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DISPROPORTIONS IN CHINA'S REGIONAL DEVELOPMENT AS A FACTOR OF INFLUENCE ON THE FORMATION OF COMPETITIVE ADVANTAGES OF TERRITORIES

ДИСПРОПОРЦІЇ РЕГІОНАЛЬНОГО РОЗВИТКУ КИТАЮ ЯК ФАКТОР ВПЛИВУ НА ФОРМУВАННЯ КОНКУРЕНТНИХ ПЕРЕВАГ ТЕРИТОРІЙ

Disparities in regional development have a significant impact on the economic This article examines the disproportions of regional development of the People's Republic of China as a factor influencing the formation of competitive advantages of territories. The study of differences in levels of economic development between regions of China identified areas with significant potential for growth and identified constraints for less developed regions. The investment attractiveness and development of certain industrial sectors are influenced by the development of infrastructure and access to resources. The level of education, qualifications and human resources of different regions forms different potential for territories in attracting talented workforce and developing knowledge of the established industries. The level of innovation, research and development in different regions forms competitive advantages for those territories that have advantages in the introduction of new technologies and the creation of innovative products. The geographical location of the regions determines the territories that have easier access to key markets and international trade routes, which accordingly creates competitive advantages for such territories.

Keywords: *territory, state regulation, imbalances in development, China, innovative development, infrastructure.*

Диспропорції в регіональному розвитку мають суттєвий вплив на економічний В даній статті досліджено диспропорції регіонального розвитку Китайської Народної Республіки як чинника впливу на формування конкурентних переваг територій. Дослідження різниці у рівнях економічного розвитку між регіонами Китаю виявило території зі значним потенціалом для росту та ідентифікувало обмеження для менш розвинених регіонів. На інвестиційну привабливість і розвиток певних промислових секторів впливає розвиток інфраструктури та доступу до ресурсів. Рівень освіти, кваліфікації та кадрового потенціалу різних регіонів формує різний потенціал для територій у залученні талановитої робочої сили та розвитку знань заснованих індустрій. Рівень інноваційної діяльності, досліджень та розвитку у різних регіонах формує конкурентні переваги для тих територій, які мають переваги у впровадженні нових технологій та створенні інноваційних продуктів. Географічне розташування регіонів визначає території, які мають легший доступ до ключових ринків та міжнародних торговельних шляхів, що відповідно створює конкурентні переваги для таких територій.

Ключові слова: *територія, державне регулювання, диспропорції розвитку, Китай, інноваційний розвиток, інфраструктура.*

Relevance of the research topic. One of the concepts that is key in theoretical approaches to determining the specifics and characteristics of territories in economic interpretation, and which comprehensively reveals the specifics of the location, its system-forming elements and its strategic value in the development of competitive advantages, as well as strengthens the role of state policy in the context of managing the competitive advantages of territories, is the concept of "territorial capital". The OECD (2001) indicates that territorial capital can generate greater

returns for those types of investments that are better suited to a given territory and make better use of its assets and potential. This means that certain regions can obtain not only relative competitive advantages formed on the basis of the relative cost of factors of production, but also absolute competitive advantages formed on the basis of "unique" assets [1].

The aim of the article is to study the disproportions of regional development of the People's Republic of China as a factor influencing the formation of competitive advantages of territories

Presentation of the main material of the research. It should be noted that the modern interpretation of space and territory has developed significantly and evolved over time [2]. In classical economic theory, space was considered as a secondary factor of production, and its value is determined mainly on a geographical basis, that is, on the basis of the cost of location and distance. Some researchers point out that, among other factors, the territory today plays a key role in economic and social development, and is not just a place and space where various social and economic processes take place [3; 4]. The concept of territorial capital proposed by the OECD at the beginning of its development defined the specific resources of the territory that represent the competitive potential of the territories through elements of territorial capital, such as geographical location, size, production capacity, climate, traditions, natural resources, quality of life and advantages of agglomeration [1]. But over time, other factors have been added to these elements, such as understandings, customs and informal rules that allow entities to work together in conditions of uncertainty, solidarity, mutual aid, cooperation and the exchange of knowledge and ideas between people and businesses.

The development of the approach to determining the factors influencing the competitiveness of territories was carried out by R. Camagni [5], who in his research proposed a comprehensive scheme of territorial capital. According to this approach, all factors influencing the competitiveness of a region can be divided into two groups: traditional and innovative. R. Camagni refers to the traditional factors those that are formed under the influence of tangible and intangible public goods, as well as tangible and intangible private goods: public goods and resources, human capital, private fixed capital and paid goods, social capital. Innovation factors are determined by the synergistic effect obtained from the use of tangible and intangible resources: intermediate material goods of mixed rivalry, relational capital, agglomeration economy, connectivity and receptivity, cooperation networks and relational private services [5].

The concept of territorial capital emphasizes the importance of territorial factors in economic growth, as well as the inclusion of specific spatial goals in economic development policies [6]. An illustrative example of the implementation of this concept is the territorial policy of the European Union, the formulation of spatial strategies of which is important not only for territorial cohesion, but also for greater overall coherence of the European Union's policy. This concept is also of great relevance for countries characterized by uneven regional development and a constant imbalance between national and regional policies [7].

Thus, taking into account the territorial differentiation, China at the present stage can be divided into three zones – Eastern, Central and Western. Economically, the Eastern zone is considered the most developed, covering eight coastal provinces and all cities of central subordination – Shanghai, Beijing and Tianjin. The specialization of the zone is determined by knowledge-intensive and export-oriented industries. Their development is closely related to the formation of special economic zones and the attraction of foreign investment. The central zone has significant mineral resources and specializes in agriculture, mining, electricity, metallurgy and the chemical industry. The western zone, which covers 70% of the territory and 28% of the country's population, includes large areas of undeveloped land and has a low population density, significant energy and resource potential with low availability and remoteness from the main economic centers.

The most informative indicator of the unevenness of regional development can be considered the size of the gross regional product per capita. Analysis of statistical data for 2022 by the triangle of industry (Primary Industry, Secondary Industry, Tertiary Industry) and gross regional product per capita showed the uneven distribution of the contribution of regions to the country's GDP and a significant discrepancy between the gross regional product per capita by region (Figure 1). Primary Industry includes activities related to the extraction of natural resources and agriculture. In China, primary industries include agriculture, forestry, fisheries, mining, and the energy sector, such as coal and oil extraction. Secondary industry includes industry, the production of goods with the enrichment and processing of raw materials that were obtained in primary industries. In China, secondary industries include steel production, machinery, textiles, chemical and electronic industries, etc. Tertiary Industry includes services provided to the public and other sectors of the economy. It covers trade, transportation, financial services, education, healthcare, tourism, hospitality, information technology, communication services, etc.

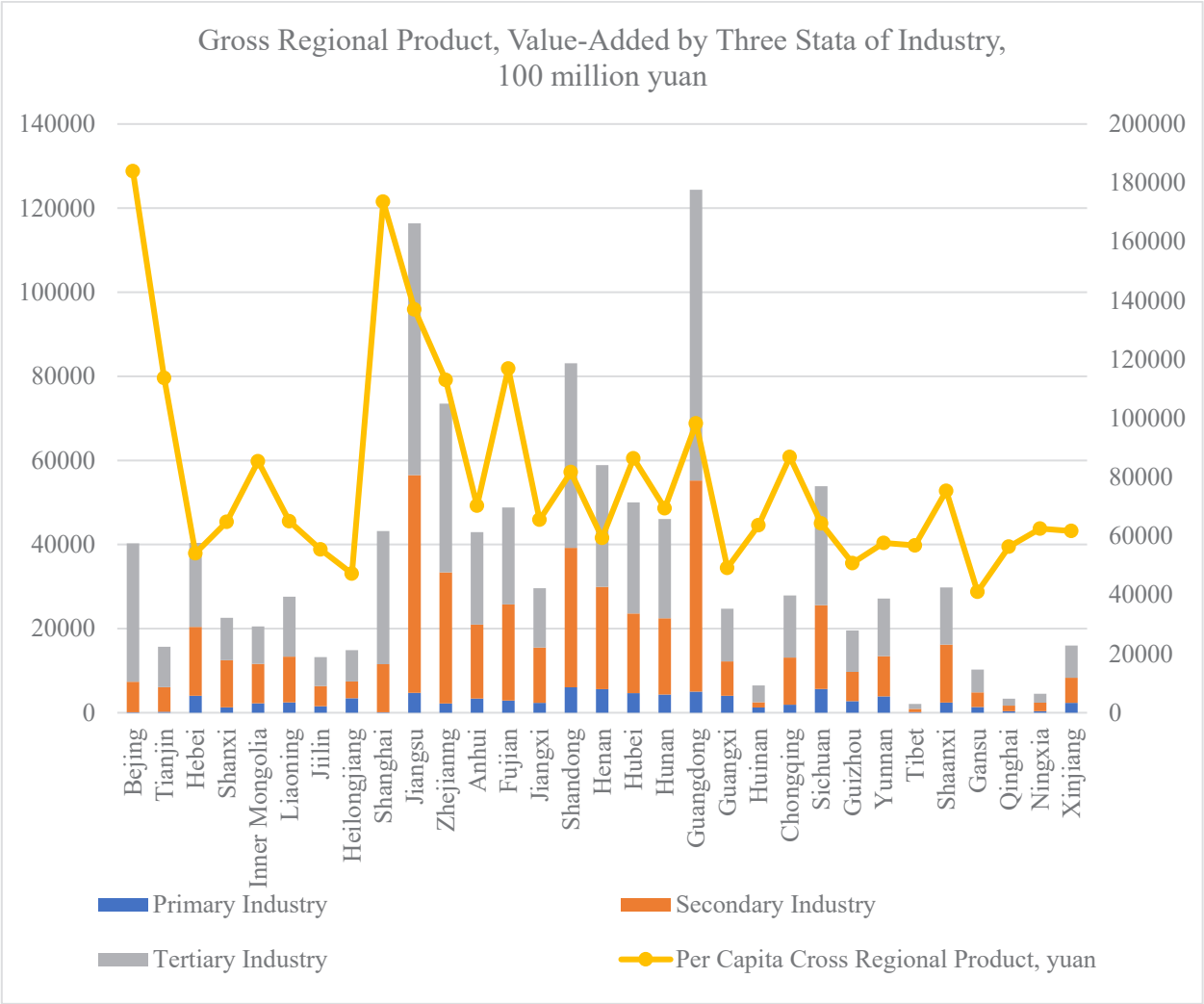

Figure 1. Gross Regional Product, Value-Added by Three Stata of Industry

Source: based on information from the website of the State Statistics Service of Cathay [17]

Thus, the regions with the highest per capita gross regional product in 2022 were Bejing and Shanghai. The size of this indicator for these regions is almost 4.5 times higher than in the Gansu and Heilongjiang districts, which have the lowest level of gross regional product among all the analyzed regions of China. The regions with the highest contribution to the industry are Jiangsu and Guangdong, which provide 22.8% Secondary Industry and 21.2% Tertiary Industry for the whole of China. For Primary Industry, the region with the highest rate was Shandong.

It should be noted that the regions with the largest gross regional product do not have the highest rates of contribution to the industry, which could be expected. On the other hand, the Guangdong region is even characterized by a fairly low level of gross regional product per capita. The logical explanation for this trend is usually primarily the calculation mechanism, i.e. the gross national product per capita depends on the number of working population (Figure 2). The data in Figure 2 demonstrate that the Guangdong region is the leader in terms of the number of working population. At the same time, the regions with the highest indicators in terms of gross regional product, Bejing and Shanghai, on the contrary, are characterized by low values in terms of the working population.

Therefore, such a disproportion, in our opinion, can be explained by the existence of another factor that affects the significant gap in terms of gross regional product per capita between regions. This factor can be associated with the policy of development of national and technical clusters, which also plays a significant role in the development of China's regions. According to the *Global Innovation Index 2022* [18] China's large-scale presence in the 100 largest scientific and technological clusters – the so-called geographic

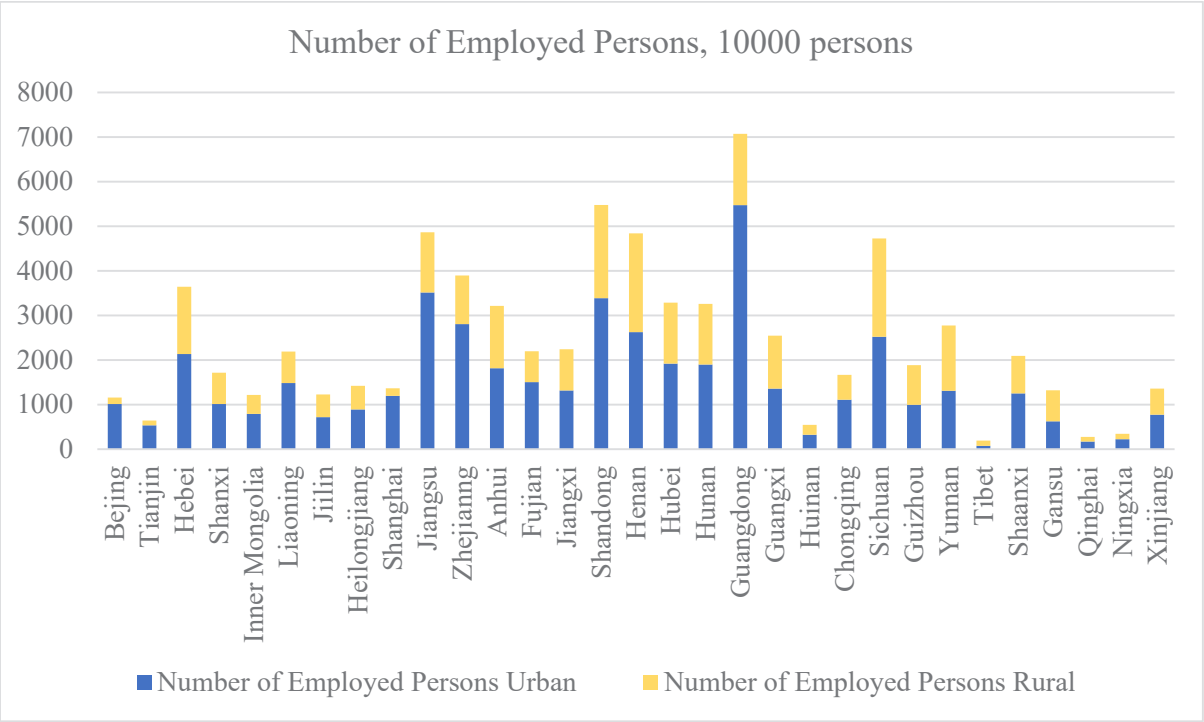

Figure 2. Number of working population in 2022 by region

zones around the world with the highest density of inventors and scientific authors – is indicative. In 2022, China equaled the United States in the number of best science and technology clusters, this indicator reached the level of 21 clusters.

Recognising that innovative products at the local level are just as important as products at the national level, the *Global Innovation Index* annually presents a ranking of the 100 largest science and technology clusters. Among the top 100, the Tokyo–Yokohama cluster (Japan) is the most effective, followed by Shenzhen–Hong Kong–Guangzhou (China and Hong Kong), Beijing (China), Seoul (Republic of Korea), and San Jose–San Francisco. Table 1 Economies with 3 or more clusters are presented.

Table 1

Economies with three or more top 100 S&T clusters, 2022

Economy	Economy name Number of top 100 clusters	Number of clusters
US	United States	21
CN	China	21
DE	Germany	10
JP	Japan	5
FR	France	4
CA	Canada	4
IN	India	4
KR	Republic of Korea	4
GB	United Kingdom	3
AU	Australia	3
CH	Switzerland	3
SE	Sweden	3

Source: Global Innovation Index 2022

In 2022, the Top 10 clusters remained the same as last year in 2021, with one difference: Shanghai and Suzhou merged into one cluster. Compared to 2021, the largest increase in the ranking was provided by three Chinese clusters – Zhengzhou (+15 positions), Qingdao (+12) and Xiamen (+12). Berlin (+4) in Germany, Istanbul (+4) in Turkey, Kanazawa (+4) in Japan, Ankara (+3) in Turkey, Daegu (+3) in the Republic of Korea and Mumbai (+3) in India have also made significant progress this year.

Chinese clusters also experienced the largest growth in science and technology production, with an average increase of +13.9 percent, and the Qingdao cluster located in the China region had the largest growth of all the top 100 clusters.

As the analysis of the top 100 shows, the trend in the development of innovation clusters is very pronounced in China, at the same time, overcoming inequality and promoting competition is becoming an important challenge for China, as well as for many other countries in the world, which requires appropriate solutions. The growing inequality between leading and lagging companies, leading and lagging regions, between high-paid and low-paid workers, and between

countries is recognized as a major obstacle to spread, implementation and productivity of technologies. Bridging these differences becomes key to realizing the benefits of any future waves of innovation. The policies proposed to achieve this are multifaceted. One policy proposal concerns how to deal with so-called superstar tech firms and possible ways to support regions that are lagging behind. According to the *Global Innovation Index* [18], differentiation in regional labor productivity in some countries reaches an excessively high level (Figure 3). China is no exception in this context, the Gansu region lagging behind the average of this indicator for China as a whole in terms of labor productivity is significant. Only Mexico has a larger gap between regions among the countries analyzed. Thus, the development of scientific and technological clusters in China, on the one hand, forms innovative centers and contributes to the development of some regions (for example, Shanghai with the highest level of gross regional product per capita), and on the other hand, leads to an even greater increase in regional discrimination.

From the point of view of studying imbalances in regional development, it is also interesting to analyze the indicators of total investment in fixed assets and total expenditures of the state budget. The total investment indicator refers to the volume of activities for the construction and acquisition of fixed assets and related fees expressed in monetary terms during the reporting period. It is a comprehensive indicator that shows the size, structure and growth of investment in fixed assets, creating a basis for monitoring the progress of construction projects and evaluating investment results. Total investments in fixed assets in China include, investments by type of ownership, investments of state units, collective ownership units, joint ownership units, shareholders, private units, individuals, as well as investments of entrepreneurs from Hong Kong, Macau and Taiwan, foreign investors, etc. [19]. Fixed capital investment (excluding rural households) is an investment in construction projects with a total planned capital investment of RMB 5 million or more by enterprises of various forms of ownership, institutions, administrative units and urban self-employed persons, as well as investments in real estate development in both urban and rural areas. The total expenditure of the state budget refers to the distribution and use of funds collected by public finances to meet the needs of economic construction and various activities. This indicator includes the following main items: expenditures on general public services,

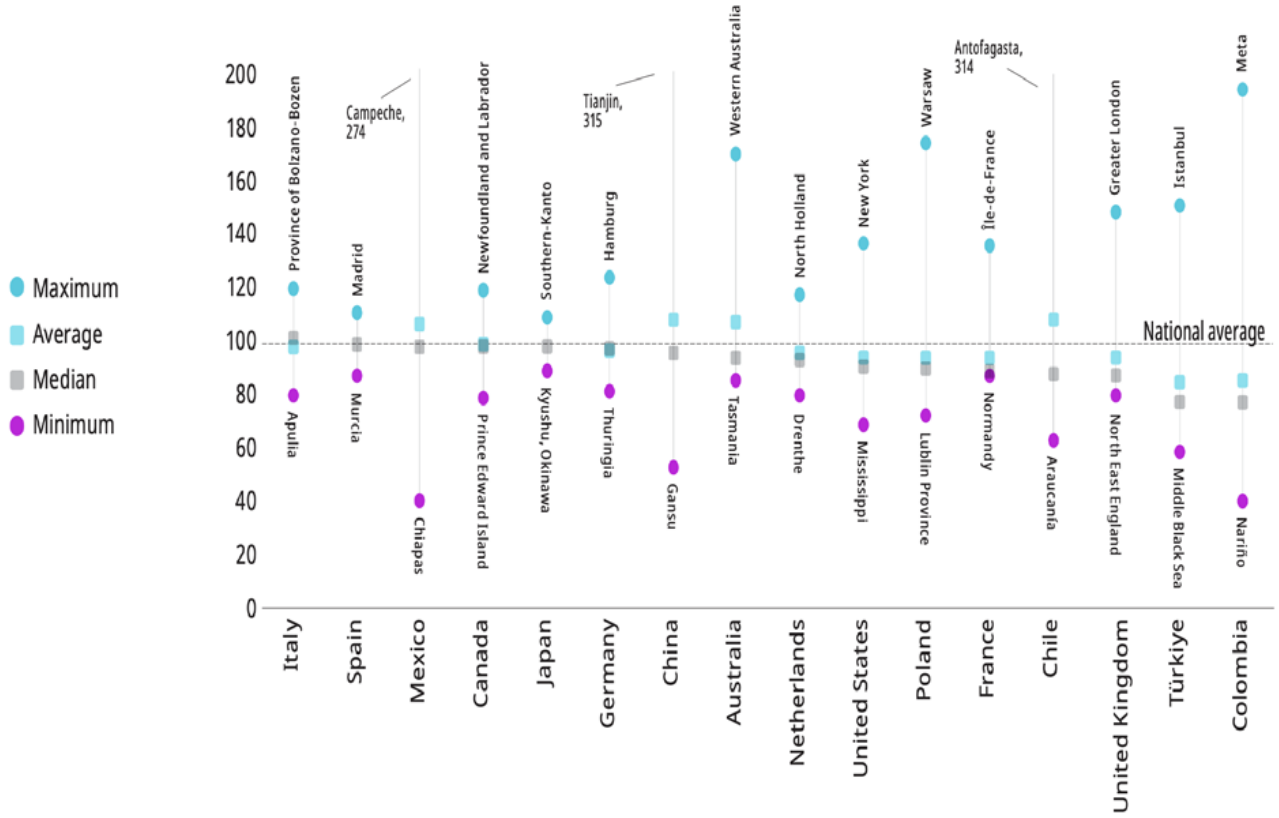

Figure 3. Regional labour productivity differentials, 2020 or earlier

Source: Global Innovation Index 2022

expenditures on foreign services, expenditures on national defense, public security, education, science and technology, expenditures on culture, tourism, sports and media, social security and employment, expenditures on health care, energy conservation and environmental protection, urban and rural communities, expenditures on agriculture, forestry and water conservation, transportation costs and other types of expenses.

According to the State Statistics Service of China [19], the highest level of total state budget expenditures in 2022 was in the Guangdong region (1824701 million yuan), and the lowest was in the Hunan region (83255 million yuan), which is 21.9 times less (Figure 4). The highest growth rate of total fixed investment in fixed assets in 2022 compared to 2021 was observed in the Hubei region (+20.4%) and the lowest is in the Tibet region (-14.2%). In addition to Tibet, three other regions had a negative value in terms of the growth rate of total investment in fixed assets: Guizhou, Shaanxi and Qinghai, which, according to our preliminary estimate, also have low indicators in terms of the number of working population and gross regional product per capita. At the same time, there has been a significant increase in fixed investment in the Xinjiang region, which is reflected in higher employment rates and gross regional Product.

An analysis of the average number of enrolments per 100,000 population by region in 2021 showed that the Bejing Region has the highest enrolment rate in tertiary education, while having the lowest enrolment rates in Junior Secondary Education and Senior Secondary Education (Figure 5). Qinghai region has the lowest tertiary education enrolment, almost 4 times lower than Bejing region. The Guangxi region has the highest enrolment in preschool education and upper secondary education, while the Heilongjiang region has undercoverage in early childhood education. The Xinjiang region has the highest rate of enrolment in junior secondary education. Thus, in general, there is a certain unevenness of coverage among different levels of education in China.

The average level of education also provides some insight into the disparity in China's regional development, which is consequently responsible

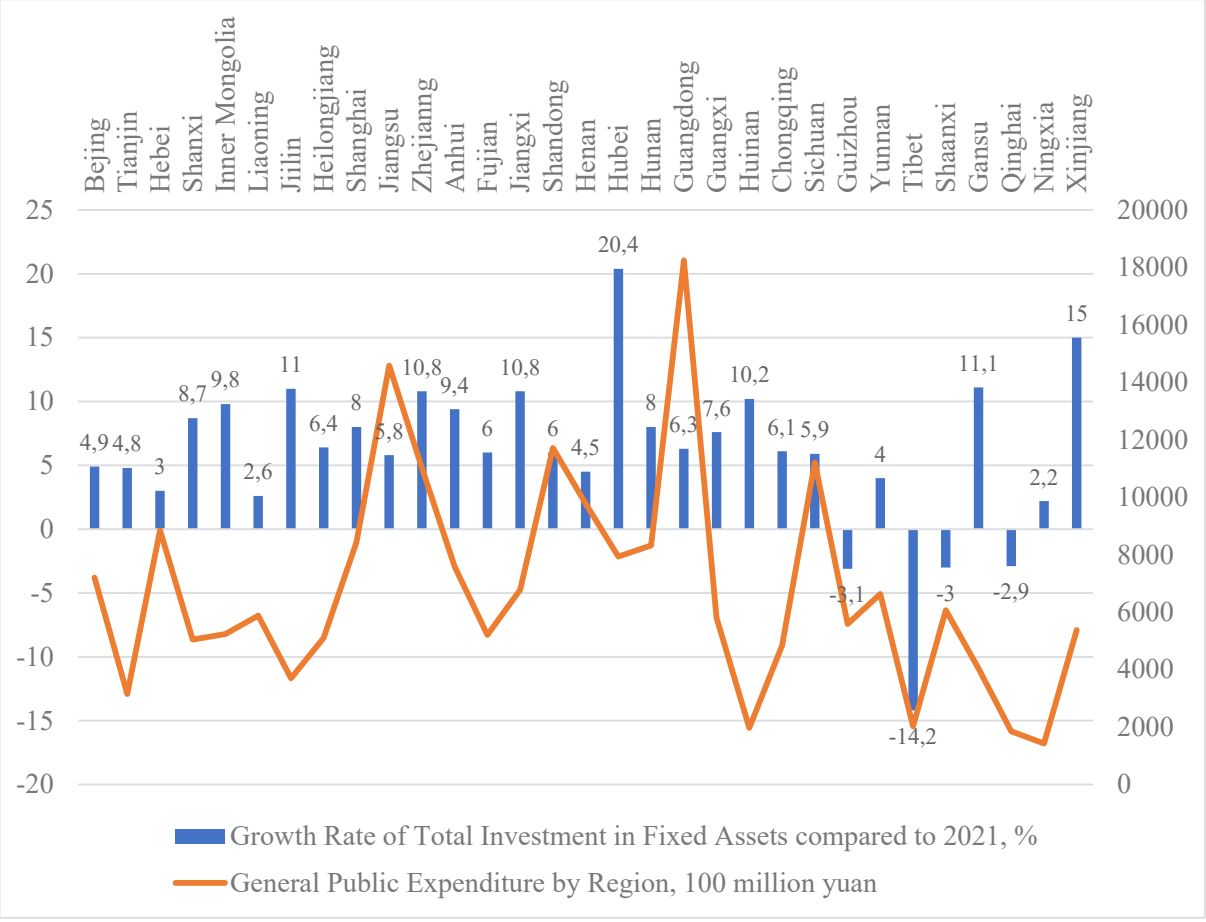

Figure 4. Total investments in fixed assets and total expenditures of the state budget in the regional context for 2022

Source: based on information from the website of the State Statistics Service of Katai [20; 21]

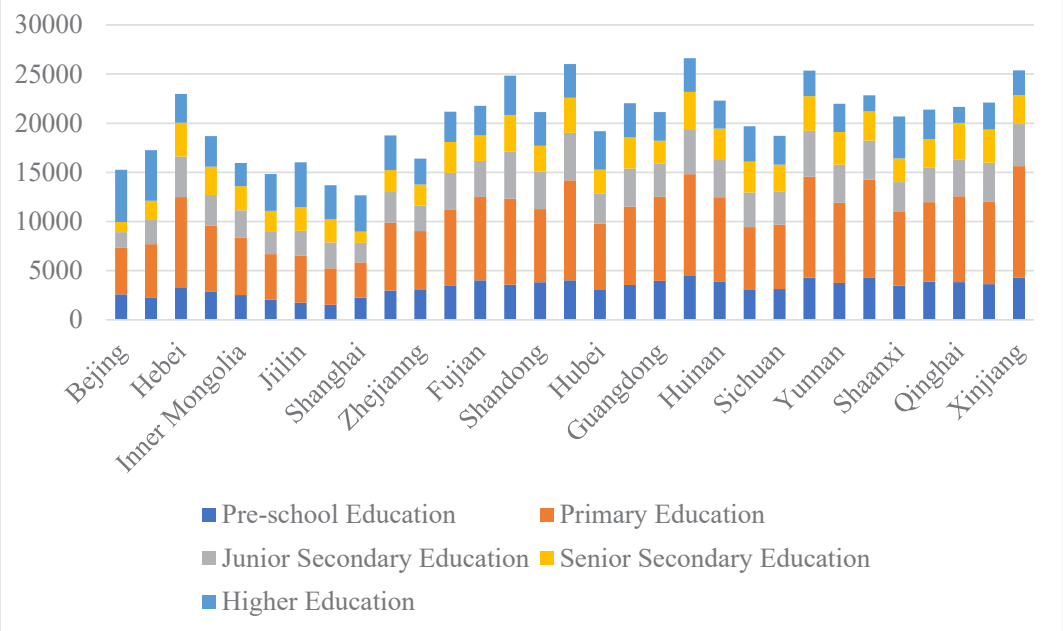

Figure 5. Average Education Enrolment per 100 000 Population by Regions in 2021
Source: based on information from the website of the State Statistics Service of Cathay [22]

for creating a skills gap that stands in the way of the materialization and impact of new waves of innovation. This is most evident in the areas of advanced ICT, programming, artificial intelligence, and data science skills. ICT skills of this type and digital skills are needed, in particular, for digital innovation in the agricultural sector and for many innovations in other sectors of the Chinese economy. Similar skills gaps will also become evident in areas related to the Deep Science wave.

Today, there are three levels of subnational jurisdictions in China: province (region), prefecture, and county (Figure 6). The average size of a province in China is about 300,000 km^2. As a result, it is difficult for provincial governments to implement policies in accordance with local heterogeneity. They should rely on lower-level governments, i.e. prefectural and county governments, to implement policies at the local level. Counties are the basic units in China's local government hierarchy, which are comparable to counties in the United States. Prefectural-level governments play an intermediate role between the province and its constituent districts. There are two types of prefecture-level units: prefecture-level (diqu) or prefecture-level city (diji shi). It should be emphasized that both prefectures and cities at the prefectural level are at the same level (prefectural level) in China's political hierarchy. In the prefecture, all counties are almost autonomous, and county governments have the right to make decisions about their own development. The prefectural government has no authority over the districts. Prefectural government leaders are unable to conduct economic policy on their own; instead, they transmit the decisions of the provincial government to the county and control them. Thus, the districts of any prefecture can make independent decisions on their own development, including on economic and political issues. For example, they can make decisions about where public funds will be spent and what public goods will be offered. In addition, counties decide on local taxes and subsidies, as well as the opening and location of new state-owned enterprises. In general, counties enjoy considerable autonomy in the prefecture.

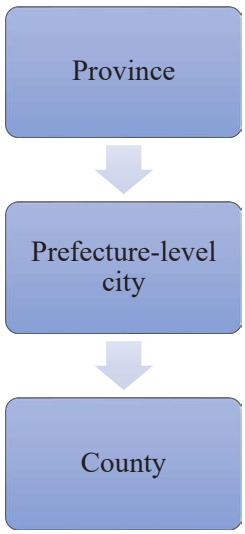

Figure 6. Levels of subordination of subnational jurisdictions in China

At the same time, in cities at the prefectural level (diji shi), county governments lose the priority of decision-making. The prefectural city government can direct the development of all prefectural city districts. The reason for this difference is that the city government at the prefectural level is not the "resident agency" of the provincial government, as in the case of the prefecture, but rather is an important intermediate level of government between the province and the district.

It is noteworthy to distinguish between two types of constituent districts in prefectures or cities at the prefectural level: metropolitan districts (urban districts/main cities) and peripheral districts (rural districts). The metropolitan area is where the city government is located at the prefectural level. Historically, the metropolitan area has been the central and most urbanized part of the city at the prefectural level, which is why in other documents it is referred to as urban districts or main cities. Its identity as the seat of government only at the prefectural level has been largely confirmed historically and remains unchanged. On the contrary, as its name suggests, peripheral counties usually surround metropolitan counties with lower levels of urbanization and development.

Hangings. Thus, the study of disparities in China's regional development is important from the point of view of understanding the impact of uneven development of different territories on the formation of competitive advantages. Taking into account the geographical diversity and different levels of economic development of different regions, the analysis of imbalances made it possible to identify the following factors influencing the formation of competitive advantages of territories in China – economic imbalances, Infrastructure and access to resources, Human Resources & Education, Innovation & Research, Geographic Location & Market Access.

Therefore, the study of the imbalances in China's regional development is important for understanding various aspects of economic, social and technological development in different territories. This can help identify the competitive advantages of certain regions and promote the rational allocation of resources and the development of various sectors of the economy in China.

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