

## Research papers

### RELATIONS: AGRICULTURE – ECONOMY IN THE THEORY OF ECONOMICS

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*First then a state must have a supply of food.*  
(Aristotle, Politics)

#### Abstract

*The paper discusses the position of agriculture in the economy at various levels of economic development and in various schools of economic theory. The complexity of the analyzed area is a consequence of the fact that agriculture is one of the first forms of conscious and organized human activity. Its importance for society and economy results from the main goal of this activity, which is to satisfy the basic human need, the need to satisfy hunger. The study depicts three basic perspectives from which agriculture is presented in economic theory: (i) relations between agriculture and other sectors of the economy, (ii) the main forces shaping the mechanism of changes and the development of agriculture, and (iii) basic directions (paths) taking place in a time of changes in agriculture.*

*In the second part of the paper, one of the three main perspectives illustrating the position of agriculture in the economy and in the theory of economics, i.e., the relations between agriculture and other sectors of the economy, was subject to empirical verification. The assessment was carried out on the example of Pol-*

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*ish agriculture and its evolution over time. The analysis covers the changes that occurred after 1950 in areas such as the potential of agriculture in the economy (land, labor, and capital resources), the contribution of agriculture to creating added value (GNI/GDP), agricultural production, participation in foreign trade and changes in food consumption.*

**Keywords:** agriculture, economy, economic theory, food consumption.

**JEL codes:** E20, O13, Q10.

## Introduction

Apart from producing tools for everyday use, agriculture<sup>1</sup> is one of the first forms of conscious, organized human activity. Its emergence brought about significant changes in the organization of tribal groups, leading to the evolution of primitive social and economic forms towards what we presently call civilization. It initiated the development of new, higher forms of social organizations and was the key to the emergence of settled civilization.

The importance of farming and the gradual domestication of animals resulted not so much from the pioneering nature of these activities but from their main goal, i.e., satisfying the basic human need, namely, hunger. For these reasons, agriculture and food production quite quickly became the object of particular care of rulers and were of special interest to philosophers, writers and thinkers, and finally politicians. As a result, the oldest regulations in the area of agricultural and food processing come from hundreds or even thousands of years ago, an example of which is the Babylonian Code of Hammurabi from the 18<sup>th</sup> century BC, or numerous regulations and decrees from antiquity and the Middle Ages (Kowalczyk, 2017).

Aristotle (2003, p. 171) wrote, as early as in the 4<sup>th</sup> century BC, “(...) food is the first need, then technical skills (...), and weapon is the third one”. Xenophon, the author of the work entitled *Oeconomicus*, devoted to farm management and often treated as the first work in the field of economics, wrote at the turn of the 5<sup>th</sup> and 4<sup>th</sup> centuries BC “(...) even the strong<sup>2</sup> would not be able to live if there were no farmers” (Xenofonta, 1857, p. 17).

Thus, practically from the beginning of civilization, as well as during its further evolution, agriculture was an important element of human activity, whose role, importance, and involvement in this development changed over time. Views on the position of agriculture in economic and social development evolved as well.

1 In its original form, agriculture involved mainly gathering and hunting. In the study, we use the terms “agriculture” and “agricultural sector” interchangeably, although in the literature and in common use, the term “agriculture” usually refers to the sector of the economy related to plant growing and animal husbandry, and the term “agricultural sector” refers to the sectoral theory of the economy, whose the authors and advocates included researchers such as Fisher (1895-1976), Clark (1905-1989) and Fourastie (1907-1990). The term “sector” is commonly used in EU legislation not only to refer to agriculture but also to other industries of the economy.

<sup>2</sup> Strong in fighting and defending the country.

### **Agriculture: the *enfant terrible* of the economy**

The role of agriculture in developing the character and image of both the economy and society has been changing along with the environment, technological progress or, more generally, civilization progress, and the position of food in consumer spending. However, regardless of where agriculture is today, its role derives from the fact that it was the primary and fundamental sector of the economy. Therefore, it was also the only sector of the economy capable of generating an economic surplus necessary for further development, including industrial development (Woś, 1979). As for economic development, it was not important that agriculture ensured work for a lot of people, or even – although it is essential – that it produced food, but, as Byrne (1955, p. 17) wrote: “the rate of an economy’s progress, social and economic, is closely tied to the surplus produced by its basic enterprises”. Moreover, the increase in agricultural productivity made it possible to release the labor force, so necessary in emerging sectors, from this area. Since the development of these sectors was a prerequisite for progress and wealth generation, this approach led to the emergence of a doctrine giving priority to industrialization at the expense of agriculture (Norton, 2004). Thus, what happened over the years that farming has become a “national headache” from the foundation and basis of economic development (Byrne, 1955, p. 40)? And more generally, also a supra-regional problem, and nowadays a global one.

Two assumptions were essential for the evolution of the perception of agriculture and its role in the economy. Firstly, agriculture had to be efficient enough to require only a small fraction of natural and human resources to generate sufficient food supply, and secondly, it was necessary to transfer resources from agricultural to non-agricultural sectors of the economy. This was to ensure the evolution of low-income farming communities into affluent industrial societies (James, 1956), which in fact happened, although not in all countries and regions of the world.

The dispute over the position of agriculture in the economy and society has been going on for at least over 250 years. This dispute, as stated by Lains and Pinilla (2009), continues mainly in disciplines such as economic theory and economic history. The dominant positions on this issue evolve from the view that agriculture was a sector whose resources were “sucked out” to foster economic growth, but agriculture itself had a small share in the growth, through emphasizing the inherent impact of agriculture on economic growth (agriculture as one of the sources of economic growth), to opinions that intersectoral relations are more important than the hypothetical “contribution” of agriculture, and it is from this very perspective that the role of agriculture in the economy should be analyzed without excessive focus on non-agricultural sectors (Lains and Pinilla, 2009). However, this does not mean that nowadays there is a common consensus as to the role of agriculture in the economy and civilization progress.

## Agriculture in the theory of economics

In economic theory, agriculture has been presented from many different perspectives that have varied over time. At least three of them appear to be crucial, namely:

1. relationships between agriculture and other sectors of the economy, and more broadly, the socio-economic environment;
2. the main forces shaping the mechanism of changes and agricultural development;
3. basic directions (paths) of changes occurring in agriculture over time.

### Relationships: agriculture versus non-agricultural sectors

Agriculture was elevated to the rank of the basic sector of the economy by physiocrats. Quesnay (1694-1774) presented in the famous economic table (*Tableau économique*, 1758) the flows that occur between the main classes of society. The productive class comprised pheasants and land tenants. Only they produced a net product that they gave away to landowners in the form of rent.

Popławski (1774, pp. 8-9), a Polish representative of physiocracy, wrote that "(...) agriculture is the first part of Political Economics", because "it is the only foundation of all wealth of each country"<sup>3</sup>. The physiocrats claimed that the unique position of agriculture is due to the fact that it is the only human activity that results in obtaining an "asset" from the earth satisfying all human needs. Craftsmanship gives this "asset" only an appropriate form, and thanks to trade it is possible to move goods from one place to another (Popławski, 1774, p. 24). The above position illustrates the main economic thought of physiocrats in a classic way. New value is produced only in agriculture and it is only in agriculture that labor is productive. Without the farmer's work, the craftsman would have nothing to process and the merchant would have nothing to trade in.

Physiocracy emerged in the conditions of the French agriculture. This theory became popular also in other countries, but mainly those focusing on agricultural production, hence also in Poland. It strongly opposed mercantilism with its apotheosis of trade as the basis for the enrichment of people and the state.

Mercantilism elevated trade and merchants to the second most important component of the state, preceded only by its authorities. For these reasons, merchants were treated as "(...) more than useful in the state, and their concern for industry is[was] part of the public good" (Montchrétien<sup>4</sup>, 1889, p. 137). For these reasons, the basic economic activity should be based on (foreign) trade and industry (Steuart, 1805a, p. 167)<sup>5</sup>. The involvement of too many people in agriculture leads to useless production, which in turn contributes to the decline of agriculture (Steuart, 1805a,

<sup>3</sup> Antoni Popławski (1739-1799) understood political economy as the government's actions referring to the whole society (covering the whole country). He also distinguished private economy, referring to a single citizen, and farming economy, referring to "cultivating land and seeking benefits therefrom" (Popławski, 1774, p. 7).

<sup>4</sup> *Traicté de l'Économie Politique* by Antoine de Montchrétien/Montchrestien (1575-1621) was published in 1615. The author is considered the creator of the term "political economy".

<sup>5</sup> Sir James Denham-Steuart, 7<sup>th</sup> Baronet (1712-1780) – a British economist living in the 18<sup>th</sup> century. He happened to be referred to as the "last mercantilist".

p. 129), while depriving other sectors of the economy of indispensable labor. According to Steuart, agriculture cannot equal trade in terms of organization methods, because people make their living there [meaning in agriculture] on “free” and spontaneous fruits of the earth (Steuart, 1805a, p. 173). Therefore, he divides agriculture into commercial, i.e., agriculture necessary to provide food to society (useful) and the other agriculture which is a form of existence and continuation – unnecessary from the social point of view (abusive) (Steuart, 1805a, p. 210).

However, it was the trade that was the most important aspect, as it was an activity in which the wealth of individuals and societies flows between people “(...) in accordance with their needs, without any disturbances or control of consumption”. According to this approach, industry, in turn, is only “the application to ingenious labor in a free man in order to procure, by the means of trade, an equivalent, fit for supplying every want” (Steuart, 1805a, p. 223). Since trade turned out to be favorable for the generation of national wealth, in a situation unfavorable to competition on foreign markets, it should be supported by the state and its administration, as well as through “adequate involvement of public funds” (Steuart, 1805a, p. 375), primarily because trade makes it possible to enrich one’s nation “at the expense of all those who trade with her instead of being enriched at the expense of their own countrymen” (Steuart, 1805a, p. 383).

While mercantilism was generally an ideology of maritime countries, physiocracy was professed by agricultural ones. However, physiocracy did not stand the encounter with the rapidly developing capitalism at the turn of the 18th and 19th centuries as the only countries amassing wealth were those focusing on industry and international trade rich rather than agriculture. And as Smith (2015, p. 5) wrote, some theories increase the importance of economic activity in cities (commercial/mercantilist system), while others increase the importance of the economy in rural areas (agricultural system)<sup>6</sup>.

In this new reality, the position of agriculture began to decline sharply. The development of new forms of economic activity required capital, while agriculture and rural areas became the only and as much as its main providers, because in the pre-industrial economy they were, as already mentioned, the basic sector and place where economic surplus was generated. The foundations for such understanding of the role of agriculture in economic development, that became later a paradigm of classical economics, were laid by Smith. Although at the same time, and even before *The Wealth of Nations* was written, the French economist Turgot (1727-1781) wrote that rates of return on the various uses of wealth are offset by capital mobility between different uses, and that capitalist agriculture was subject to modernization and displaced the primitive forms of organization such as slavery or natural leases, giving rise to large farms that not only increased the value of land, but were able to bring their owners satisfactory income (Turgot, 1795, p. 70). Turgot also argued, as did physiocrats, that only agriculture could produce a surplus in the form of rent (Brewer,

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<sup>6</sup> Smith discusses these systems in the 4<sup>th</sup> book of *The Wealth of Nations*, entitled: *Of Systems of Political Economy*.

1987, p. 425). Therefore, Turgot is regarded by some people as a representative of classical economics and a pioneer of the theory of land rent, which was later “only” developed by Ricardo, whereas by others as a typical physiocrat<sup>7</sup>.

The flow of capital from rural areas to cities, i.e., from agriculture to industry and trade, was the basis of contemporary development. In England, agriculture gave rise to industry in many urban areas (Smith, 2015, p. 464). Over time, however, the accumulation of this capital in new activities was so great that it led to a reduction in profits and seeking new investment opportunities. Thus, “as the fertility of the land had given birth to the manufacture, so the progress of the manufacture reacts upon the land and increases still further its fertility” (Smith, 2015, p. 464). It happens in three different ways: (1) creating a large and absorbent market for agricultural products, (2) investing by city dwellers in land purchases, including land that is not cultivated, and (3) introducing a new order to the lives of rural residents, including increased safety or a new form of organization of production and social structures in rural areas (Smith, 2015, pp. 466-467). In this way, capital was partially “returned” to rural areas at the expense of which it was initially accumulated in cities (Smith, 2015, p. 152). “Agriculture creates industry; the growth of industry improves agriculture” – wrote Staszic (2003, p. 186) in a very similar vein in 1790, i.e., only 14 years after publishing *The Wealth of Nations*.

Among the representatives of classical economics, it is worth mentioning the views of the slightly forgotten Skarbek (1792-1866), considered the most outstanding Polish representative of this trend in economics in the interwar period (Skarbek, 1926, p. 6). Skarbek was strongly influenced by Smith, Say, and the German economist Kraus<sup>8</sup>, as he admitted in the preface to *Elementarne zasady...* (Skarbek, 1820a, p. 2), his key work in the field of economics<sup>9</sup>.

According to Skarbek (1820a, p. XIII), putting agriculture above other sectors of the economy, as physiocrats do, is wrong, because the nation’s wealth does not come from land farming. Preferring agriculture both in life and in science is only a consequence of the tradition related to the original nature of this sector and the usefulness of its products for humans. This happens, however, to the detriment of both crafts and trade, “because these sectors never provide food directly”. Skarbek sees the advantages of other sectors over agriculture in the fact that they are more susceptible to division of labor, which increases their individual productivity. According to him, there is no such opportunity in agriculture mainly due to its specific characteristics, including the spatial extent of land, the influence of the seasons on the organization of work or the high variability of agricultural work.

<sup>7</sup> D. Ricardo (1817, p. IV), in the preface to his main work, i.e., *On The Principles of Political Economy, and Taxation*, dissents from the views of Turgot, Smith, Say, and others, claiming that “these talented authors do not understand correctly the principles of rent, (...), they overlooked many important truths...”.

<sup>8</sup> Christian Jakob Kraus (1753-1807) was a German economist. His main work is 5-volume *Staatswirtschaft* published in 1808-1811.

<sup>9</sup> F. Skarbek had extremely broad interests and besides being an economist, he was also a novelist, historian, translator, diarist, social and political activist, and painter.

Skarbek (1820a, p. 123) considers agriculture as a raw materials sector, which means that the value generated therein is increased by industry (crafts), attaching these raw materials a value in use, and by trade, giving them an exchange value (for Skarbek: interchangeable). All three sectors of the economy generate together national wealth, as work is the first source of wealth – work that occurs in all types of production (Skarbek, 1820a, p. 19). Generally speaking, the wealth of a nation is a consequence of the condition of the national economy, understood by Skarbek (1828, p. 159) as “a set of forces and methods that the nation uses to maintain the physical existence of the people comprising it and to improve this existence ever more”.

As for agriculture itself, Skarbek argues that smaller estates are the most efficient, because in large ones part of the land is poorly cultivated or is not cultivated at all. He is also an opponent of peasant serfdom, perceived by him as the reason for the low productivity of many farms. In other words, Skarbek (1820b, p. 75) was an advocate of agriculture based on relatively small estates, relying on hired labor.

With the evolution of the craft industry towards great industrial forms, the importance of agriculture decreased. Its role was increasingly to provide food for city dwellers and industrial workers. Agriculture did not create the “wealth of nations”, but it was increasingly different from the forms of non-agricultural activities. The specificity of agriculture, to avoid calling this state a failure to keep up with nascent capitalism, was increasingly apparent. As this specificity, separateness, or lagging behind could not be eliminated, a problem, often referred to as the agrarian question, emerged.

The interest in the agrarian question would almost cyclically increase and decrease in subsequent periods. As Chołaj (1966, p. 8) wrote more than half a century ago, this situation was primarily due to “agriculture as a source of conflict”. The increasing of potential conflicts or crisis situations in agriculture led to a natural increase in interest in its problems. According to Kautsky (1899), the capitalist model of production develops first in industry, which is rather unaffected by agriculture, but the development of industry does affect agriculture and its nature, which leads to a kind of subordination of rural areas and agriculture to non-agricultural sectors. On the other hand, Krzywicki (1967, p. 88) wrote about a revolution in “shiftless and routine<sup>10</sup> agricultural production”, while Wilkin (1986, p. 34) wrote about the “peculiarity of agriculture”, that did not keep up with changes taking place in other sectors of the economy, increasing its departure from the level represented by its environment.

In the literature one can find views both on the elimination of the agrarian question (Byres, 1991, p. 12) and on a new spectrum of the agrarian question, modeled on the Marxist Communist Manifesto (Moyo, Jha and Yeros, 2013, p. 94).

To sum up, we should probably agree with Runowicz (1984, p. 365) who wrote that “the agrarian question will never be resolved for good, only temporary solutions are possible”, which confirms the status of agriculture as a kind of *enfant terrible* of the economy. However, this situation can be changed by future achievements as part of technical (biological) progress, which will allow for overcoming

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<sup>10</sup> Meaning also traditional.

the laws of biology and the formation of agricultural production like any other production, as well as the unification of production relations throughout the economy. However, will it still be agriculture as we know it today?

Regardless of what actions will be taken with respect to the agrarian question, this problem cannot be ignored or regarded as a natural state, because irrespective of its form or the severity of its manifestation, it is a threat to economic and social development (Wilkin, 1986). No country's economy will develop smoothly if its agriculture is a backward sector.

The approach assuming the subsumption of agriculture and treating it as a reservoir of labor and capital for non-agricultural sectors has had strong theoretical grounds for a long time. In his paper entitled *Economic Development with Unlimited Supplies of Labour*, Lewis (1954, p. 29) presented a model of economic development in which one of the assumptions was as follows: agriculture is one of those sectors where "the marginal productivity of labor is negligible, zero, or even negative". If so, the faster the transfer of labor from agriculture, also from small trade, household services, etc., the faster the economic growth. However, this cannot lead to a collapse in agriculture, because stagnation in this sector entails no development in industry.

Rosenstein-Rodan (1959, pp. 362-363) wrote about the need to accumulate "basic social capital", that included industry, transport, communication, etc., to make a big push and enable a backward (i.e. agricultural) country to enter the road to development. Nurske (1971, p. 121) wrote about the vicious circle of poverty and the impossibility of getting out of it in poor, i.e., agricultural, countries. The issue of agriculture being trapped in a vicious circle was raised also by Kjeldsen-Kragh (2007, p. 103). In turn, according to Myrdal (1957, p. 40), the main cause of poverty in low-developed countries, i.e., typically agricultural ones, is poverty itself. In his concept of "rooting", Polanyi (2010, p. 56) emphasizes the strong foundation of the pre-industrial economy, i.e., an economy based primarily on agriculture and small production, in life and relations in contemporary society. The departure from this foundation occurred with the emergence of industry and a new special institution related to it, namely, the market. Polanyi, however, does not agree with classical economics on the importance of the market for the organization of the economy. He argued that markets were not institutions that operated within the economy but outside it, between trade and not production centers. The transformation from an agricultural society towards an industrial one was possible due to the fact that "dozens of laws were repealed and dozens of others were adopted" (Polanyi 2010, p. 120). It does not mean that the state did not try to protect the old structures of rural society against the destructive power of money and nascent industry<sup>11</sup>. However,

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<sup>11</sup> In England, it was done, for example, through the Settlement Act of 1662 establishing the so-called parish subjection, or the Speenhamland system of 1795 (also known as the Berkshire Bread Act), ensuring benefits for the poor, which effectively blocked the emergence of a free labor market. The system was criticized by T.R. Malthus and D. Ricardo, arguing that it created a poverty trap (Bregman, 2016). *The Speenhamland system* was abolished in 1834.

the final commodification of land and labor made the agrarian system give way to the industrial system and free trade, leading to a marked reevaluation of economic and social structures. A reevaluation that began to generate completely new problems and inequalities, both within national economies and the world economy.

Balanced growth of various industries that mutually create sales markets for each other is supposed to be the way out of this situation. However, according to Nurske (1971, p. 123), this must be a “frontal attack” in many industries, and not the actions taken by individual entrepreneurs, hence Nurske’s approach was similar to that adopted by Rosenstein-Rodan and his and the concept of a big push. A frontal attack led to progressive industrialization, international exchange, and ultimately to the incorporation of agricultural areas into this “movement”, e.g., “fill the void in the periphery”. This approach was opposed, however, by Hirschmann (1958, p. 50), who argued that the pressure on development is generated only by unsustainable growth, as only certain “tensions”, disproportions and imbalances make up a mechanism that forces economic growth. In addition, the use of structures/models assuming balance or equilibrium to explain changes or the evolution of social and economic structures is inherently wrong and incorrect, because social systems do not tend to self-stabilize and reach an equilibrium position (Myrdal, 1957).

Other theoretical approaches also showed a relative decline in the position of agriculture in the economy. This was the case with the three-sector model developed by Fisher (1939), Clark (1940), and Fourastié (1949). These models assumed a gradual shift of human activity from the first sector (raw materials), including agriculture<sup>12</sup>, to the second sector (production, processing: industry, and construction), and finally to the third one (higher sector: services). Thus, economic development and progress meant moving away from agriculture as a traditional activity based on raw materials, that was even marginal. With this approach, agriculture was given less importance as a secondary sector, even a declining one in terms of progress, investment, budget spending, as well as political and social interests. Clark (1940, p. 6) wrote that the third sector restored the importance of laborers leaving agriculture, so it almost restored their dignity after they had been degraded by their agriculture.

Toffler (1985, pp. 35-36) perceived the direction of development in a manner similar to that discussed above. The emergence of agriculture was the first turning point in human social development, the industrial revolution was the second great breakthrough, and finally came the last wave: “future shock”<sup>13</sup>, i.e., the post-industrial service era. The difference between the waves is mainly that agriculture introduced the principle of attachment to land and popularized the existence in spatial proximity, while the third wave rather scatters than brings people together, in spite of the increasing number of inhabitants of ever greater cities. The concept developed by Toffler (1985, p. 304) includes numerous futurological and sometimes even surprising elements, such as the belief that the first (agricultural) and

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<sup>12</sup> Also fisheries, forestry, and hunting.

<sup>13</sup> Toffler also wrote about the third wave civilization, as well as the first wave agricultural civilization and industrial civilization.

the third waves are particularly similar, as well as his famous statement about “connecting a hoe with a computer”.

The views of other economists were not favorable for agriculture either as regards the place and role of this sector in the modern economy that was first industrial, then service-based, and finally post-industrial, digital, knowledge-based, etc.

Moving away from agriculture was regarded as an inherent phenomenon related to the processes of industrialization and urbanization of the country, such as the formation of a new division of labor, during which more and more activities traditionally performed by farms were transferred to non-agricultural sectors, leaving to farms only the production of raw materials necessary for food production (Woś, 1979, p. 21). Since productivity per capita in “urban” activities grew faster than in agriculture, this inevitably led to increasing sectoral disproportions, clearly to the detriment of agriculture (Kuznets, 1955, pp. 7-8).

The sources of wealth, and thus development, were ever farther away from agriculture and its capacities. Rostow (1959, p. 1) identifies five successive stages of society development in the economic dimension: traditional society, the pre-conditions for take-off, the take-off, the drive to maturity and the a high mass-consumption<sup>14</sup>. Traditional society is surely a society based on agriculture, and due to its low productivity, one that allocates the vast majority of its resources to this production. Changes in agriculture caused by technological progress and leading to an increase in its productivity became an prerequisite for moving to the take-off. At present, in the majority of developed countries, this stage generally occurred in the 19th century. In this “transition”, agriculture had to meet three conditions: (1) provide more food for the rapidly growing urban population, (2) agricultural income growing due to the increased sales of food was to increase the effective demand of farms for industrial products (machinery, chemicals, construction materials, etc.), and (3) the increasing agricultural capital through direct transfers from landowners was to become a stimulus for the development of the industrial sector.

Generally speaking, there was no other alternative for agriculture than to constantly increase food supply and demand for industrial goods and ensure increased capital transfer to new sectors of the economy: “Agriculture must supply expanded food, expanded markets and an expanded supply of loanable funds to the modern sector” (Rostow, 1990, p. 24). However, according to other researchers, it is not a compulsion that makes agriculture participate in overall economic growth and social modernization, but its “exceptional resources and the ability to transfer surpluses to the industrial sector”. Mainly through creating demand for industrial products, participation in the labor market, assimilation of innovations, export, poverty reduction, etc. (Rosandic et al., 2017, p. 2430). However, in order to make this happen, a farmer must turn from a typical landowner into an agricultural entrepreneur interested in new opportunities offered by the modern market (Rostow, 1971, p. 107).

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<sup>14</sup> We disregard here the criticism of Rostov’s work, mainly due to problems with identifying particular stages in the development of many countries, or the lack of a clear indication of growth factors at particular stages (Itagaki, 1963).

In recent decades, sustainable development, defined, e.g., in *Our Common Future*, known also as the Brundtland Report, as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (United Nation, 1987, p. 16) has been growing in importance. The report points out that modern economic growth inevitably leads to increasing contamination of the human food chain and the environment with numerous toxins and substances that threaten human health and life, caused by both industry and agriculture. Agriculture, industry, energy industry, and mining all equally contribute to the overexploitation and destruction of the environment, as technological progress and new technologies blur the traditional differences between agriculture, industry, and services. Thus, agriculture has been “equated” with other sectors of the economy and, therefore, is required to respond to the ensuingsituation in the same way as other sectors. The requirements imposed on agriculture concern at least issues such as: ensuring food security of the world population, limiting the exploitation and contamination of the environment, and the same living conditions of the agricultural population in the societies of particular countries. To achieve this globally, what is lacking is not so much agricultural natural resources, but political will and relevant policies that guarantee the implementation of the concept of food security as part of sustainable development.

### **Driving forces of agricultural development (change mechanism)**

Apart from considerations on the main directions of changes taking place in the economy and the position of agriculture in this process, another problem that preoccupies researchers in this area concerns the driving forces of these changes. There is a fairly widespread belief that these forces rest outside agriculture, mainly in non-agricultural sectors (Runowicz, 1979; Zegar (ed.), 2017; Skarbek, 1820b). Schultz (1964, p. 16) states, however, that the main problem is not just a question of the exceptional thriftiness of traditional farmers in using modern means of production, or whether the fertility of agricultural land is the main determinant of agricultural income, or that the size of agricultural units is important for efficient agriculture. According to Schultz, the most important strategy for transforming traditional agriculture into modern agriculture is to educate farmers and invest in new production inputs.

The forces shaping the mechanism of changes and the development of agriculture occur at various impact levels. They generally occur on global, national, and local scales (Hazell and Wood, 2008). Driving forces on a global scale include international trade, the decline in food prices due to increased agricultural productivity, high energy prices, and international regulations (WTO, OECD). As for domestic forces, these include changes in GDP/per capita, urbanization processes, agricultural policy, the integration of supply chains, environmental restrictions (climate policy), and finally local forces – primarily the poverty level, demographic changes, health protection level, property rights in agriculture and their assurance, local agricultural infrastructure, and access to the market.

Quite commonly, the driving forces of changes in agriculture include the globalization and liberalization of international trade that affects globalization, vertical integration, and emerging global food chains, as well as declining resources of agricultural production inputs, such as agricultural land and labor, especially in developing countries (the key factors that reduce these resources include migration to urban areas and infectious diseases, such as cholera, HIV/AIDS, and climate change (Meijerink and Roza, 2007).

The driving forces behind the development of agriculture are also identified at the farm level. These include, for example, changes in the organization of production and technical efficiency (productivity) of a farm as a result of investment (Gautam and Faruqee, 2016), increased cooperation between farmers, increased protection of property rights, improved competitiveness in the area of food exports (Thiagarajan, 2020) What is most emphasized, however, is the importance of such development forces as investment in research and development, new technologies and innovations, that are and will be an essential element driving changes in modern agriculture. The constantly growing importance of forces and factors such as pressure from consumers and end markets, changing work habits, the evolution of attitudes regarding food safety and quality, increasing competition from the world market, economies of scale, low flexibility for food, the effectiveness of strategies for risk mitigation and management of buyers and suppliers, market power and strategies of particular enterprises, as well as research and development policy and technology transfer policy, and finally the availability and cost of resources, including capital, funds, personnel, and information infrastructure, is also expected (Earl et al., 2002).

The driving forces behind the development of the agricultural sector are quite clearly defined by the model of induced agricultural development by Hayami and Ruttan (1985). This model shows that the elimination of barriers to the development of farms is possible only through externally induced innovation, technical progress, and institutional changes. Only a constant inflow of modern production inputs, new organizational solutions or consulting, education, and thorough institutional changes can help overcome the barriers resulting from lagging behind relative to non-agricultural sectors and move farms onto the development path. However, this requires farmers to be open to these suggestions and willing to change and properly assess risk.

Recently, just like in the case of the economy, the importance of agriculture sustainability has been emphasized increasingly often than that of forces driving growth in agriculture or specific changes. Such forces include: demographic changes (stimulating the demand for food), natural factors, such as farm size, farmers' education level, global warming, social and economic conditions (income/per capita, consumption model, land ownership security, price stability, deforestation, technology availability, access to non-agricultural labor markets), political and institutional factors (the efficiency of state authorities, the institutional organization of farmers) (Pham and Smith, 2014)<sup>15</sup>.

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<sup>15</sup> The analysis does not take into account those driving forces that were already mentioned in the presentation of growth factors in agriculture, such as the level of infrastructure in agriculture, access to the market, poverty, investments, urbanization.

However, no matter which driving forces of changes in agriculture are considered decisive, there is no doubt that, firstly, the importance of each of them evolves over time; secondly, they rest both in agriculture itself and in its environment; thirdly, they differ between countries and regions with different resources of agricultural production inputs, such as land resources and agricultural population (labor resources); fourthly, their causative power is a consequence of the achieved level of economic development, i.e., they differ between highly developed countries and low-developed ones; fifthly, they will be increasingly determined by global civilization challenges (growing development and income disproportions, climate change, migration, the escalation of social and military conflicts).

Considering a specific sequence of development changes occurring between particular sectors of the economy as self-evident, the need to maintain certain proportions between the primary sector, the processing one, and the service sector is quite commonly stressed. The current imbalance in this respect, related to the rapidly increasing domination of the service sector, especially the financial one, leads to turmoil, collapses, and, in general, crisis situations (Chesnais, 2012). Perhaps, it is time to acknowledge the validity of the previously often repeated statements that the need for a balance between industry and agriculture must be universally recognized and does not require further emphasis (Mathur, 1971). For currently developing countries, investment in modern technology in agriculture to increase agricultural output is probably more profitable than investing in all other sectors of such economies (Reddaway, 1971), as it ensures a more favorable competitive position on the global market than an attempt to catch up with development in other sectors of the economy. Furthermore, the development of industries based on local raw materials, such as agricultural produce, wood, or cotton, is the only rational solution in the first period of capital accumulation and industrial development, as these are all sectors typical of the initial period of industrialization (Mountjoy, 1971), i.e., Rostov's preconditions for take-off.

### **Directions (paths) of agriculture evolution**

The main directions of agriculture evolution are the third important issue in the theory of agricultural development. It is commonly assumed that the importance of agriculture in the economy decreases along with economic and civilization development, and that although the driving forces behind its development evolve over time, they are resting primarily and to an ever greater extent outside agriculture. However, the question of the path of this evolution arises.

The model by Herlemann and Stamer (1963) is one of the theoretical explanations in this respect. This model, represented as an equilateral triangle (which is why it is often referred to in the literature as the Herlemann-Stamer triangle), illustrates changes in the relations of production inputs at various stages of economic development. These changes are induced by the prices of particular production inputs, shaped by their supply. The model identifies 12 possible relations of agricultural production inputs from the perspective of their prices. In its development,

agriculture goes through the following stages: densification, intensification, mechanization, growth of farm area, and then again through the stages of intensification, mechanization, and growth of farm area in densely populated countries. In low-populated countries, the sequence of the last three stages is reversed.

The identification of 12 possible relations of production inputs is a consequence of the adopted assumptions: 3 production inputs<sup>16</sup> and 3 price levels of these inputs (high, medium, and low). A detailed analysis of the Herlemann-Stamer model shows a certain sequence of changes taking place in the repetitive system (the first four stages and three subsequent ones as their consequence), but clearly at a completely different level of economic development. For these reasons, in some approaches, only four stages of evolution are identified: densification, spatial expansion (extensive farming), labor-intensive intensification, capital-intensive intensification (mechanization, supporting importance of capital) and “purely” capital-intensive intensification (Tomczak, 1983), i.e., the dominant importance of capital in material form.

### **Agriculture in the economy of the future**

Nowadays, the above typology of agricultural development should be supplemented with the fifth stage of capital-intensive intensification based on intellectual capital domination, as knowledge, skills, competence, experience, market relations, and innovation are the main driving forces behind the development of modern agriculture. In the early 21<sup>st</sup> century, agriculture is a precise strip-till, dominated by modern technological solutions, with minimal labor inputs, and incorporated in global supply chains. However, in many parts of the world, agriculture is still based on draft animal power and human labor, with low production inputs, struggling with widespread plagues of pests and water scarcity. Perhaps one of the most difficult issues today is which “model” of agriculture will be the dominant one in the 21<sup>st</sup> century and subsequent century.

What are the possible and real paths of agricultural development in countries with a low level of economic development? Are there any chances for capital-intensive intensification of agriculture in this part of the world, and if so, of what type: material or intellectual?

Investing in the development of agriculture or related areas, such as the wood industry, seems to be a more rational solution for many countries, including mainly less developed ones, than investing in new sectors of the economy, because the technological gap in agriculture is much smaller than in new industries. Therefore, the growth in agriculture in these countries translates proportionally to the general economic growth rate higher than the growth in non-agricultural industries (Block and Timmer, 1994). Moreover, for development to be effective, it must be “organic”, i.e., it should occur in stages, step by step, and not as sudden leaps (Schumacher, 1971).

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<sup>16</sup> These three production inputs are land, labor and capital. Currently, in the era of globalization, knowledge-based economy, network economy and cognitive capitalism, knowledge and information are believed to be the key production inputs (Ratajczak, 2015).

The interest in changes and reforms in agriculture, including, in particular, area concentration, mainly on the part of landowners (elites), dates back a very long time ago. It has always led to the strengthening of the political power of this group, an increase in its social prestige, and, above all, an increase in land rental income (Kjeldsen-Kragh, 2007). It was particularly visible in Great Britain, where reforms in agriculture preceded the beginning of industrialization.

Views on the role of agriculture in the economy and its development have evolved over the decades. However, the prevailing view was that there was a need for permanent area concentration and the progressive industrialization of agriculture, not only to ensure an adequate supply of agricultural produce, but also to keep up with the remaining parts of the economy. In other words: the elimination of the agrarian question. It was a traditional, narrow understanding of the role of agriculture in the economy (Meijerink and Roza, 2007). This approach was clearly not free of criticism, as researchers also emphasized the legitimacy of other strategies, such as supporting the development of small farms, because agriculture supports the economy in various ways, such as providing food, taxes, or providing certain production inputs (primarily labor), and these functions are fulfilled to a varying extent by both large (food) and small (work) farms (Johnston and Mellor, 1961). Therefore, there is a growing belief among economists that growth in agriculture is the key to the expansion of the economy as a whole and the eradication of poverty, both in rural and urban areas (Norton, 2004). For these reasons, agricultural issues must be of key importance in the economic policy of each country.

There is also another reason for this particular attention paid to agriculture in economic policy. Agriculture uses to the greatest extent the resources of water, soil, air, areas with natural vegetation, etc. The management of these resources cannot be subject only to the laws of the market, because it always leads inevitably to their uncontrolled overexploitation, which cannot be afforded by any country, even with the greatest natural resources (Norton, 2004). This requires, however, an integrated approach to agricultural and rural development, because history has shown that attempts to invest solely in increased agricultural production, ignoring the problems of rural areas, led to much turmoil and lower investment effectiveness in agriculture itself. Investment in both areas at a time has a multiplier effect, because agricultural production income is spent mostly on the local market, which increases the dynamics of the region and has a positive effect on agriculture. This is referred to in the literature as agricultural growth linkage (Meijerink and Roza, 2007).

At the same time, there are also views emphasizing a declining importance and prestige of agriculture in the economy. This is mainly due to globalization and its accompanying phenomena such as increasing competition, the migration of young people to cities, progressive degradation of agricultural resources, and rapid development of non-agricultural sectors, reducing the importance of agriculture. Generally speaking, as some researchers believe, agriculture has ceased to be the “engine” of economic growth, disappointing numerous institutional donors. However, the turn of the new century as well as the economic crisis of the first decade of the 21<sup>st</sup> century saw the beginning of the restoration of interest in agriculture (Meijerink and Roza, 2007).

The future will show whether this is just a temporary trend or a real renaissance of agriculture, a kind of reagrarization. It is also favored by exceptional phenomena such as global crises, pandemics, or negative effects of climate change, leading to significant turmoil, followed by the disruption of the commonly believed stable ties binding global food supply chains. However, regardless of which direction of changes and the way of understanding the role of agriculture will prevail, there are many indications that agriculture of the future will continue to attract the attention of researchers, politicians, and the entire society. The only question is whether this increased interest will be due to the fact that agriculture will remain a national or even a global headache, or whether it will become a common source of wealth for nations.

### **Agriculture and food**

The relationship between the condition (level of development) of agriculture, the volume of agricultural production, and the level and structure of food provided to society is more than obvious. In the post-war history of Poland, three periods can be identified from this perspective:

1. The period of making up for delays, rapid growth in food consumption, and the elimination of the disproportions built up in the past – the period of egalitarianization of consumption (1945-1956).
2. The period of searching for a new balance and rationalization of consumption from the point of view of the indications of human nutrition science – the period of rationalization of the structure of food consumption in the conditions of the cheap food policy (1957-1990).
3. The period of liberalization of the food market, when the state gave up the implementation of the food policy (deliberate shaping of the level and structure of food consumption), and consumers' decisions depended almost exclusively on their disposable income and changing market price relations. This period began with system changes in 1990 (Woś, 2000).

During the 45 post-war years (1945-1990), Poland implemented a cheap food policy based on subsidies to agriculture, food production, and consumption, which allowed for maintaining relatively low prices. With this policy, food consumption in Poland was higher than it would have appeared based on the general state of the economy. The premises of the implemented cheap food policy were of a different nature: socio-political and economic, as well as they were changing over time. Social egalitarianism was the first premise. It was recognized that the easy and widespread availability of food, even for the poorest groups of society, was essential for the biological and mental development of society, especially children and adolescents. The second premise of the cheap food policy was of economic origin. In an underdeveloped country, labor productivity is generally low. In such circumstances, the wages and disposable income of the population is never high. It clearly follows that with market equilibrium prices, the demand for food would be low, which would distort the process of labor force reproduction. In order to protect a certain level of food consumption, the state decides to co-finance food

through subsidies to its market prices. In this way, not only does the state maintain a certain level of food provision, but it also shapes the structure of the demand for food and indirectly influences agricultural production (Woś, 2000).

Over the years, food subsidies became an increasing burden on the state budget. The government was aware of the need to withdraw from the cheap food policy gradually, but these changes were not approved by society. Attempts to raise food prices sparked strong opposition and political turning points. This system continued until the 1990s. It was not until a revolutionary system transformation that it became possible to “market” food prices<sup>17</sup> (Woś, 2000). Real food prices (without subsidies) have become, apart from income, the main determinant of the economic availability of food. The prices of consumer goods and services, including food prices, grew dynamically from 1989 to 1991 (in 1989, retail prices of food increased by 324% and in 1990 by 575% compared to the previous year). It was not until 1992 that the rate of food price growth decreased significantly (Gulbicka, 1997).

### **Agriculture in the national economy – empirical verification of changes**

#### ***Research methods and data sources***

In the second part of the study, one of the three main perspectives illustrating the position of agriculture in the economy and in economic theory, i.e., the relationship between agriculture and other sectors of the economy, was subject to empirical verification. The assessment was carried out on the example of Polish agriculture and its evolution over time. The analysis concerned mainly the period from 1950 to 2020, i.e., changes that occurred within almost 70 years<sup>18</sup>. The analysis covered relationships such as agriculture capacity in the economy (land, labor, and capital resources), contribution to the generation of value added (GNI/GDP), agricultural production, share in foreign trade, and changes in food consumption.

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<sup>17</sup> Moving away from the cheap food policy was gradual but decisive. This process was accompanied by the following steps:

1. In adopting budget acts for the following years, the parliament gradually reduced (and abolished) budget subsidies to food prices. This procedure was applied between 1990 and 1992.
2. Import limits and customs duties on certain food products were lifted. On 19 December 1990, the Council of Ministers exempted the import of most agricultural raw materials and food products from customs duty. This opened the Polish market for imported food. Unfortunately, food subsidized by European Union Member States started to be imported to an ever greater extent, which was extremely unfavorable for Polish food producers. This reckless import policy introduced by the government led to a deep crisis in Polish agriculture and the loss of food self-sufficiency.
3. Preferential loans for food producers (farmers and food industry plants) were cancelled. Starting from 1991, a high interest rate was imposed on investment loans taken out in the past and not yet repaid. This operation was one of the main instruments of shock therapy.
4. Numerous legal provisions that obligated employers to subsidize mass catering were repealed. From 1990 to 1993, the legal provisions regulating the maintenance of canteens at workplaces expired.
5. Financing of social activity of workplaces (including various forms of recreation) was limited, which indirectly decreased the demand for food.

<sup>18</sup> The exact analysis period for the adopted dimensions depends on the availability of empirical (statistical) data.

Long-term comparative analyses face many methodological difficulties, such as the need to ensure the comparability of empirical (statistical) data. This is a consequence of the changes that have occurred in defining categories and concepts over time, which is also the case in this study. The main aim of this part of the study is, however, an attempt to determine the changes taking place between the analyzed objects (their direction and strength) and not a specific relationship in a given period, which partially alleviates the above-mentioned research problem, but does not eliminate it completely.

### *Agricultural potential and accumulation capacity*

Economic development and technical progress lead to a fundamental change in the position and importance of agriculture in the national economy, which clearly also applies to the Polish economy. Firstly, there was a dramatic change in the share of agricultural workers in the total number of the employed population. In 1950, this share was almost 70.0%, in 1980 – 47.3%, and in 2019 – only 14.4%. The decline after 1990, when the free market mechanism was reintroduced to the Polish economy, was particularly significant. An even greater reduction was recorded in the ratio of agricultural workers to the total Polish population, namely, from 47.2% in 1950 to 6.0% in 2019 (Table 1). This relative decline also applies to the second production input, i.e., capital. While before 1960, the share of agriculture in the value of fixed assets was ca. 22%, the following decades brought its gradual decline. Between 1980 and 1990, this share was ca. 6.0-7.0%, and after 2000, it was ca. 4.0-5.0%. This represents a gradual relative reduction in capital accumulated in agriculture to the benefit of non-agricultural sectors.

Table 1

#### *Agriculture in the Polish economy between 1950 and 2019 (%)*

Item	1950	1960	1970	1980	1990	2000	2010	2019
Agricultural land in the country	65.6	65.3	62.5	60.6	60.1	57.0	47.5	47.0
Agricultural workers:								
in the Total number								
of employed persons	69.8	60.9	51.0	47.3	35.2	28.7	16.5	14.4
in the total population	47.2	38.0	29.7	23.4	15.3	11.3	6.2	6.0
Rural population								
in the total population	61.0	51.7	47.8	41.5	38.5	38.1	39.2	39.9
Agriculture in the value								
of investment <sup>a</sup>	13.6	15.5	13.0	15.2	11.4	1.6	2.0	2.2
Agricultural global product								
in fixed assets <sup>a</sup>		21.8	15.5	7.2	6.3	7.5	4.9	3.7
total global product <sup>b</sup>	24.3	25.7	15.5	13.7	9.6	4.8	3.3	3.0
Agriculture in GNI/GDP <sup>c</sup>	24.9	23.3	14.5	12.8	7.2/7.1	4.4	2.6	2.1

<sup>a</sup> 1950-2018; <sup>b</sup> 1957-2018; <sup>c</sup> 1950-1990 – GNI, 1990-2019 – GDP. For 1990: the first value – GNI, the second value – GDP.

Source: calculations based on data from the Polish Central Statistical Office (GUS).

The above trends lead to a gradual decline in the share of agriculture in global production. While until 1960 this share was 1/4 of the output of the entire Polish economy, the following decades brought its decrease to 10-15% between 1970 and 1980, while after 2000, it was below 5%. The reduction in the accumulative capacity of agriculture was even greater, i.e., from almost 1/4 of the entire economy in 1950 to slightly more than 2.0% in 2019.

### Export and import relationship between agriculture and the economy

Foreign trade in agri-food products is important for the development of Polish agriculture and the entire economy. For many years, agriculture and the food industry did not have permanent surpluses of products. Small quantities of goods were exported to obtain foreign currencies, necessary for the development of the economy. Some radical changes in Polish foreign trade in agri-food products occurred during the system transformation period (Woś, 2000), and then after Poland's accession to the European Union. Since 2015, the balance in foreign trade in agri-food products has been positive and since 2008 it has been gradually increasing (Figure 1).

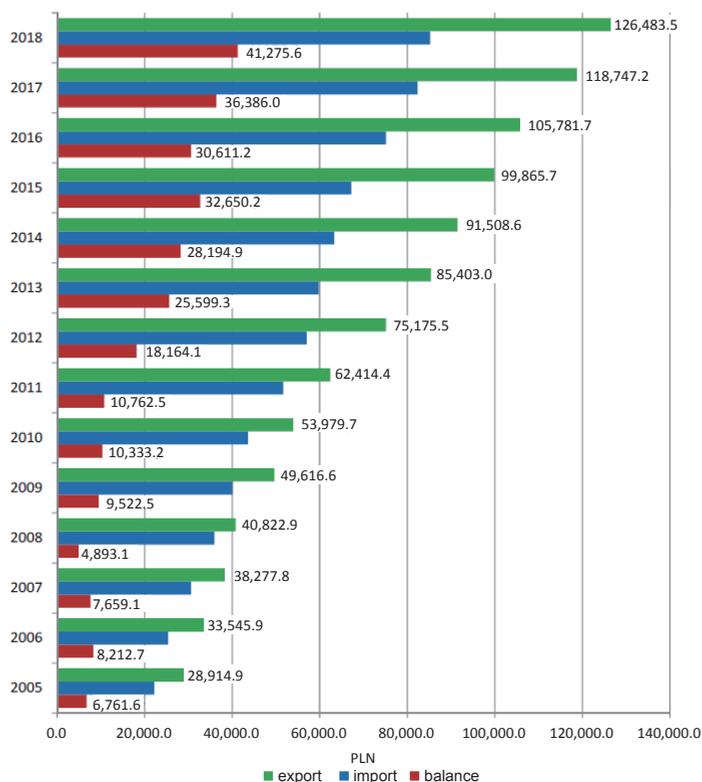


Fig. 1. Turnover of foreign trade in agri-food products between 2005 and 2018, in million PLN (current prices).

Source: based on data from the Polish Central Statistical Office (GUS).

In 2018, the total value of exports amounted to PLN 126.5 billion and was 4.4 times greater than in 2005, while the value of imports was PLN 85.2 billion and was 3.8 times greater. Thus, the balance of foreign trade in agri-food products increased from PLN 6.8 to 41.3 billion, i.e., 6.1 times.

For Poland, the positive balance in trade in agri-food products is particularly important due to its negative balance in foreign trade in industrial goods and services. As long as it is not feasible to generate a surplus of income from exports of industrial goods or services, maintaining food self-sufficiency in Poland will be indisputable. No country is able to develop and pay off its debts where all sectors have deficient turnover (Michna, Lidke and Zalewski, 2012).

### Food consumption trends between 1960 and 2018

Between 1960 and 2018, some significant changes occurred in the consumption<sup>19</sup> of basic food products in Poland, especially in the group of animal products. There was a significant increase in the consumption of poultry and poultry products by 3.9 times<sup>20</sup>, fish and fish products by 2.8 times, fruit by 2.8 times, vegetable fats by 91.4%, and to a lesser extent sugar by 44.1%, pork and pork products by 30.3% and hen eggs by 12.5%. The consumption of butter remained at the same level. There was a decrease in the consumption of potatoes by 57.4%, beef and beef products by 57.1%, processed cereals by 30.3%, animal fats by 10.8%, vegetables by 4.5%<sup>21</sup>, and cow milk and dairy products by 2.6% (Table 2). In the group of extracted fats, the substitution of animal fats with vegetable fats is noteworthy.

Between 1960 and 2018, the structure of meat consumption was dominated by pork consumption. The level of pork consumption is determined primarily by changes in domestic pork production. Pork accounts for ca. 60% of total meat consumption. In 2018, the consumption of this type of meat reached 42.6 kg per capita per annum and was the highest in the analyzed period.

In the 1960s, the share of beef in total meat consumption was 16.5%, between the 1970s and 1990s – ca. 26%, and in 2018 – only 3.9%. The risk of BSE, low quality of beef (a small amount of culinary meat on the market) and its high price contributed to such a significant decrease in beef consumption. Instead of beef, Polish consumers eat much more cheaper meat, i.e., poultry. Poultry consumption in 2018 reached almost 30 kg per capita per annum, while in the early 1990s, it was only 7.6 kg. Such a high rate of poultry consumption results from its increased production, as well as the ratio of poultry prices to the prices of other types of meat, more favorable for consumers.

<sup>19</sup> Consumption is determined with the use of the balance method: production increased by imports, less exports and the losses of agricultural products among producers and in trade, taking into account changes in stocks among producers and in trade units. The production of certain agricultural raw materials (cereals, potatoes, vegetables, fruit, milk, and eggs) is also reduced by their use for production purposes (sowing, grazing, raw materials for distilleries, starch plants, etc.). Data on the consumption level are used to assess global changes in food consumption in the country in total and per capita (<https://stat.gov.pl/metainformacje/slownik-pojec/pojecia-stosowane-w-statystyce-publicznej/2542,pojecie.html>).

<sup>20</sup> For poultry: 1990-2018.

<sup>21</sup> For vegetables: 1970-2018.

Table 2

*Consumption of basic food products in Poland between 1960 and 2018  
in kilograms per capita per annum*

Item	1960	1970	1980	1990	2000	2010	2018
The four kinds of cereal cereals <sup>a,b</sup>	145	131	127	115	120	108	101
Potatoes <sup>a,b</sup>	223	190	158	144	134	110	95
Vegetables		111	101	119	121	106	106
Fruit	19.5	32.8	37.7	29.0	51.6	44.0	54.0
Meat and offal <sup>c</sup>	49.9	53.0	74.0	68.6	66.1	73.7	80.2
including: meat	42.5	48.7	69.1	63.7	62.0	69.9	76.1
pork	32.7	29.2	37.2	37.6	39.0	42.2	42.6
beef	7.0	12.6	18.5	16.4	7.1	2.4	3.0
poultry				7.6	14.7	24.6	29.6
Fish and fish products <sup>d</sup>	4.5	6.3	8.1	5.4	12.5	13.1	12.8
Edible fats <sup>e</sup>	15.6	20.8	24.8	23.6	28.7	24.6	18.0
animal	7.4	8.2	8.1	8.2	6.7	6.3	6.6
vegetable	3.5	6.6	7.8	7.6	17.8	14.0	6.7
butter	4.7	6.0	8.9	7.8	4.2	4.3	4.7
Cow milk <sup>f</sup>	234	270	270	249	199	195	228
Hen eggs	7.2	9.3	11.1	9.5	9.4	10.1	8.1
Sugar	27.9	39.2	41.4	44.2	41.6	39.9	40.2

<sup>a</sup> calculated for processed products; <sup>b</sup> data refer to farming years, i.e., covering the period from 1 July of the previous year to 30 June of a given year; <sup>c</sup> including processed meat and offal; <sup>d</sup> in live weight; <sup>e</sup> in commercial weight; <sup>f</sup> including milk for processing, excluding milk for butter

Source: based on data from the Polish Central Statistical Office (GUS) and the authors' own calculations.

In general, the assessment of changes in the structure of food consumption is made in terms of rationalization of food, assuming that people respect the principles of a healthy diet. Changes in the structure of food consumption in the analyzed period that are positive for health reasons include the increased consumption of fruit, fish and fish products, poultry, and vegetable fats. As for the negative ones, these are the decreased consumption of vegetables, milk and dairy products, and the increased consumption of sugar and pork.

The market mechanism encourages improvement in the structure of food consumption and brings it closer to the pro-health model. With imports of food, the diet of the average Polish citizen is becoming increasingly varied. Consumers have much more food products and diets to choose from than in a planned economy system. However, no system has only strengths. Usually, some useful values are achieved at the expense of others. The market system polarizes society in terms of the nutrition level, which is a straight consequence of income polarization (Woś, 2000, p. 87).

The balance data do not show actual consumption, but refer to the supply of food available to the average inhabitant of Poland. Even if the supply of food on a national scale (physical availability of food) is sufficient for all people, it does not mean that particular individuals and different groups of the population have equal access to it (food affordability). Therefore, it is necessary to supplement the balance information through direct food consumption surveys, e.g., with data from household budget surveys prepared by the Polish Central Statistical Office (GUS).

The analysis of food consumption at the Polish household level showed that 20% of the poorest people were unable to satisfy their food needs to a satisfactory extent in 2018. This is evidenced by the low level of consumption of numerous basic food products, high rates of income elasticity of demand (consumption) for many food products, as well as a relatively high rate of income elasticity of expenditure on food and non-alcoholic beverages –  $e = 0.701$  (while for 20% of the most affluent people this ratio was  $e = 0.144$ ). This means that ca. 7.7 million inhabitants of Poland have unmet food needs. In Poland, however, there is no starvation, but there are deficiencies in energy, protein, vitamins, and macro- and microelements in the daily diet of many Polish families (Kwasek, 2019, p. 38). In every economic and social system, there is a certain percentage of low-income households. This percentage depends not only on economic factors, i.e., the level of socio-economic development of the country and the degree of income differentiation, but also on non-economic factors, such as diseases, disabilities, handicap, old age, single-parent family, alcoholism, drug addiction, etc. (Małysz, 2008).

### Summary

Agriculture is one of the first forms of conscious and organized human activity. Its emergence brought about significant changes in the organization of primitive communities, leading to the evolution of interpersonal and economic forms towards what we now call a civilization. As time went by and economic development continued, views on the role of agriculture in the economy changed. Agriculture was elevated to the rank of the basic sector of the economy by physiocrats. The emergence of new forms of economic activity, especially the industrial revolution, radically redefined this system and the position of agriculture began to decline rapidly. Agriculture became a source of economic surplus for new sectors of the economy, especially industry (in line with classical economy). It gradually began to lag behind the rest of the economy, revealing its uniqueness, incongruity or “peculiarity”, leading directly to the emergence of a phenomenon known as the agrarian question. Contemporary agriculture, although modernized, upgraded, and in most regions of the world dissimilar to a traditional peasant homestead, continues to show its uniqueness. It is an aftermath of the developmental distinctiveness of modern sectors of the global economy, as well as the continuing “specificity” of agriculture, resulting from dependence on the laws of nature and the environment.

Generally speaking, along with economic development, the importance of agriculture in the economy, measured by its share in potential as well as production

and accumulation (income) effects, decreases. However, the decrease is relative, as agricultural production is constantly growing, and thus also food production, and, as a result, its consumption.

The analysis of food consumption over the period of almost sixty years showed significant changes, such as a decrease in the consumption of potatoes, vegetables, cereal products, beef, animal fats, milk and dairy products, as well as an increase in the consumption of poultry, fish and fish products, pork, hen eggs, vegetable fats, fruit, and sugar. The diet of people living in Poland cannot be regarded as rational, as they consume too much animal products, especially red meat, as well as sugar, and too little fruit and vegetables.

The nutrition level in Polish society depends not only on the physical availability of food, but also on its affordability. Agricultural production, processing, import, export, as well as the stocks of agricultural raw materials determine the physical availability of food, while the income of the population and food prices determine its affordability. On the Polish market, one can find most of the food products necessary for proper nutrition, which is an inherent condition of human development. Nonetheless, in 2018 20% of the poorest people's households were unable to satisfy their food needs to a satisfactory extent.

Improvement in the income situation of the poorest people's households in Poland is a chance not only for the development of Polish agriculture, but also for the entire agri-business. When their income increases, these households spend relatively more on food than the most affluent people's households. The growing demand for food in the poorest families may increase the domestic demand for agri-food products.

## References

- Arystoteles (2003). *Polityka*. In: *Dzieła wszystkie*. Vol. I. Tłum. L. Piotrowicz. Warszawa. Retrieved from: <http://libertarianin.org/Ebooks/Arystoteles%20-%20Polityka.pdf> (access date: 14.05.2020).
- Block, S., Timmer, C. P. (1994). *Agriculture and Economic Growth: Conceptual Issues and the Kenyan Experience*. Harvard Institute for International Development, CAER Discussion Paper No. 27, July. Retrieved from: [https://www.researchgate.net/publication/5065815\\_Agriculture\\_and\\_Economic\\_Growth\\_Conceptual\\_Issues\\_and\\_the\\_Keynian\\_Experience](https://www.researchgate.net/publication/5065815_Agriculture_and_Economic_Growth_Conceptual_Issues_and_the_Keynian_Experience) (access date: 10.06.2020).
- Bregman, R. (2016). *Nixon's Basic Income Plan*. Jacobin. Retrieved from: <https://www.jacobinmag.com/2016/05/richard-nixon-ubi-basic-income-welfare/> (access date: 30.08.2020).
- Brewer, A. (1987). Turgot: Founder of Classical Economics. *Economica*, Vol. 54, No. 216. Retrieved from: <https://www.jstor.org/stable/pdf/2554177.pdf> (access date: 05.09.2020).
- Byres, T.J. (1991). The Agrarian Question and Differing Forms of Capitalist Agrarian Transition: An Essay with Reference to Asia. In: J. Breman, S. Mundle (ed.), *Rural Transformation in Asia*. Oxford: Oxford University Press, New Delhi.
- Byrne, J.J. (1955). Agriculture in the National Economy. *Studies. An Irish Quarterly Review*, Vol. 44, No. 173 (Spring), pp. 17-40. Retrieved from: [https://www.jstor.org/stable/30098601?seq=1#metadata\\_info\\_tab\\_contents](https://www.jstor.org/stable/30098601?seq=1#metadata_info_tab_contents) (access date: 19.05.2020).
- Chesnais, F. (2012). *Bezprawne długi. Jak banki sterują demokracją*. Biblioteka alternatyw ekonomicznych, Le Monde diplomatique. Warszawa: Instytut Wydawniczy Książka i Prasa.
- Chołaj, H. (1966). O współczesnej kwestii agrarnej w rozwiniętych krajach. In: *Współczesna kwestia agrarna w rozwiniętych krajach kapitalistycznych*. Biblioteka „Nowego Rolnictwa”. Warszawa: PWRiL.
- Clark, C. (1940). *The Conditions Of Economic Progress*. London: Macmillan And Co. Limited.
- Earl, A.S., Boehlje, M., Boyd, R.D., Buttel, F.H., Flora, C.B., Goldmark, P.J., Kirschenmann, F., Zilberman, D. (2002). Drivers of Structural Change, Changes in Knowledge and Information, Implications for Policy. In: *Publicly Funded Agricultural Research and the Changing Structure of U.S. Agriculture*. Washington, DC: The National Academy Press, pp. 87. Retrieved from: <https://www.nap.edu/read/10211/chapter/7> (access date: 23.06.2020).
- Fisher, A.G.B. (1939). Production, Primary, Secondary and Tertiary. *Economic Record*, Vol. 15, Issue 1, June, pp. 24-38.
- Fourastié, J. (1949). *Le Grand Espoir du XXe siècle. Progrès technique, progrès économique, progrès social*. Paris: Presses Universitaires de France.
- Gautam, M., Faruquee, R. (2016). *Agricultural Growth and Its Drivers*. In: *Dynamics of Rural Growth in Bangladesh: Sustaining Poverty Reduction, Directions in Development-Agriculture and Rural Development*. Washington, DC: World Bank. Retrieved from: [https://elibrary.worldbank.org/doi/abs/10.1596/978-1-4648-0876-0\\_ch3](https://elibrary.worldbank.org/doi/abs/10.1596/978-1-4648-0876-0_ch3) (access date: 23.06.2020).
- Gulbicka, B. (1997). *Perspektywy produkcji mleka w świetle prognoz popytu i zaleceń żywieniowych*. *Studia i Monografie*, No. 84. Warszawa: IERiGŻ.
- Hayami, Y., Ruttan, V. (1985). *Agricultural Development: an International Perspective*. Baltimore: Johns Hopkins University Press.
- Hazell, O., Wood, S. (2008). Drivers of Change in Global Agriculture. *Philosophical Transactions of Royal Society B*, No. 363(1491), February, Published online 26 July 2007. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2610166/> (access date: 23.06.2020).
- Herlemann, H.H. Stamer, H. (1963). *Rolnictwo w dobie technizacji. Rozwój ekonomiczno-techniczny a produkcja rolna i wielkość gospodarstw*. Warszawa: PWRiL.

- Hirschman, A.O. (1958). *The Strategy of Economic Development*. Yale University Press, New Haven.
- <https://stat.gov.pl/metainformacje/slownik-pojec/pojecia-stosowane-w-statystyce-publicznej/2542,pojecie.html>.
- Itagaki, Y. (1963). Criticism of Rostow's Stage Approach: The Concepts of Stage, System, and Type. *The Developing Economies*, Vol. 1, Issue 1, March. Retrieved from: <https://online-library.wiley.com/doi/full/10.1111/j.1746-1049.1963.tb01138.x> (access date: 27.05.2020).
- James, H.B. (1956). *Agriculture in the National Economy*. In Increasing Understanding of Public Problems and Policies, 600 South Michigan Avenue, Chicago 5, Illinois, Farm Foundation. Retrieved from: <https://core.ac.uk/download/pdf/7051967.pdf> (access date: 19.05.2020).
- Johnston, B.F., Mellor, J.W. (1961). The Role of Agriculture in Economic Development. *American Economic Review*, Vol. 51, No. 4, pp. 566-593.
- Kautsky, K. (1899). *Die Agrarfrage. Eine Übersicht über die Tendenzen der modernen Landwirtschaft und die Agrarpolitik der Sozialdemokratie*. Stuttgart, Verlag von J.H.W. Dietz Nachf. G.m.b.H. Retrieved from: <https://www.marxists.org/deutsch/archiv/kautsky/1899/agrar/1-02-bauerind.html> (access date: 01.06.2020).
- Kjeldsen-Kragh, S. (2007). *The Role of Agriculture in Economic Development: The Lessons of History*. Copenhagen: Copenhagen Business School Press.
- Kowalczyk, S. (2017). *Prawo czystej żywności. Od Kodeksu Hammurabiego do Codex Alimentarius*. Wydanie II. Warszawa: Oficyna Wydawnicza Szkoła Główna Handlowa.
- Krzywicki, L. (1967). *Kwestia rolna. Przełom w produkcji środków spożywczych w drugiej połowie wieku XIX*. Dzieła, Vol. 8. Warszawa: PNW.
- Kuznets, S. (1955). Economic Growth and Income Inequality. *The American Economic Review*, Vol. 45, No. 1, March, American Economic Association. Retrieved from: <https://www.jstor.org/stable/1811581> (access date: 26.05.2020).
- Kwasek, M. (2019). Bezpieczeństwo żywnościowe Polski. In: M. Kwasek, J.S. Zegar (ed.), *Z badań nad rolnictwem społecznie zrównoważonym [50]*. Monografie Programu Wieloletniego 2015-2019, No. 98. Warszawa: IERiGŻ-PIB.
- Lains, P., Pinilla, V. (2009). Introduction. In: P. Lains, V. Pinilla (ed.), *Agriculture and Economic Development in Europe Since 1870*. London: Routledge.
- Lewis, W.A. (1954). Economic Development with Unlimited Supplies of Labour. *The Manchester School*, Vol. 22, Issue 2, pp. 139-191.
- Małyśz, J. (2008). *Bezpieczeństwo żywnościowe strategiczną potrzebą ludzkości*. Warszawa: ALMAMER Wyższa Szkoła Ekonomiczna.
- Mathur, A. (1971). Balanced v. Unbalanced Growth: A Reconciliatory View. In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.
- Meijerink, G. Roza, P. (2007). The Role of Agriculture in Development. *Markets, Chains and Sustainable Development Strategy and Policy Paper*, No. 5. Wageningen: Stichting DLO. Retrieved from: <http://www.boci.wur.nl/UK/Publications/>.
- Michna, W., Lidke, D., Zalewski, D. (2012). *Zapewnienie ekonomicznej samowystarczalności żywnościowej głównym zadaniem polskiego rolnictwa na cały XXI w.* W. Michna (ed.). Studia i Monografie, No. 157, Warszawa: IERiGŻ-PIB.
- Montchrétien de, A. (1889), *Traité de l'Economie Politique: dédié en 1615 au roy et à la reine mere du roy*. E. Plon, Nourrit et Cie, Imprimeurs-Editeurs, Paris. Retrieved from: <https://gallica.bnf.fr/ark:/em.r=commerce> (access date: 19.08.2020).

- Mountjoy, A.B. (1971). The Form of Industrialisation. In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.
- Moyo, S., Jha, P., Yeros, P. (2013). The Classical Agrarian Question: Myth, Reality and Relevance Today. *Agrarian South: Journal of Political Economy, Centre for Agrarian Research and Education for South, Vol. 2*(1). Retrieved from: <http://ags.sagepub.com/content/2/1/93> (access date: 04.02.2020).
- Myrdal, G. (1957), *Economic Theory and Underdeveloped Regions*. London: Gerald Duckworth & Co., Ltd.
- Norton, R.D. (2004). *Agricultural Development Policy. Concepts and Experiences*. Rome: FAO-John Wiley & Sons.
- Nurske, R. (1971). The Theory of Development and the Idea of Balanced Growth. In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.
- Pham van, L. Smith, C. (2014). Drivers of Agricultural Sustainability in Developing Countries: a Review. *Environment Systems & Decisions*, No. 34. Retrieved from: <https://link.springer.com/article/10.1007/s10669-014-9494-5> (access date: 23.06.2020).
- Polanyi, K. (2010), *Wielka transformacja. Polityczne i ekonomiczne źródła naszych czasów*. Warszawa: Wydawnictwo Naukowe PWN.
- Popławski, A. (1774). *Zbiór niektórych materii politycznych*. Drukarnia J.K. Mci y Rzeczypospolitey u XX. Scholarum Oiarum. Retrieved from: <https://polona.pl/item/zbior-niektorych-materii-politycznych,MTE3MDczODk/4/#info:metadata> (access date: 25.05.2020).
- Ratajczak, M. (2015). Wprowadzenie do teorii kapitalizmu kognitywnego: kapitalizm kognitywny jako reżim akumulacji. *Praktyka Teoretyczna, No. 1*(15).
- Reddaway, W.B. (1971). External Capital and Self-Help in Developing Countries, In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.
- Ricardo, D. (1817). *On The Principles of Political Economy, and Taxation*. London: J. McCreery Printer Black Horse Court. Retrieved from: <http://www.gutenberg.org/files/33310/33310-h/33310-h.htm> (access date: 05.09.2020).
- Rosandic, A., Micanovic, D., Yushkov, V., Radosavac, A., Glumac, S., Atanasijevic, S., Knezevic, D. (2017). Proceedings of the VIII International Agricultural Symposium „AGROSYM 2017”. Jahorina, Bosnia and Herzegovina, October. Retrieved from: [https://www.researchgate.net/publication/327030018\\_Agriculture\\_-\\_a\\_base\\_for\\_economy\\_improvement](https://www.researchgate.net/publication/327030018_Agriculture_-_a_base_for_economy_improvement) (access date: 22.06.2020).
- Rosenstein-Rodan, P.N. (1959). Uwagi o teorii „wielkiego pchnięcia”. *Ekonomista*, No. 2.
- Rostow, W.W. (1959). The Stages of Economic Growth. *The Economic History Review, New Series*, Vol. 12, No. 1.
- Rostow, W.W. (1971). The Take-Off into Self-Sustained Growth. In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.
- Rostow, W.W. (1990). *The Stages of Economic Growth. A Non-Communist Manifesto*, Cambridge University Press, Cambridge, Third Edition.
- Runowicz, A. (1979). Mechanizm rozwoju rolnictwa. *Wieś i Rolnictwo*, No. 1.
- Runowicz, H. (1984). Kwestia rolna. In: *Encyklopedia ekonomiczno-rolnicza*. Warszawa: PWRiL.
- Schultz, W.T. (1964). *Transforming Traditional Agriculture*. New Haven: Yale University Press.
- Schumacher, E.F. (1971). Rural Industries. In: A.B. Mountjoy (ed.), *Developing the Underdeveloped Countries*. London and Basingstoke: Macmillan Publishers Limited.

- Skarbek, F. (1820a). *Elementarne zasady gospodarstwa narodowego*. Vol. I. Warszawa: Nakładem N. Glücksberga. Retrieved from: <https://books.googleusercontent.com/books> (access date: 25.08.2020).
- Skarbek, F. (1820b). *Gospodarstwo narodowe*. Vol. II. Warszawa: Nakładem N. Glücksberga. Retrieved from: <https://books.googleusercontent.com/books> (access date: 25.08.2020).
- Skarbek, F. (1828). *Dykcyonarz ekonomii polityczney z francuskiego dzieła K. Ganilh na język polski przełożony i własnymi uwagami znacznie pomnożony*. Nakładem Wydawcy w Drukarni Kommissyi Rząd. W. R. i O. P. Retrieved from: <https://archive.org/details/dykcyonarzekonom00gani/page/n3/mode/2up?q=handel> (access date: 03.09.2020).
- Skarbek, F. (1926). *Ogólne zasady nauki gospodarstwa narodowego czyli czysta teoria ekonomji politycznej*. Vol. I. Biblioteka Wyższej Szkoły Handlowej. Warszawa-Kraków-Lublin-Lódź-Paryż-Poznań-Wilno-Zakopane: Nakładem: Gebethnera i Wolffa. Retrieved from: <http://bc.radom.pl/dlibra/doccontent?id=24755> (access date: 25.08.2020).
- Smith, A. (2015). *Badania na naturą i przyczynami bogactwa narodów*. Vol. 1. Wyd. II. Warszawa: PWN.
- Staszic, S. (2003). *Przestrogi dla Polski*. Skarby Biblioteki Narodowej. Wrocław: Ossolineum/De Agostini.
- Steuart, J. (1805a). An Inquiry into the Principles of Political Economy: Being an Essay on the Science of Domestic Policy in Free Nations. In Which are Particularly Considered 'Population, Agriculture, Trade, Industry, Money, Coin, Interest, Circulation, Banks, Exchange, Public Credit and Taxes. In: *The Works, Political, Metaphysical, and Chronological, Now First Collected in Six Volumes*. Vol. I. London: T. Cadell and W. Davies. Retrieved from: [https://books.google.pl/books/about/The\\_works\\_political\\_chr.html](https://books.google.pl/books/about/The_works_political_chr.html) (access date: 20.08.2020).
- Thiagarajan, B. (2020). *Drivers for Growth of Indian Agriculture*. The Confederation of Indian Industry, 18 January. Retrieved from: <https://www.ciiblog.in/economy/drivers-for-growth-of-indian-agriculture/> (access date: 23.06.2020).
- Toffler, A. (1985). *Trzecia fala*. Warszawa: Państwowy Instytut Wydawniczy.
- Tomczak, F. (1983). Proces intensyfikacji produkcji rolniczej. In: A. Woś, F. Tomczak (ed.), *Ekonomika rolnictwa. Zarys teorii*. Wydanie II poprawione. Warszawa: PWRiL.
- Turgot, A.R.J. (1795). *Reflections on the Formation and Distribution of Wealth*. London: Printed by E. Spragg. Retrieved from: <https://books.googleusercontent.com/books> (access date: 05.09.2020).
- United Nations (1987). Report of the World Commission on Environment and Development "Our Common Future". Retrieved from: <https://digitallibrary.un.org/record/139811#record-files-collapse-header> (access date: 23.08.2020).
- Wilkin, J. (1986). *Współczesna kwestia agrarna*. Warszawa: Wydawnictwo Naukowe PWN.
- Woś, A. (1979). *Związki rolnictwa z gospodarką narodową*. Wydanie II uzupełnione. Warszawa: PWRiL, pp. 41.
- Woś, A. (2000). *Rolnictwo polskie 1945-2000. Porównawcza analiza systemowa*. Warszawa IERiGŻ.
- Xenofonta (1857). *Ekonomik*. Przekł. z greckiego A. Bronikowski. Poznań: Nakładem Księgarni Jana Konstantego Żupańskiego.
- Zegar, J.S. (ed.) (2017). *Z badań nad rolnictwem społecznie zrównoważonym (39)*. Monografie Programu Wieloletniego 2015-2019, No. 47. Warszawa: IERiGŻ-PIB.

## RELACJE: ROLNICTWO – GOSPODARKA W TEORII EKONOMII

**Abstrakt**

Artykuł poświęcony jest miejscu rolnictwa w gospodarce na różnym poziomie rozwoju ekonomicznego oraz w różnych szkołach teorii ekonomii. Złożoność analizowanego obszaru jest konsekwencją tego, że rolnictwo stanowi jedną z pierwszych form świadomej i zorganizowanej działalności człowieka. Jego znaczenie dla społeczeństwa i gospodarki wynika z głównego celu tej działalności, jaką jest zaspokojenie podstawowej potrzeby człowieka, potrzeby zaspokojenia głodu. W opracowaniu przedstawiono trzy podstawowe perspektywy z jakich rolnictwo ukazywane jest w teorii ekonomii: (i) relacji zachodzących w układzie rolnictwo – pozostałe sektory gospodarki, (ii) głównych sił kształtujących mechanizm zmian i rozwoju rolnictwa oraz (iii) podstawowych kierunków (ścieżek) zachodzących w czasie zmian w rolnictwie.

W drugiej części artykułu weryfikacji poddano jedną z trzech głównych perspektyw ilustrujących miejsce rolnictwa w gospodarce i teorii ekonomii, tj. relację w układzie rolnictwo – pozostałe sektory gospodarki. Ocena została przeprowadzona na przykładzie polskiego rolnictwa i jego ewolucji czasowej. Analizie poddano zmiany, jakie nastąpiły po 1950 r. w takich obszarach jak: potencjał rolnictwa w gospodarce (zasoby ziemi, pracy oraz kapitału), wkład rolnictwa w tworzenie wartości dodanej (DNB/PKB), produkcja rolnicza, udział w handlu zagranicznym i zmiany w konsumpcji żywności.

**Słowa kluczowe:** rolnictwo, gospodarka, teoria ekonomii, konsumpcja żywności.

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