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Asian Economies in the Context of Globalization



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Introduction

It is our great pleasure to deliver another volume of Research Papers on Asia-Pacific economic issues. Each year we present you multiple points of view on that topic, trying to show how much the processes in Asia & Pacific affect the world economy. After nine years of hosting international scientific conference dealing with that region's affairs, we are still confident that these issues are important not only for the countries of the region, but also for economies worldwide.

This year we have chosen for you 15 articles. All of them were submitted for this year's conference entitled "Asian Economies in the Context of Globalization". Seeing that some authors describe the issues of countrywide importance and others of those having regional or global meaning, we have decided to group them according to the criterion of impact range.

The first chapter – Asian Economies in the Global Context – is a collection of papers on general regionalization or globalization issues. T. Sporek is trying to refresh the view of the globalization processes occurring at the crossroads of economy and politics. M. Bartosik-Purgat is analyzing sources of information about products and services in the light of cross-cultural research. E. Majchrowska is using Regional Comprehensive Economic Partnership case to show the importance of mega-regional blocks in global trade. In addition, we decided to add to this part the articles the subject of which is not so general, but it applies to trade relationships of a global nature. This will be the EU-India trade and investment agreement (G. Mazur), Poland-ASEAN agri-food products trade (K. Kita) or anti-dumping procedures against China under WTO rules (J. Skrzypczyńska).

Articles in the second chapter are – as the title implies – embedded in a regional context. P. Pasierbiak deals with trade regionalization in East Asia. S. Bobowski offers an insight into ASEAN-Japan Economic Partnership. A. Kuropka and A.H. Jankowiak analyse the impact of natural disasters on production networks in the region. As the last in this section we have placed the article about Singaporean Competitiveness Model applied in European economies (M. Żmuda). It may be not strictly connected with Asia & Pacific, but its concept is to transfer Asian experience to Europe at the regional level.

The last chapter – Asian Economies in the Local Context – is mostly about domestic matters of Asian countries. You will find there three articles about China (J. Bogołębska writing about Chinese monetary policy, A. Klimek describing cross-border mergers and acquisitions by Chinese state-controlled enterprises, S. Stępień and A. Sapa showing Chinese pork sector), one about Indonesia (*Development of Islamic banking in Indonesia* by I. Sobol) and one about North Korea (M. Kightley applying game theory in prediction of political changes in that state).

We think it is an interesting set of papers you will find valuable in your studies. We also hope that your scientific interests will continue to be associated with Asia and that is why we invite you to the 10th anniversary conference which will be held at the Wrocław University of Economics in November 2017.

We appreciate your time and consideration, as also time and effort of our peer reviewers. We look forward to the further submissions of interesting papers on Asia & Pacific. Thank you!

Bogusława Drelich-Skulska, Anna H. Jankowiak, Szymon Mazurek

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CHINESE PORK SECTOR IN THE PROCESS OF WORLD ECONOMY GLOBALIZATION

CHIŃSKI SEKTOR MIĘSA WIEPRZOWEGO W PROCESIE GLOBALIZACJI GOSPODARKI ŚWIATOWEJ

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Summary: The main aim of the paper is to assess the role of China in the world pork market in the context of the globalization process. We analyse the Chinese pork industry against global conditions for pork production. Supply-demand and price relationships in the pork market in China are identified as well as the trends in the foreign trade of pork meat. The study uses data for the years 1992–2014 from the statistical databases such as FAO, OECD and WITS. National and foreign literature is used in the article. Research methods include critical analysis of literature, meta-analysis and elements of inductive inference. The survey shows that the role of China in the global pork supply and demand has been increasing during recent years. At the same time one could observe a change of relation between these variables – since 2008 excess of demand over supply has been noticed. This results in a foreign trade deficit, and the scale of this deficit is increasing systematically.

Keywords: pork sector, China, supply, demand, prices, foreign trade, globalization.

Streszczenie: Głównym celem publikacji jest określenie roli Chin na światowym rynku mięsa wieprzowego w warunkach globalizacji. Analizie poddano relacje podaży-popytowe i cenowe, a także tendencje w handlu zagranicznym wieprzowiną. W studiach wykorzystano dane z lat 1992–2014 pochodzące z baz statystycznych FAO, OECD i WITS, a także krajową i zagraniczną literaturę przedmiotu. Metody badawcze obejmują krytyczną analizę danych źródłowych, metaanalizę oraz elementy wnioskowania indukcyjnego. Badania wskazują, że ostatnio rola China w globalnej podaży i popycie znacznie wzrosła. Jednocześnie można zauważyć zmianę relacji dwóch wspomnianych zmiennych – od 2008 r. notuje się nadwyżkę popytu nad podażą. Rezultatem tego jest ujemny bilans handlu zagranicznego wieprzowiną, a skala tego deficytu sukcesywnie wzrasta.

Słowa kluczowe: sektor wieprzowiny, Chiny, podaż, popyt, ceny, handel zagraniczny, globalizacja.

1. Introduction

In today's world a key factor of the agriculture development is the process of globalization. It is expressed in the abolition of all border barriers to the allocation of production factors, production itself, as well as the distribution of agricultural products [Sobiecki 2013]. The creation of organizations, such as the EU, NAFTA, ASEAN, MERCOSUR and others, and a consensus within the WTO made the process more dynamic, emphasizing broader access to foreign markets. In the situation of global domination of industrial food corporations the capital moves to the regions with the circumstances of cheaper production. These companies, guided by the primacy of economic efficiency, seek to maximize profits by concentrating production, standardization of raw materials, ignoring environmental and social issues in their economic accounts. Lowering unit costs and increasing productivity became the criterion of competitive advantage [Hayami, Ruttan 1985].

This type of look at the agriculture development dominates in many regions of the world (the USA, Asia and South America), while in others (i.e. the European Union) a new paradigm for the functioning of the sector begins to play the growing role. It assumes multidirectional purposes of agriculture, also satisfying social and cultural needs of people, and the care for the environment (see also [Zegar 2012; Czyżewski, Stępień 2013]). As a result, on a global scale there are two options for the functioning of agriculture, and each of them proclaims a different approach to the realization of competitive advantages. Neoliberal option of industrial agriculture is looking for them in the lowest cost of production, the second – sustainable agriculture – in the emphasis on the quality and delivery of various types of public goods in the process of food production (natural environment, biodiversity resistance, animal welfare, etc.).

Regardless of the accepted doctrine of agriculture development factor, which in the long run shapes the functioning of agribusiness on a global scale, is the increase in production costs. On the one hand, this is the result of growing customer requirements for a high quality of products and compliance with environmental criteria. On the other hand, a relatively rapid increase in world population during the last decades increases demand for food and leads to an increase in price. To some extent the reason for the increase in prices is speculation in agricultural commodity markets, development of the production of biofuels made from the raw materials, and climate change which destabilizes the market. Taking into account the decisions of agricultural producers, the crucial issue is a relationship between changes in food prices (the prices of traded commodities) and the cost of production (prices of goods and services purchased by farmers), which determines the rate of price scissors. However, while production costs continue to vary on a global scale, prices tend to unify as a result of globalization and liberalization of world trade. That is why the international capital is moving toward regions with the lower costs of usage of production factors.

The processes of globalization, growth of average incomes of households in the world and identified demographic changes enforce therefore not only changes in the markets of various agricultural products, but also in consumer demand (e.g. increased consumption of meat in the relation to vegetable products). The transformation is particularly evident in developing countries, and processes occurring in these economies determine the changes of internal and external supply-demand relationship. Against this background, particularly interesting changes in the pork market refer to the largest developing economy. Therefore, the main aim of this article is to assess the role of China in the global pork market in the context of the globalization process. We analyse the Chinese pork industry against global conditions for pork production. In addition, supply-demand and price relationships in the pork market in China are identified as well as the trends in the foreign trade of pork meat. The study uses national and foreign literature and the data for the years 1992–2014 from the statistical databases of FAO, OECD and WITS. Research methods include critical analysis of literature, meta-analysis and elements of inductive inference.

2. Global conditions for pig meat production

Direct factors shaping the situation in the pork market in recent years have been: an increase in demand for meat on a global scale (although to some extent limited in 2008–2009 as a result of the economic crisis¹), the development of international trade and changing geographical structure of exports and imports, rising production costs (mainly feed), increasing requirements for environmental protection and quality of the meat. The upward trend in pig production mainly concerned those regions of the world, which were characterized by high economic growth, combined with the increase in disposable income of the population, as well as those who had an advantage in terms of production costs and/or prices in foreign trade. These were mainly developing countries, such as China, Brazil, Vietnam, the Philippines, Mexico, Russia (accounting for approximately 60% of global consumption of pork). In total, during the period 1990–2015, the growth in pork production in the world in developing countries has exceeded 240%, with the average for the world at 85% and 30% for developed countries.² Among the latter, the increase in supply in the long term occurred in the United States, but the pace of growth slowed after 2008. In the European Union the supply of pigs has stabilized at approximately 22–23 million tons of meat annually, oscillating in subsequent years due to changes in the profitability of raising, although in some countries (e.g. in Poland) there was noticeable decline in pigs population [Stępień 2011].

¹ A manifestation of the crisis was the decline in global exports of pork from 6.97 million tons in 2008 to 6.44 million tons in 2009 and a decline in average prices in foreign trade in the same period from \$1.46/kg to \$1.26/kg (in carcass weight) [stats.oecd.org].

² On the basis of OECD-FAO data [stats.oecd.org].

The factor influencing the global pig production is the economic situation in the world, determined by the rate of growth and level of disposable income, which in turn shapes the demand for pork. The impetus for the growth of supply is also a high natural population growth recorded in developing countries. In addition, with increasing prosperity in these regions there is a change in consumption patterns – substitution of plant origin food by animal origin products – resulting in growing demand for both pork and plant raw materials connected to the production of fodder [Stępień 2013].

We should also mention the exchange rates (the importance of this factor increases with the growth of world trade), including in particular the US dollar as the common currency for most transactions in agricultural commodities. For example, the depreciation of dollar was one of the impulses increasing the world prices for food in 2007–2008 and 2010–2011 [Plantier 2012; Cardwell, Barichello 2009]. At the same time, relations of exchange rates, coupled with the price of production factors, affect the flow of capital toward countries with relatively low production costs, mainly Asian and South America countries. Regions that have traditionally dominated the production and foreign trade of food products (Western European countries, the United States) lose today their advantage resulting from higher production efficiency and they are forced to look for other sources of competitiveness.

This situation is also the result of the expansion of transnational corporations that invest capital where profits achieved are the highest. This means, among other, extending the way for food processing, the way “from farm to table.” It creates a temptation to obtain additional revenues through less cost, including distribution of food of inferior quality. This is even more likely with long distribution channels that make it difficult to track and monitor the food chain [Stępień 2011]. Production is placed therefore in the regions which guarantee lower labour and material costs and in the regions for which the location factors for crops and animal husbandry are the minimum requirements for environmental and applied technologies [Kowalczyk 2010]. It should be noted that a positive result of this process in the long run may be the reduction of the development gap between developed and developing regions [Boehlje 2009].

3. Chinese pork sector in process of globalization

Conditions of the pork production mentioned above exist in relation to the Chinese market. China is the largest producer and consumer of pork in the world. It makes up about half of the global supply of this kind of meat and the same is their demand. In 2014 production amounted to 56.7 million tonnes, whereas the level of consumption 57.2 million tons (*per capita* consumption of 32 kg). Since the early nineties these values increased 2.5-fold. Due to the size of the population and its dynamic growth in recent years, pigs breeding in China today does not ensure self-sufficiency in terms of domestic consumption, so the country is a major importer of pork meat,

mainly in the years of pig population decline. The continuing imbalance of demand is a factor influencing the pork prices, the level of which is steadily increasing, and raises the overall rate of consumer inflation [BPEX 2012]. Another problem is high feed prices,³ depleting natural resources (land and water) and environmental requirements. In response to these trends, the Chinese government runs a number of intervention instruments.⁴ At the same time the market forces the concentration of the processes of production, and small scale breeding is disappearing because of the development of industrial farms.

In China, as in many developing countries, the progressing urbanization process of the population occurs [Best 2013]. On the one hand, such situation stimulates the development of the pork sector due to the increase of household's income from non-agricultural job and consumption of more protein products coming also from meat. On the other hand, the migration of population from rural to urban areas causes a loss of the agricultural labour force and increases production costs. To preserve the competitiveness of the pig meat sector, it will be necessary to achieve higher efficiency of the raw materials production. It will force the concentration of land and increase the scale of operations. The existing structure of pig farms, which was dominated by peasant farms, has been already replaced gradually by more specialized bodies.

The process of restructuring of the meat sector in China, consisting of uneven decline in production in small farms together with the continued growth in domestic demand for pig meat, leads to an imbalance in the market of raw material and causes price fluctuations. Since a large part of the supply comes from the small scale farming, changes in market situation imply further reactions of agricultural producers. So we have a kind of feedback loop – the impulse in the form of supply changes induces price mechanism that becomes a cause of further adjustments in production. However, as long pig farming in China will be based on small farms, so long cyclical fluctuations will take place in a violent manner.

Increasing globalization process forces the transformation of the domestic market towards the industrialization of the agricultural sector, creating new coordinated business models, such as vertical integration. It is conditioned by profitability of large-scale farming, as well as the need to ensure food security and to control the marketing chain in the sector. A key role in this process is played by companies

³ Only in 2006–2010 the cost of feed to produce one kilogram of pork in China rose on average from \$0.55 to \$1 (see: [Gale et al. 2012]).

⁴ Examples of the support of the Chinese government are: subsidies and tax exemptions for investment projects for pig producers (e.g. the modernization of farm buildings, increasing scale of production), VAT exemption on purchases of feed, exemption from income tax for meat processors, subsidies for environmental investments, subsidies to sows insurance, subsidizing the interest rate for loans, grants for the promotion of foreign trade, grants for research and technical progress. Besides, in 2007, a system of state reserves was created, and since 2008 the government has had a system for monitoring the prices of pork [Xie 2012].

with foreign capital forcing out the small-scale farms. The latter give up production due to the high risk of economic activity (variable profitability of farming) and of the crises associated with animal diseases occurring occasionally. This involves the disappearance of domestic pig breeds and their replacement by foreign animal breeds whose genetic material allows for achieving better indicators of productivity of farming. It is estimated that 50% of new races (including the Duroc, Landrace, Yorkshire, Hampshire and DeKalb particularly) comes from the US, 20–30% from Canada, and further 10% from the EU countries.

Within the development of vertical integration, the breeding companies sell contracted breeding pigs to the producers of finishers. Then those producers deliver ready to slaughter animals to the meat processors according to previously signed contracts. An increasingly important role is also attributed to the vertical integration backwards. Part retail chains (e.g. Walmart, Carrefour) sign permanent contracts with processors to supply product range, in order to control the production chain, which is important in the context of the quality requirements set by customers [Nelson 2012].

4. The supply-demand relations, prices and trade

In the years 1990–2014 the production of pig meat in China has increased from 23 million tons to nearly 57 million tons. On the basis of matching trend line it can be concluded that the average annual increase amounted to 1.27 million tons. The conducted analysis allows us to state that the functions of the changes in production in China and in the world are similar (see Figure 1). It can therefore be concluded that the economic situation in China shapes the global supply of pork. The growth of pig meat supply in China accounted for over 60% of the world growth, and the estimated Pearson's correlation coefficient for the two time series amounted to 0.79.⁵ Higher Chinese production, firstly, is the result of the increase in consumption *per capita* (from 15 to 32 kg per year) stimulated by the income, the changes in the structure and style of consumption and the process of urbanization. Secondly it is the effect of demographic change (the increase in the population of 1165 million to 1386 million).⁶ The growth rate of pig meat production and demand was similar, but with a predominance of the latter. In the nineties and early twenty-first century the volume of production exceeded domestic demand, but these relationships have changed in recent years (see Figure 2). Such a new situation occurred in 2008 for the first time, and since 2011 the production deficit remained sustained although its scale has increased in subsequent years (according to the OECD forecasts the deficit is expected to reach 600 thousand tons in 2015).

⁵ S. Stępień indicates that this type of relationship was average or poor for other countries or regions (e.g. the EU). In some cases the negative correlation was observed [Stępień 2015].

⁶ According to X. Xiam and T. Xiangyoung [2000] the most important determinants of increase of pig meat prices are income per capita and rise of China population.

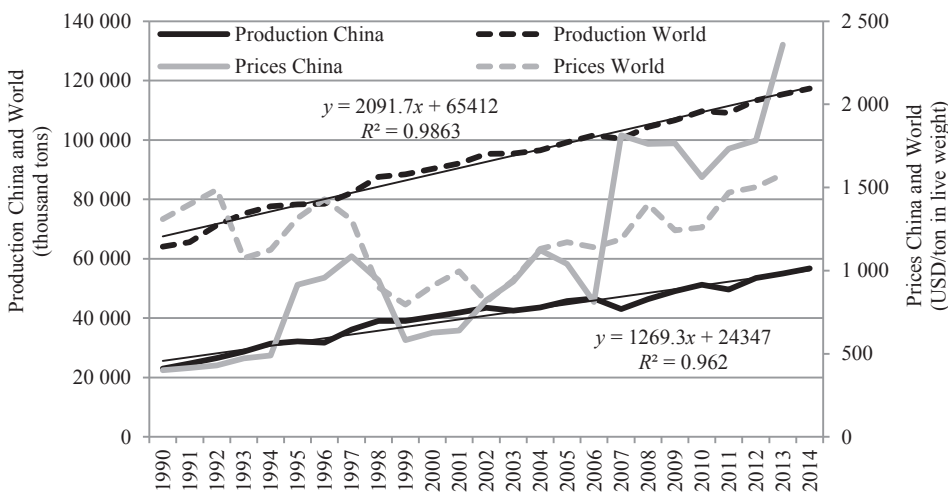


Figure 1. Production and prices of pig meat in China compared to the world in 1990–2014 (thousand tons, USD/ton in live weight)

Source: own elaboration on the basis of OECD [stats.oecd.org] and FAO data [faostat.fao.org].

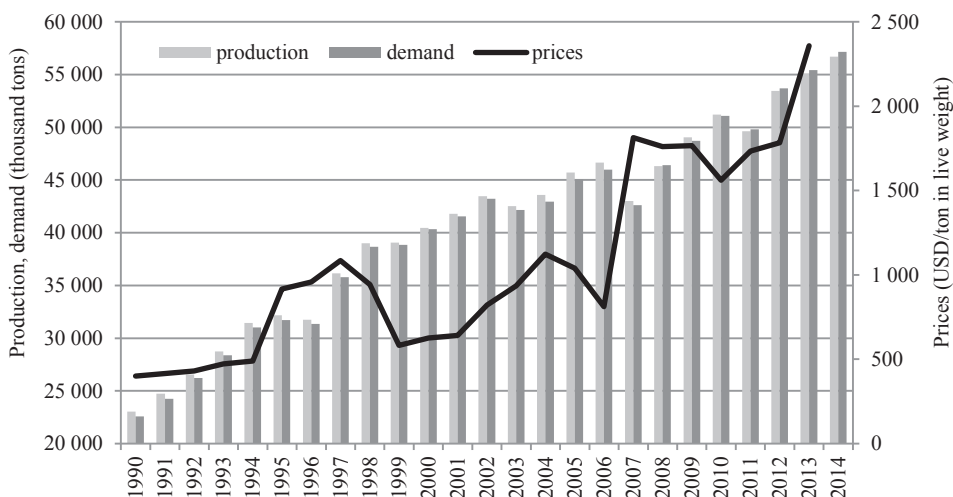


Figure 2. Production, demand and prices of pig meat in China in 1990–2014 (thousand tons, USD/ton in live weight)

Source: own elaboration on the basis of OECD [stats.oecd.org] and FAO data [faostat.fao.org].

Growing disparities are also the result of the previously described structural transformations in the pig sector connected with the elimination of small-scale

farms. Under global pressure to improve management efficiency accompanying by rising operating costs and the need to take into account the economic calculation of the natural environment, small producers reduce the breeding of pigs. The effect is a reduction in the basic herd, which may result in lower population growth rate and meat supply in subsequent years.⁷

The immediate effect of the tendencies mentioned above was a six-fold increase in the price of pig meat in the Chinese market (from almost \$400 per ton at the beginning of the nineties to nearly \$2400 per ton in 2013). It is noteworthy that during the first few years of the period 1990–2013 the world prices⁸ were going down and after 2002 they bounced (see Figure 1). But in the end, their level in 2013 (less than \$1600) only slightly exceeds that of 1990. Thus, in contrast to the supply, the prices of pig meat in China are not shaping up as world prices and are not follow them. They are just determined by internal factors. The point is that the pig sector has been rapidly transformed in the last few years and it has also a different support system (developed interventionism). In addition, Chinese pig sector is much more susceptible to crises caused to animal diseases or even climatic conditions.⁹

However the fact is that China has transformed from a country competitive in terms of price towards a country where prices are among the highest in the world.¹⁰ This makes the Chinese market to be attractive for large foreign meat companies that locate their production directly in this region or try to increase its share in the Chinese export of pig meat. The domestic pig industry is also developed with the largest company of this kind in the world – WH Group Limited (formerly Shuanghui International Holdings Limited).¹¹ So, the effect of globalization is the change of the traditional production model into the industrial one with all the economic, social and environmental consequences.

Although China produces most pig meat on a global scale, it is not self-sufficient in this scope. Changes in the production system do not guarantee enough domestic

⁷ Clear signs of slowdown of the pig population growth were recorded in 2015. According to the US Department of Agriculture (USDA) the pig population in China may fall by more than 40 million in 2015 [<https://www.agra-net.net/agra/agra-europe>].

⁸ The world price was indicated as the average price of the 12 leading exporting countries weighted by the share of each country in the global export of pig meat. The US dollar was adopted as the currency of reference (prices in local currency were converted at the official rate of the dollar).

⁹ This was the case in 2007, when the annual increase in purchase prices of livestock, expressed in US dollars amounted to more than 130% and was primarily due to a reduction in pig population affected by PRRS virus epidemic (i.e. blue ear disease). In the following months there was a further decrease of the herd as a result of a long and cold winter in the Southeastern provinces of China (Guangxi, Hunan and Jiangxi) and the earthquake in Sichuan Province. That is why prices remained at a high level for the next period [*The Story...* 2007; McOrist et al. 2011].

¹⁰ For example higher prices are in Japan, Switzerland, Norway and Italy. In countries with the highest share in the world export of raw materials (e.g. the USA, Canada, Brazil, Germany, Denmark, the Netherlands, Spain) the prices are lower.

¹¹ See website: [<http://www.businesswire.com/news/home/20140121005322/en/Shuanghui-International-WH-Group>].

supply of pork to meet growing consumer demand. As a result, the changes in the foreign trade of pig meat are observed. According to the OECD data, even in the early 90s of the 20th century, China exported more pork to the third countries than imported (see Figure 3). This situation changed in the second half of the first decade of the 21st century, when China became a net importer of pig meat. In 2014, the trade deficit in the pig meat trade amounted to over 400 thousand tons.

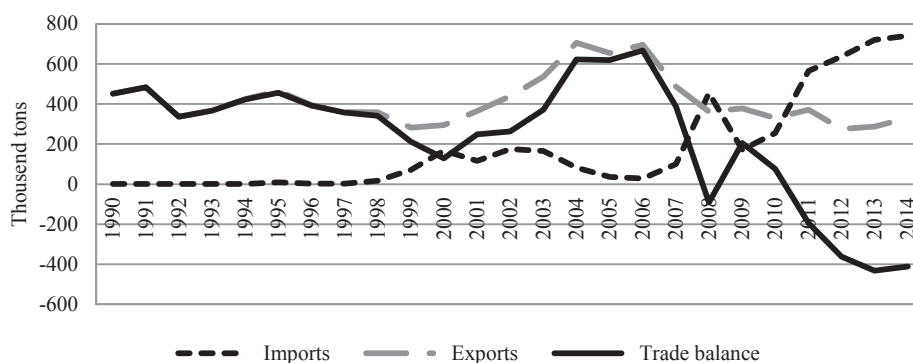


Figure 3. Export, import and trade balance of Chinese pig meat in 1990-2014 (thousand tons)

Source: own elaboration on the basis of OECD data [stats.oecd.org].

Such trends are also evident in terms of value of pig meat trade. In the years 1992–2014 the value of export of pig meat from China increased from more than \$470 million to over \$1.3 billion. In the same period, the higher import dynamic resulted in an increase in the value of import of this group of products from less than \$1 million to nearly \$2.5 billion (see Table 1). As a result, since 2008 China has converted from a net exporter to a net importer of pig meat.¹² It also meant a decline in the share of Chinese export of pig meat in the agri-food export of China (from 4.5% to 2% in the years 1992–2014) and world export of pig meat (respectively from 4.8% to 2.8%). In the case of import of pig meat, there was a corresponding increase of more than 2 and 5 p.p. (see Table 1). In 2012–2014, the main suppliers of pig meat to China were the United States, Denmark, Germany, Canada and Spain. Their combined average share in the value of China's import of pig meat stood at over

¹² A similar tendency characterized the agri-food trade of China. The agri-food trade showed a growing imbalance since 2008. In 2014 it amounted to almost –39.5 billion US dollars. In the years 1992–2014 the value of agri-food export of China increased more than 6.5 times, while for import it was nearly 26.5 times. In the analysed period, China from a net agri-food exporter has become a net importer of this product group. At this time the share of Chinese agri-food export in the global agri-food trade stood at a relatively stable level, but the share of import increased more than 4 times.

80%.¹³ At the same time, almost 82% of Chinese pig meat were exported to Hong Kong (68%) and Japan (14%).

Table 1. Chinese international trade of pig meat in 1992–2014 (million US dollars, %)

Trade	1992	1997	2002	2007	2012	2013	2014
Trade of pig meat (million US dollars)							
Export	471.9	605.3	558.6	909.8	1 231.9	1 255.2	1 374.9
Import	0.7	5.6	131.8	472.6	2 472.6	2 660.5	2 486.1
Trade balance	471.3	599.6	426.9	437.2	–1 240.6	–1 405.3	–1 111.2
Share of pig meat trade in agri-food trade of China (%)							
Export	4.5	4.2	3.2	2.6	2.0	1.9	2.0
Import	0.0	0.1	1.3	1.4	2.6	2.6	2.3
Share of Chinese trade of pig meat in the world pig meat trade (%)							
Export	4.8	3.7	3.4	2.8	2.6	2.6	2.8
Import	0.0	0.0	0.8	1.5	5.3	5.7	5.3

Source: own calculations based on WITS data [<http://wits.worldbank.org/>].

Table 2. The biggest world exporters and importers of pig meat in 2012–2014 (%)

	Share in the world pig meat export (%)		Share in the world pig meat import (%)	
1	Germany	15.7	Japan	11.5
2	United States	12.8	Germany	10.1
3	Denmark	11.1	United Kingdom	6.4
4	Netherlands	9.9	Italy	6.3
5	Spain	9.1	Russian Federation	5.7
6	Canada	7.3	China	5.4
7	Belgium	5.1	Hong Kong, China	5.4
8	France	3.6	Poland	4.7
9	Poland	3.4	France	4.1
10	Brazil	3.0	United States	4.1

Source: own calculations based on WITS data [<http://wits.worldbank.org/>].

Observed trends in the pork market (including the relation of supply and demand in a given country or region of the world) are reflected in the geographical structure of foreign trade. They have also changed the position of China in the world trade. In 2012–2014 China was in the top ten importers of pig meat (see Table 2). It recorded (together with Russia) the largest increase in its share of world imports compared to

¹³ In 2012–2014 the average share of the US in Chinese import of pig meat (in terms of value) amounted to about 35%, for Denmark 15%, Germany 14%, Canada 10%, and Spain 9%.

1992–1994.¹⁴ At the end of the analysed period the importance of Japan, Germany, Great Britain and the United States decreased. In the top 10 world's largest exporters of pig meat the EU countries, USA and Brazil dominated. China was placed in the 12th place, while in 1992–1994 it was still among the top 10 exporters.

5. Conclusions

Based on the survey, the following conclusions can be drawn:

- The role of China in the global pork market has been increasing during recent years. Factors stimulating the increase of supply are both internal and external.
- Internal factors are associated with the increase in the wealth of the society, which implies a growth in demand for meat. At the same time the sector experienced restructuring process related to the development of scale farming and land concentration.
- External factors arise, among others, from the process of globalization. They are associated with the flow of capital towards China (due to the lower cost of activity) and the development of industrial methods of production in international corporations.
- The determinant of the foreign trade is the relation between domestic demand and supply. In the analysed period there was a change in the proportions of these variables – since 2008 excess of demand over supply has been observed. This results in a foreign trade deficit, and the scale of this deficit is increasing systematically.

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¹⁴ The share of China and Russia grew by 5.4% and 5.7%, respectively. Both countries were among the biggest world importers of pig meat in 1992–1994.

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