, E-Roma, Angang, Pfizer, Sanyo, Haier, Mitsubishi and Panasonic. The actual value of utilised foreign investment was 9.19 billion USD.¹⁰ There is also Dalian High-Tech Industrial Zone nearby, one of the zones focused on enterprises which use advanced technology for production's needs. The zone was established in 1991 and it was situated over the area of 35.6 km², used by 2 300 enterprises. More than 800 of them are international companies originating from the United States, Japan, Germany, South Korea, Great Britain, France, Taiwan, Hong Kong and other states practically from all continents. In the last decade the production in Dalian High-Tech Industrial Zone has been growing up; its increased tempo is noticeable, in particular, among the enterprises engaged in software, information service, media and digital entertainment and integrated circuit centred in Dalian Software Park. Moreover, a serious expansion is also observed in the case of the biological engineering sector, as well as advanced equip-manufacturing industry centred at DD Port.¹¹ The existence of Dalian High-Tech Industrial Zone was conditioned by realisation of strategic plans for bringing Great Dalian into the 21st century. Therefore, two directions of development have been established for the zone. The first direction concerns software development & information services, and the second one is related to the digital and DNA technology industrial. Both industrial belts provide development space for investments of global enterprises.

⁹China.com, www.china.com (accessed: 20.04.2012).

¹⁰ Dalian Economic and Technological Development Zone, www.dda.gov.cn (accessed: 20.04.2012).

¹¹ Invest in China, http://dalian.chinadaily.com.cn (accessed: 20.04.2012).

Summarising the analysis of the opportunities for business operation on the territory of both zones, one may conclude that Dalian with its zones offers a comfortable geographic location, and the nearness of Japan and Korea gives it an advantage in attracting good outsourcing opportunities. Therefore, on the territory of the zones, most foreign banks were located and financial centres for North-East China were established. In Dalian EDTZ, which has been operating for nearly 30 years, alterations were implemented, mostly related to the transformation from traditional labour-intensive industries to advanced manufacturing and high-tech industries. A significant factor which reduced the inflow of the foreign capital to the zones may be for sure high investment costs, in particular labour costs (compared to other cities).

The first zone established in 1993 in the central region was Harbin Eco&Tech Development Zone situated in Harbin, the capital city of the Heilongjiang Province. In 2001 it was converted, as a result of coupling with the Harbin High-Tech Park (HHP), into the Harbin Development Zone (HDZ). Elements of the zone which are worth mentioning are well-developed transport networks, both railway and highway infrastructure, connecting Harbin (city) due to five railway lines and seven highways, with other regions of China and with Russia as well. In November 2009 a decision to re-split the Harbin Development Zone into Harbin Economic and Technological Development Zone (30.7 km²) and Harbin High-Tech Park (23.9 km²) was made. Enterprises which operate on the territory of both zones represent the following sectors: automobiles and car parts, agricultural product processing, medicine, textiles, optical-electrical-mechanical integration, biology, electronics and information. Among the main investors one may enumerate such companies as: Hafei, Mando, Uni-president, Wantwant, Fengyi, CJ, Associated British Foods, Harbin Pharm and Wandashan. What is also worth mentioning is the fact that the zone is a subject of a great interest of foreign entities, which annually locate direct foreign investments on its territory worth approx. 400 million USD. Moreover, the tempo of the growth of the inflow of foreign capital is observed at the level of more or less 20% annually, which may be recognised to be very optimistic results and good perspectives. Another specific advantage of the zone under examination compared to other zones is the existence of previously mentioned well-developed roads and railway infrastructure as well as access to "water transport". Moreover, Harbin Economic and Technological Development Zone and Harbin High-Tech Park are perceived as zones which offer a traditional, strong industrial base, especially in automobiles and equipment manufacturing The Harbin Institute of Technology provides a solid education in the field of engineering. For investors, a significant determinant which encourages them to make investments on this territory is plenty of natural resources, such as water, minerals, forests and raw materials for Chinese medicine. On the other hand, there also exist investment barriers which may discourage enterprises from starting business there. For sure, some worries may be implicated by a great income gap between Harbin's urban and rural populations and between the rich and the poor located at China's northern edge. Harbin is too far away from the rest of the nation, especially from the southern and western regions, as well as it has an unfavorable climate in the winter season.¹²

In the western region, similarly to the central one, Economic and Technological Development Zones were started in 1993. Chongqing ETDZ was the first zone established in this region in the area equal to 93.3 km^{2.13} Chongqing ETDZ is divided into two zones: the Northern Zone and the Southern Zone. The Northern Zone covers area equal to 83.7 km². Enterprises which operate on the territory of Chongqing ETDZ represent the following sectors: information technology, bio-pharmaceuticals, automobiles and motorcycles, fine chemicals, new materials, green foods processing, garments, and among the largest investors one may mention: Ford, Metro, Ericsson, Honda, Visteon, BP, Suzuki, Denso, Kansai, Formosa Petrochemical. The foreign capital flowing into this zone during a year amounts to approx. 400 million USD and its annual growth is estimated to 15%. The auto industry is the most important of the zone's industries – there are three auto producers and 62 auto parts manufacturing enterprises located within the zone. Annually, the entities operating on the territory of the zone manufacture approx. 300 000 cars and share of the enterprises in production of the local GDP amounts to approx. 75%. Chongqing ETDZ encourages investors mainly due to labour supply and low labour and land costs. On the other hand, the zone faces strong competition with the development zones in Chongqing and Chengdu. Chongqing is less attractive to high-level talent than coastal cities. What is worth mentioning is the existence of Chongqing New North Zone (CNNZ), which is recognised to be the most modern industrial base whose goal is development of the high-tech industry. The zone consists of Chongqing Economy and Technology Development Zone, Chongqing High-Tech Industrial Development Zone, Chongqing Export Product Processing Zone and Foreign Affairs Management Zone. It is the largest development zone in the mid-west of China with a total area of 157 km².

4. Conclusions

Presently, one can observe a phenomenon in China in which a little piece of the state, with a small number of inhabitants, has started production whose rate is noticeable for the entire economy of the state. In some zones the number of inhabitants has increased by more than 10 times since the moment they were established, which proves that the zones are a very attractive place for millions of Chinese inhabitants. At the very beginning, the effects of their existence were not encouraging since China, which offered attractive places for foreign investments, became a recipient of out-of-date and ineffective technologies. What is more, the capital supported tourism and trade instead of the industry. China has consistently realised a global competitive strategy for years, which was started in Deng Xiaoping and based on a "roller

¹²HKTDC, http://www.hktdc.com (accessed: 20.04.2012).

¹³China Knowledge, http://www.chinaknowledge.com (accessed: 20.04.2012).

strategy", whose task is to obtain investments with state-of-the-art technology, in particular, attracting such investments into ETDZs.

Similarly to other SEZ (Special Economic Zones) and Technological Development Zones, they are entitled to establish their own legal regulations in terms of economic operation oriented on development and implementation of intensive technologies.

Local authorities are entitled to accept independently investment products which do not exceed the value of 30 million USD. An encouragement for foreign investors, apart from advantages for particular zones, such as good location, plenty of natural resources, developed transport infrastructure, is for sure tax encumbrances. Foreign entrepreneurs operating on the territory of ETDZs take benefits of 15% rate of the income tax in the case of production enterprises and 30% for non-production companies. Moreover, the companies carrying out projects from the energy sector, high-tech sector or transport sectors, which are oriented on export, or financial institutions with foreign capital exceeding 10 million USD, may count on additional privileges, which reduce tax rates.

The present short examination (because of volume requirements for the paper) is just a beginning of the issue of the Economic and Technological Development Zones in China and it will constitute a subject of further examinations of the author. Nevertheless, a draft of the issue subject of examination has been developed and it proved that the subject is significant and worth analysing. China's membership in the WTO, decreasing incomes of the state from taxes and frequent overinvestments in production in the zones resulted in a necessity for the cancellation of preferential conditions for special economic zones. However, after examining the inflow of the foreign capital into Chinese special economic zones from the period of implemented changes, one cannot observe a decrease in the interest of foreign investors in this place of capital location. The attractiveness of the Chinese economy is so great that it obtains foreign capital without a necessity for discounts and tax releases, which were factors stimulating the great inflow of FDI at the beginning of the transformation of the Chinese economy. There is still an issue of obtaining modern technologies together with the inflow of capital in a manner to prevent a situation which occurred during establishing special economic zones, that is, the transfer of out-of-date technology. Nowadays, China, using opportunities generated by the globalisation chooses knowledge as a development stimulant. It should be recalled that hundreds years ago China was the main author of different epoch-making innovations and the same strategy is being realised. It means that China is oriented on obtaining stateof-the-art technologies and that a higher and higher number of Chinese citizens are educated at world-famous universities. China sets up scientific centres and didactic centres at the best level in order to make the Chinese economy become a leader in innovations in the future. Also the expansion of Chinese enterprises on foreign markets is observed. Chinese enterprises learn, gaining the latest know-how and experience that they may use in their state.

Special economic zones have existed since the first half of 1990s, also in member states of the European Union despite the fact the EU law forbids a provision of public aid for enterprises. In some cases derogations are permitted. The zones are divided into the zones of Western Europe, which operate mainly in the form of duty-free zones, as well as the zones of Eastern and Central Europe, which may be compared to the Chinese zones and their existence and operations were a subject of negotiations held by the member states of the European Union. A primary and basic goal of the operation of the European zones was a will to reduce the unemployment; however, on the basis of changing economic conditions also EU states implemented a strategy of the economy based on knowledge which attracts investments and, consequently, modern technology. After years, in particular in EU member states some effects of innovative operation can be observed. The transfer of knowledge from foreign enterprises into domestic companies resulted in the occurrence of other entities dealing with the production of technologically advanced goods which can be sold worldwide. Looking for ready solutions from the Chinese economy which could be used in EU economies, it is difficult to enumerate them without doubts and without a serious examination. It seems that the present "direction" of the Chinese economy is oriented on know-how and it is the most appropriate one. One may expect that its results will be noticeable soon. EU states also must follow this direction. It is necessary to set up scientific and research centres and intensify cooperation between universities and enterprises. The European Commission's dislike for the establishing and operation of special economic zones may cause a total liquidation of privileged zones; however, it is more probable that they will be transformed into industrial and technological parks in order to assure the attractiveness of the European Union for foreign investors and to assure that particular economies develop on the basis of the experiences of other states. Moreover, in ETDZs enterprises oriented on the export of highly-treated products, also the share of the high-tech products has been growing up. Low costs of labour and attractive prices of Chinese products result in an increase in the competitiveness of the Chinese economy. The problem of EU economies is that they import more and more Chinese products instead of focusing on their own production by obtaining new technologies. It is a fatal orientation for these economies.

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EKONOMICZNE I TECHNOLOGICZNE STREFY ROZWOJU JAKO MIEJSCE LOKOWANIA BEZPOŚREDNICH INWESTYCJI ZAGRANICZNYCH W CHINACH

Streszczenie: Celem niniejszego opracowania jest omówienie funkcjonowania ekonomicznych i technologicznych stref rozwoju (*Economic and Technological Development Zones*) na terenie Chin jako miejsca atrakcyjnego dla napływu kapitału zagranicznego i będącego nośnikiem nowoczesnych technologii. Tematyka ta jest rzadziej podejmowana w literaturze przedmiotu w porównaniu z problematyką uprzywilejowanych stref ekonomicznych, dlatego też wydaje się interesująca do analizy. Autorka opisała funkcjonowanie trzech ETDZ, założonych jako pierwsze, w regionie wschodnim, centralnym i zachodnim. W konkluzji podejmuje próbę określenia stopnia innowacyjności wprowadzonych w tych strefach rozwiązań i możliwości wykorzystania ich w strefach Unii Europejskiej.

Słowa kluczowe: Chiny, ekonomiczne i technologiczne strefy rozwoju, bezpośrednie inwestycje zagraniczne.