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## Place of Cantillon Theories in Economic Sciences

### *Abstract*

**RESEARCH OBJECTIVE:** *“Essai sur la Nature du Commerce en Général”*, published in 1730, became the basis for formulating economic theories of Hume, Smith and the physiocrats, as well as for the works of Knight and Mises. The aim of the article is to present the economic issues touch on in the essay against the background of the review of the relevant literature in the field of economic theory, as well as the possibility of transforming economic models into practical structures shaping the economic views of future generations.

**THE RESEARCH PROBLEM AND METHODS:** Theoretical issues were confronted with economic knowledge among sample N=600 in 2016-2020. The chi-square ( $\chi^2$ ) test was used to test the existence of statistical significance between gender and the understanding of the importance of economic issues.

**THE PROCESS OF ARGUMENTATION:** The sample has shown lack of basic knowledge in the economic filed in the aspect of university economic courses. At the same time, only those surveyed who are active on the labour market as entrepreneurs, perceive the need to raise qualifications and make complete knowledge in the examined subject.

**RESEARCH RESULTS:** Cantillon in his essay focuses on the “economic aspects of human action”. The results of studies conducted at the university have shown, that their basic knowledge in the field of economic sciences is at an unsatisfactory level.

**CONCLUSION, INNOVATIONS AND RECOMENDATIONS:** Contemporary economics mainly omits the entrepreneur in economic models and in the relevant literature, making entrepreneurship a separate scientific field. However, it is a key link, directly affecting both, micro and macroeconomic indicators. The connections and mutual influences described by Cantillon are favourable to thoroughly understanding of economic phenomena in real, economies world. This knowledge should be disseminated not only for better economic estimation, but also for a better understanding of events occurring in the world and the results of their implications.

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**KEYWORDS:**

Economics, Cantillon, Smith, Theory of economics, Economic models

## INTRODUCTION

Economic issues have accompanied people since the dawn of time, and the first attitudes related to economy are to be found in primitive people and the division of labour introduced by them. However, economics as a separate science was distinguished much later. The concept of the host appeared in Ancient Greece, where philosophers did not create a unified theory of economics, but through a descriptive analysis of its practical application and perception of related issues, they formulated their scientific dissertations. Xenophon (431-354 BC) in the work "*Oikonomikos*", from which the modern meaning of the term "*economist*" comes from, based on the example of managing Athens, explores the meander of management of both households and the state. Through guidelines for effective management of fixed assets, conclusions have been made regarding the importance and significance in other practiced crafts, such as medicine or blacksmith, introducing basic economic thoughts to the nature of work through this path. Similar references can be found in Aristotle's "*Nicomachean Ethics*" (384-322 BC), where mutual satisfaction of needs in the form of trade becomes a description of the basic economic concepts associated with private property. Collateral, which today is called insurance of credit operations or commercial pledges, was used by both philosophers in the empirical commercial practice described.

At that time, in Rome – considered at that time as an agricultural people – the works of Caton the Elder (approx. 234-149 BC) “*On a rural farm*”, Mark Terencjusz Warrona (116-27 BC) “*The principles of agricultural science*” and Lucius Lunius Moderatus Columell (24-79 AD) – the author of the work entitled “*On rural things*”, specializing in economic issues mainly in the field of land management, because at that time the Romans had the most experience.

It can also be assumed that the chaos in Europe after the fall of Rome, which lasted until the 11<sup>th</sup> century AD, caused the consequences of raising economic issues in this period among theological works, with the most famous being the scholastic philosopher Thomas Aquinas (1225-1274). Being a Dominican, he simultaneously prompted the theory of private and shared property – which is the equivalent of today’s public property – consistently adapting Aristotle’s classical vies to the theological content of Christian doctrine.

Over the next epochs, the role of ore money made of gold, silver and sometimes even platinum has been lost. Presenting the value as well as physical features and properties that at the time gave money adequate guarantees for the equivalent – durability and stability of value – were replaced by utility. Functional money can now be even over-valued, as observed in 1923 in Germany, in 1946 in Hungary and Zimbabwe, as well as in 1990-2014 in Poland. The turbulent economic environment causes the search for new solutions and making further attempts to understand market conditions, as well as existing economic aspects. Economics, in fact, “explores the ways of making decisions about the use of rare resources and the effects of these decisions in the production process, division and exchange” (<https://sjp.pl/ekonomia>, access as of 24.09.2020).

The purpose of the article is to present the economic issues raised in Richard Cantillon’s essay against the background of a review of the subject of literature in the field of economic theory, as well as issues of knowledge in the field of economics and entrepreneurship, to mark the place of the economist theory known to future physiocrats since 1730, when Adam Smith – called the father of classical economics – was only a seven years old boy. The considerations in the scope of the basic methodology, up to the extensive macroeconomic models, including the mechanism of the flow of goods and services, as well as money and the adjustment of prices to consumer expectations,

put forward in the essay, allow him to be considered the father of economic theory. Hence, it is so important that the considerations in the essay gain in the face of modern, turbulent and global economic markets. Cantillon, in his work published 46 years before Adam Smith's "*Research on the nature and causes of the wealth of nations*", raised the issues considered in the literature much later by Schumpeter (1883-1950) or Holcomb (1950), namely the need to combine entrepreneurship with economic theory – especially in view of the need to conduct economic analyses of economic growth.

The contemporary approach to the theory of economics after the period of the reign of classical economics by Adam Smith or the theory of John Maynard Keynes, and above all universal globalization, allow a broader and deeper look at the theory of economic thought, enabling it to be reclassified.

Therefore, conducted studies of the subject literature were confronted with the knowledge of students from one of the Polish universities, who have economics courses in their study program, to verify their knowledge of the theory of economics and the possibility of transforming economic models into practical structures shaping the economic views of the surveyed generation. The research results were based on an auditorium survey conducted in 2016 and 2020 among 1<sup>st</sup> and 2<sup>nd</sup> degree students of higher education, obtaining the Ni600 sample.

To obtain the results presented in the article, mathematical analysis tools were used, which made it possible to calculate shares, determine sets of common features and trends in making choices by 600 respondents in the analysed period, presented in the article by means of tables and graphs, diversifying shares depending on the analysed research criterion, taking into account the degree of studies, gender of the respondent, professional activity of the respondent, place of origin of economic activity (village / city), as well as knowledge of foreign languages. Additionally, an attempt was made to investigate the existence of statistical significance between gender and the understanding of the importance of issues related to the field of economics using the chi-square ( $\chi^2$ ) test and formulating the thesis: the distributions of the obtained results are independent – gender does not affect the level of knowledge about the science of economics.

A detailed description of the research method is presented in chapters 5 and 6, which were preceded by theoretical parts in the

field of economic development at the turn of history, as well as a description of the development of the classical trend of economics, whose father is assumed Adam Smith, to show in the next chapter the role of Richard Cantillon, who created work "*Essai sur la nature du commerce en général*", where he influenced the individual views of later economists, including those described in the work of A. Smith almost half a century later. The importance of this knowledge and the possibility of its transformation into contemporary economic models and practical economic constructions has been confronted with the knowledge of Students as the next generation shaping the economic environment in order to examine the gaps in knowledge about economic theory and assess the significance of the impact that implies economic development.

## 1. THE DEVELOPMENT OF ECONOMICS AT THE TURN OF HISTORY

From the time of the Roman Empire, throughout the Middle Ages, until the Renaissance, the phenomenon of so-called "money spoilage" was observed, consisting in its gradual "slimming" of precious metals and reducing weight, which concerned mainly the so-called metallic money, undoubtedly influencing subsequent theories in this field. Consecutive security features, most often in the form of signs on the edge, gave rise to the theory that recognizes the central role of money and its control in economic circulation – monetarism.

The following were recognized as precursors of monetarism: (1) Nicolas d'Oresmus – Lisieux bishop (1320-1382), creator of the work "*De origine, natura, jure et mutationibus monetarum*" (1675), as well as (2) Nicolaus Copernicus (1474-1543), who in their works explained the negative effects of such a practice on the economics of the state's economies. At that time, only sovereigns had the right to mint coins, by refining silver and gold coins through an admixture of other ores, they gained additional income.

The turn of the 15<sup>th</sup> and the entire 16<sup>th</sup> century, in which the expansion of international trade was accompanied by an increase in the role of merchants, bankers and workshop owners, laid the foundations for the development of a generally applicable economic theory,

with a holistic approach to phenomena occurring and observed in nature. This is how the first economic school of mercantilists was founded, derived from bullionism, according to which a rich country is a country wealthy in raw materials, with gold being one of the most desirable resource. Hence the legitimacy of the theory, leading to the conclusion that top-down activities should be directed at obstructing gold exports from the country, and thus limiting imports. This attitude was the result of the trade cycle, because goods from abroad were imported for gold and silver, and the state's economic activities should focus on developing exports, while the sale of unfinished materials – called raw materials – was considered harmful to the good of the country and the nation – industrial processing in the country and the sale of finished products should be conducive to building internal wealth. This is how the set of “recommendations for state economic policy” was created, which did not indicate the dependencies governing the economy in the form of economic science, but carried out issues that were within its scope.

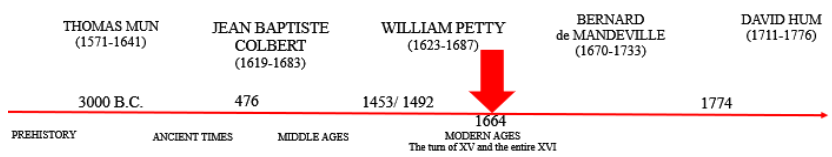
The leading representatives of this trend include:

1. Thomas Mun (1571-1641) – English economist, supporter of foreign trade regulation by the government in order to maintain a positive trade balance and the flow of gold and silver to balance it
2. Jeana Baptiste Colbert (1619-1683) – French statesman, economic politician, general finance controller and adviser to Louis XIV, member of the French Academy, created the economic foundations of the military and political power of the 17th-century France, an advocate of absolute power and a centralized state: abolished the privileges of provinces and cities, subjecting them to uniform legislation – he issued ordinances regarding, among others: civil law, criminal law, trade and waters and forests, as a mercantilist he assumed that only one side in trade was enriched – therefore, he sought to increase France's share in international exchange, at the expense of limiting the commercial hegemony of the Dutch, supported the creation of a trade company and colony
3. William Petty (1623-1687) – English economist and physician, precursor of statistical techniques for measuring social phenomena and economic variables (Asprpmourgos, 1996)

4. Bernard de Mandeville (1670-1733) – a Dutch-born philosopher and economist, as well as a political thinker who spent most of his life in England – a preacher of the classical mercantilist thesis that the goal of society is production, not consumption, a supporter of a large population and child labour – which in his opinion was to lead to a low level of wages, and this in turn was to be beneficial from the point of view of export and foreign trade in order to maintain a positive trade balance – author of the “Fairy tales about bees”
5. David Hume (1711-1776) – Scottish philosopher, historian and economist, liberal mercantilist, argued that the economy is not able to permanently maintain favourable trade balances, and, contrary to the classical trend, he believed that a gradual increase in the money supply would lead to an increase in demand.

The year 1664 is assumed as the date of the appearance of the term “mercantilism”, when the French politician – and also the Minister of Finance of Louis XIV – Jean Baptiste Colbert used this wording in the book “On the principles of mercantilism” (figure 1).

Figure 1. Representatives of mercantilism



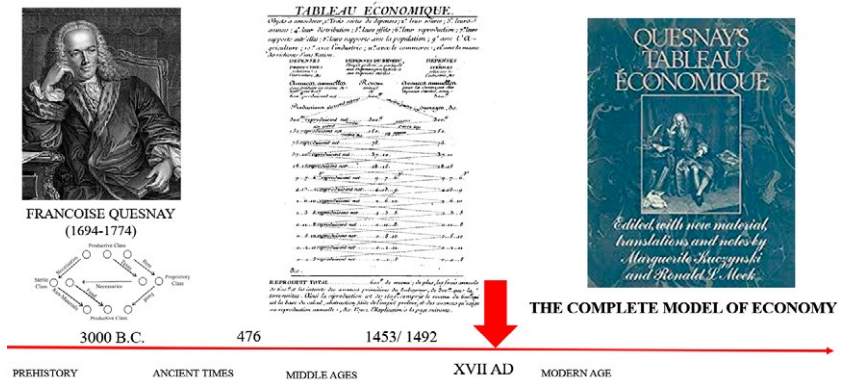
Source: own study

However, the first economic table (*tableau économique*) – considered the earliest attempt to present the input-output<sup>1</sup> and presenting the

1 The method was created by Wasilij Wasiljewicz Leontjew (195-1999), an American economist of Russian descent, associated with the Harvard University and the New York University, for which he was honoured in 1973 with the Nobel Prize in Economics – the method consists in gathering information on the value of manufactured goods in the economy and their use, which is grouped by industry. In this way, a table is created containing information about the production of individual industries and directions of their use broken down into individual intermediate consumption in the industries

circulation of goods in the described society and the process of implementing the active product – was only created in the 17<sup>th</sup> century by the French physiocrat François Quesnay (1694-1774), court physician of Louis XV and contained the first holistic, economic model of the economy (figure 2).

Figure 2. Tableau Economique by François Quesnay



Source: own study

Representatives of this trend considered economics as a natural science, in which the economy functioned as a living organism, which put the theory on the superior role and superiority of agriculture over all other branches of production, proclaiming approval for free trade, entrepreneurship and liberalism. Thus, the physiocrats became oppositionists of mercantilist protectionism, especially in the field of trade.

The theory of physiocrats was based on productive work (creating new values) and an additional product, which included work in agriculture, because it was the only additional product that was created – the so-called excess of generated value over production costs. Physiocrats emphasized, however, that such effects can only occur on modern, capitalist farms, because only they are market-oriented

presented and final demand. The table can present data on both import and export as well as taxes, and can also be adopted for regional analyses, in which the value of production and directions of its use in the regional aspect are shown.



and thus constitute new production methods. By assumption, the concept of physiocrats introduced changes to the monarchy then in force and to the feudal system prevailing in individual countries at that time. Therefore, the following issues appeared:

1. reforms in economic systems in which land is the basic productive good, because agriculture is the strength of social development
2. the idea of the order of nature, introducing property, freedom, respect for work, and
3. laissez-faire, freedom of economic activity and free competition conditioned by the existence and operation of the laws of nature.

Accordingly, society was basically divided into three groups:

1. the class of landowners (lay and clerical persons) who lease land of which they are owners on a payable basis to farmers – tenants – in the form of rent, while being the only taxed group because they receive profit in the form of rent
2. production class (agriculture) – creating a pure product that can multiply the value of production
3. sterile class (industrialists, craftsmen, buyers) – producing the equivalent of consumed consumption means and not generating new value.

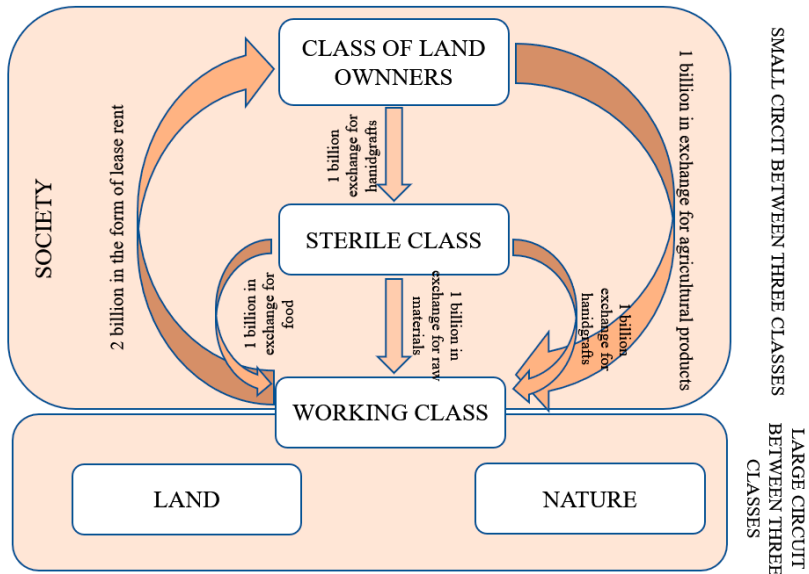
Their undoubted views influenced the development of schooling, education and training at that time – especially the creation of elementary and parish schools in the villages – and by criticizing the serfdom they contributed to reforms in this area. An example would be the introduction in one of the countries of Central Europe, in Poland by Hugo Kołłątaj in 1780 to the curriculum of the Jagiellonian University the subject of economics called „political skills”, as well as conducted in Western Europe by the Roman-German Emperor Joseph II Habsburg<sup>2</sup> (1741-1790) reform of the tax system – the work

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2 He represented the views of enlightened absolutism (a form of state system, in which the monarch recognizes selected principles of the social contract between him and society, while remaining an absolute monarch and exercising power over all areas of state administration – the so-called “first servant of the state); during his highly centralized rule (1765-1790), he sought a compact monarchy in which a uniform language, administration and tax system operated, implemented many reforms of the tax system and education, and

of the peasants was converted into money – 70% of gross income – with 12% constituting taxes for the benefit of the treasury and 18% remained in the form of profit for feudal lords (figure 3).

Figure 3. Division of society by school of physiocrats



Source: own study based on Mączak, A.,1981, p. 170

In addition to widely recognized as the creator of F. Quisney, they belonged to the group of physiocrats:

I: French:

1. Richard Cantillon (1680-1734) – an Irish with a Spanish name, living in France, a banker and trader who made big profits from shares in the Missipi Company, a friend of John Law (Prendergast, 1991, pp. 419-429; Hone, 1944, pp. 96-100; Brewe, 1992; Blaug, 1991; Bordo, 1983, pp. 235-258; Higgs, 1892, pp. 436-456)

religious tolerance – he began the process of subordinating the Catholic church to the so-called Josephinism – abolished the death penalty and personal serfdom of the peasants. He began the First Partition of Poland (1772).

2. Vincent de Gournay (1712-1759) – an economist, considered one of the greatest supporters of contemporary liberalism and a critic of mercantilism, who is credited with the authorship of two slogans: “let us act” and “bureaucracy”, which he was to deliver in 1758 at the meeting of physiocrats (“laissez faire, laissez passer, le monde va de lui-même”)
3. Honoré Gabriel Riqueti de Mirabeau (1749-1791) – a politician, who in his opinion demanded the freedom of everyone guaranteed by law, the abolition of slavery in French colonies, freedom of expression and print, as well as ending religious discrimination, a supporter of constitutional monarchy and co-author of the “Declaration of Human and Citizen Rights” – the program document of the French Revolution<sup>3</sup>
4. Pierre Samuel du Pont de Nemours (1739-1817) – an economist and member of the National Education Committee
5. Guillaume-François Le Trosne (1728-1780) – a lawyer and economist who was one of the first to use the concept of capital in his works (Carvalho, 2019, pp. 1-51)
6. Anne-Robert-Jacques Turgot (1727-1781) – the main finance controller during the Reign of Louis XVI made attempts to impose taxes on the nobility and clergy in France, as well as to limit court expenses and carry out reforms in the scope of free grain trade and guild restrictions, co-author of the Great French Encyclopaedia, who is considered together with Jean Antoine Nicolas de Condorcet as the creator of the theory of progress, questioning the authority of ancient scholars and recognizing – contrary to Christian tradition – the value of human achievements, human reason and temporal life, assumed the stability of the laws of nature leading to cumulative development of knowledge and instability of social institutions<sup>4</sup> (Blaug, 1991).

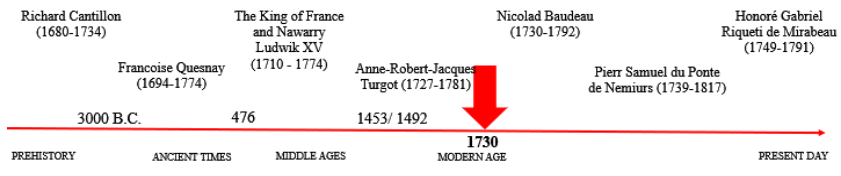
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3 Derived from the philosophical and political currents of enlightenment Jean-Jacques Rousseau, Montesquieu, Denis Diderot and John Locke, the “Declaration of Human and Citizen Rights” was adopted on August 26, 1789 by the Constituent Party, was condemned in 1791 by Pope Pius VI, while since 2003 it is on the UNESCO World Memory list.

4 The basic assumptions of the theory of progress include: (1) the development of a socially correct character, (2) in which three phases occur regularly:

Physiocrats also included: (7) King of France and Navarre Louis XV (1710-1774), (8) military engineer and architect Sebastian Vauban (1633-1707), (9) economist Nicolas Baudeau (1730-1792), (10) engineer and economic politician Joseph-Michel Dutens (1765-1848), (11) economist Jean-François Melon (1675-1738), (12) writer, agent and journalist Ange Goudar (1798-1791), (13) economist Pierre-Paul Lemercier de La Rivière (1719-1792), who first used the term “enlightened absolutism” (figure 4) (Murphy, 1986; Duffrenoy, 1964; Magnet, 1955; Alphonse, 1896; Jevons, 1881, pp. 155-831).

Figure 4. Representatives of physiocrats



Source: own study

Among the physiocrats there were also personalities operating outside of France:

II Foreigners:

1. Gaspar Melchor de Jovellanos (1744-1811) – a Spanish politician, lawyer, economist and botanist
2. Joachim Litawor Chreptowicz (1729-1812) – Great Lithuanian Chancellor and Minister of Foreign Affairs of the Law Guard
3. Hugo Stumberg Kołłątaj (1750-1812) – Polish politician, publicist, canon and historian
4. Hieronim Stroynowski (752-1815) – Polish economist, priest, Piarist and Vilnius bishop

technological, metaphysical and positivist, (3) there is an accumulation of development of all areas of human culture, (4) it is possible to forecast social change. The theory of progress was expressed by Anne Robert Jacques Turgot in the work “Discours sur l’histoire universelle” in 1750. However, the most important for popularizing this theory was the work of Jean Antoine Nicolas de Condorcet “Sketch of the image of the progress of the human spirit through history” from 1794, who exerted a strong influence on Auguste Comte, the creator of sociology.

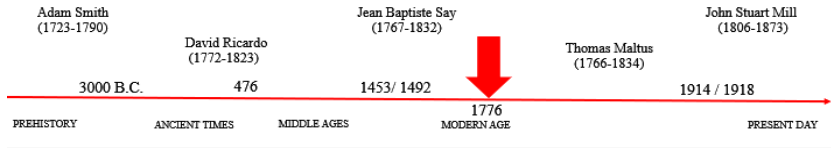
5. Antoni Ignacy Popławski (1739-1799) – Polish teacher, Piarist priest, political writer
6. Friedrich Eberhard von Rochow (1734-1805) – German pedagogue and philanthropist.

### 3. THE DEVELOPMENT OF THE CLASSICAL TREND IN ECONOMICS

The work “Research into the nature and causes of the wealth of nations” by Adam Smith (1723-1790) was created in 1776. It should be emphasized that, according to the literature on the subject, the work of A. Smith was greatly influenced by the views of F. Quesnay (Smith, 2016; Smith, 2000). By dividing economics into “before” and “after” Adam Smith, he was called by the experts of the subject the father of classical economics. Against the description of practical phenomena occurring in the state economies, he prepared a record of both guidelines for ruling politicians, as well as laid out the laws governing the economics of economies, which was considered an innovative approach to the subject (Smith, 2016). The division of labour, remuneration systems, interest rates, as well as the three factors of production (land, labour, capital) mentioned have been strengthened by free trade, which is accompanied by the issue of free competition and fair but low taxes. The theory of the “invisible hand of the market” was supported by the sustenance of private property and limiting the role of the state to the role of “night watchman” in respect of compliance with social order principles and the letter of the law. The so-called aggregate thinking and laboratory value theory were introduced (Smith, 2016; Smith 2000; see also: Hont, 2006; Rothbard, 1995, pp. 377-418).

Proponents of the A. Smith school, which was named classical, were: David Ricardo (1772-1823), Jean Baptiste Say (1767-1832), Thomas Malthus (1766-1834) and John Stuart Mill (1806-1873). It was leading in the 19<sup>th</sup> century, and its principles were summarized by Alfred Marshall (1842-1924) in several works, the most important of which was published in 1890 “Principles of political economy”, where the law of supply and demand was formulated in a fully scientific way for the first time (see also: Salerno, 1985, pp. 305-316) (figure 5).

Figure 5. Representatives of the classical trend in economics



Source: own study

On the other hand in Germany, a supporter of protectionism, the economist Friedrich List (1789-1846), considered a precursor of political economy, founded the German school of economics. List's works became the basis for developing the school of American economics called the "National System" and now as the National Innovation System. His concept of a united Europe formed the basis for the development of the European Economic Community (EEC). In his works, he emphasized the role and significance of rail infrastructure, which has both (1) military significance, because it allows quick movement of troops, but also (2) economic – allow for quick transport of goods, (3) social – allows minimizing local shortages of goods and food, (4) cultural – because fast movement gives access to cultural centres, but also (5) nation-forming – it breaks alienation and isolation of local social groups.

F. List based his theory on the principle that wealth and economic development of a nation – as a whole – is a superior good and – as it is the most important – it can be sacrificed to the well-being of individuals and even entire generations. The increase of the nation's power, even despite competition from other nations, should be ensured by the institution of the state through, among others, customs system and shipping. He believed that the state, only after reaching the appropriate level of development – that is, when competition from other nations is no longer dangerous – can lift customs barriers and promote international cooperation. The views of Friedrich List were implemented by Bismarck, contributing to the economic reconstruction of Germany in the 19<sup>th</sup> and 20<sup>th</sup> centuries.

At that time, mathematics led the way in economics, and literature on the subject made a "national" division. That is why Alfred Marshall (1842-1924) was included in the English school, the French

who created in this period, Leon Walras<sup>5</sup> (1834-1910) and the Italian, Vilfredo Pareto<sup>6</sup> (1848-1923) to the Lausanne school, and Carl Menger (1840-1921), Edmund von Böhm-Bawerk (1851-1914) – the creator of the subjective theory of interest – and Friedrich von Wieser (1851-1926) to the Austrian school.

A common feature of their contribution to the science of economics is to draw attention to individual consumer preferences that affect and shape prices and interest rates. It was one of the precursors of the marginal revolution of William Stanley Jevons (1835-1883), at the end of the 19<sup>th</sup> century, rediscovered and published the work of Richard Cantillon. Being a representative of the Austrian school – Viennese or praxeological school – he emphasized the man theses, together with its founder Carl Menger, which were defined in 1971 in Menger's work "Principles of Economics":

1. the principle of methodological subjectivism
2. the principle of methodological individualism
3. resignation from mathematical modelling of economic phenomena
4. the importance of the role of uncertainty in economic phenomena
5. the importance of the role of knowledge and information for the course of market processes.

The influence of Cantillon on the Austrian school is noticeable. Representatives of this trend proclaimed that economic processes are characterized by a high degree of uncertainty and constant imbalances. Such conditions mean that the free market is the best solution coordinating the activities of economic entities (units). It enables obtaining information as well as its appropriate verification and interpretation ("learning"), mainly through the price mechanism. For this purpose, freedom of price formation is necessary, which in turn depends on free competition. State institutions will then never be able to replace the free market as a mechanism for optimal allocation of goods – due to limited access to information or its complete lack. On the other hand, combating unemployment and inflation depends not only on limiting and stabilizing the pace of money supply, but also on

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5 The creator of the general equilibrium theory.

6 Walras and Pareto contributed to the development of econometrics.

effective inhibition of expansion and the role of trade unions, which are a serious factor increasing the level of inflation, recession and constitute an obstacle to raising the standard of living of employees.

John Maynard Keynes (1883-1946) and his „theory of employment, interest and demand” (1936), which made a breakthrough in the theory of classical economy and was the result of the Great Depression that took place in 1929-1933, came from the Marshall’s school as his student. It should be noted, however, that the same conclusions were published earlier than works of J.M. Keynes, because already in 1933 and 1935 by a Pole, Michael Kalecki (1899-1970) in the works:

1. “An Essay on the Theory of the Business Cycle – (original edition in French language – 1933) (Kalecki, 1935d)
2. “An attempt at the economic theory” – 1933 (original edition in Polish language)
3. “The Essay on the Business Cycle Theory” – 1933 (original edition in Polish language) (Kalecki, 1933a)
4. “On foreign trade and domestic exports” – 1933 (original edition in Polish language) (Kalecki, 1933b)
5. “A Macrodynamic Theory of Business Cycles” – 1935 (Kalecki, 1935a)
6. “The Mechanism of Business Upswing” – 1935 (original edition in French) – (Kalecki, 1935b)
7. “Business upswing and the balance of payments” – 1935 (original edition in Polish) (Kalecki, 1935c)
8. “Theory of the business cycle” – 1935 (<https://bg.uek.krakow.pl/e-zasoby/wystawy/28/1.php>, access as of 24.05.2020).

However, Michał Kalecki published mainly in his native language: Polish and French, which is why his works are attributed with significantly limited cognitive knowledge. The primacy of free competition and liberal trade was again undermined and the function of the state as a “night watchman”, which should be active and take active part in economic aspects, create state interventionism, and the new direction of economics was referred to as Keynesianism (Osiatyński, 1990-1997).

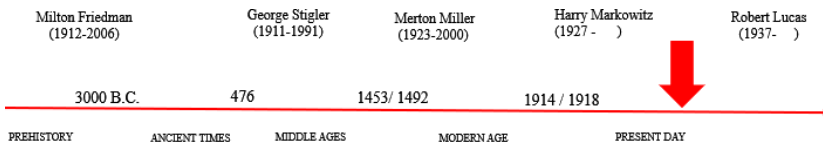
However, from the Austrian school of Carl Menger, a younger Austrian school was established, which assumption was to create an economy free from state intervention, and if based on very restrictive conditions, represented by Ludwig Edler von Mises (1881-1973) and



Friedrich von Hayek (1889-1992). Depression caused by oil crises from October 1973 to March 1974 ended the career of the theory of J.M. Keynes in the post-war economics, causing a return to liberal pre-Keynes economics.

The next period of economic theory, lasting in the 1970s, took the form of a theory developed by a team of scientists: Milton Friedman (1912-2006) and George Stigler (1911-1991), Merton Miller (1923-2000), Harry Markowitz (1927), Robert Lucas (1937) and many others associated with the University of Chicago, where the name of the views presented as the Chicago school comes from (figure 6).

Figure 6. Representatives of the Chicago school



Source: own study

However, the myth that modern economy thought, consisting in explaining the market economy, has developed in Great Britain is not true, nevertheless since economic analyses were created half a century earlier in France.

The first treatise on economics is the work of Richard Cantillon entitled *“An Essay on Economic Theory”* (Cantillon, 1959). He combined his professional experience with theoretical thought, thus setting the boundaries of the independent economy zone – economics, creating a work in all its manifestations (Liggio, 1985, pp. 295-304). The content of the conducted considerations separates ethical and political aspects, and focuses attention on the economic manifestations of human action and its analysis. Cantillon’s approach assumed that it was impossible to separate all economic ethical dilemmas, especially within the scope of government competences, without knowing the principles of market functioning, which leads to the separation of economic analysis (Hayek, 1991).

#### 4. PLACE OF RICHARD CANTILLON'S THEORY IN ECONOMICS

Richard Cantillon was born around 1680 in Ireland, in Ballyheige (Kerry county), he died as a multimillionaire in 1734 in a fire in his London home. Expelled with his whole family by Oliver Cromwell, he emigrated to France in 1714. This Norman economist with a Spanish surname was one of those who criticized mercantilism. His essay "*Essai sur la nature du commerce en général*", what means "*General consideration on trade laws*" (known since 1730, published in 1755), is now considered the first description and analysis of the economic process. The presented results of the conducted observations – he was a practitioner of the profession – as well as the views, were significantly ahead of the thoughts formulated by physiocrats. Cantillon already in 1730 believed that land and work were the main sources of wealth. He also created a price theory based on the value of the work put into making the product, as well as the concept of working pay.

The tools of economic abstraction<sup>7</sup> introduced in 1730 in the form of *ceteris paribus* – the stability of certain variables – allowed him to draw conclusions within one analysed factor. The application of abstract analytical thinking and the following approximations was described by him as natural cause-and-effect relationships that occur in a market economy. He began his considerations from the assumption – identical to the feudal system prevailing in France at the time, that there was only one gigantic estate – the whole world (see also: Le Trosne, 2019).

The conclusions he described – in the model thus created – indicate the dependence of all production on the willingness and desires of one monopolist who manages the work of other people. Thus, production depends on the needs of one in need, which in this pattern will be the landowner. Then, he made one realistic change, introducing a type of lease – the owner leases his land to various producers who need to exchange products to maintain the continuity of the system, leading to the creation of a free market economy in which there is competition, exchange trading and a price system. Trade exchange

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<sup>7</sup> The process defined in the literature by Ludwig von Mises as a "thought experiment" (gedankenexperiment).

defined in such a way naturally causes the appearance of commodity money as the most desirable means of exchange and a tool for estimating value (see also: Hebert, 1985, pp. 269-280; Tarascio, 1985, pp. 249-258).

Cantillon was probably the first to define long-term balance as a balance of income flows, thus forming the foundations for physiocrats, classical economics, and the Austrian school. The clear Cantillon's system paved new paths. He developed a system of general equilibrium that led him to price theory (determined by the costs of production) and the output theory. When analysing market prices, he pointed out the relationship between demand and existing resources of a given good in creating current market prices.

The mechanism of demand and supply described in the essay that determines short-term market prices (but not long-term natural prices) makes him a precursor of the marginal revolution. In particular, his views on entrepreneurship (as a type of arbitration) made him a favourite of the Austrian school. Cantillon was the first to develop a quantitative theory of money. The effect of his theory was moving to quasi-mercantilist position, and promoting trade balance, but with a peculiarity: Cantillon supported the import of agricultural production and the export of "non-agricultural" goods as a way to increase national wealth.

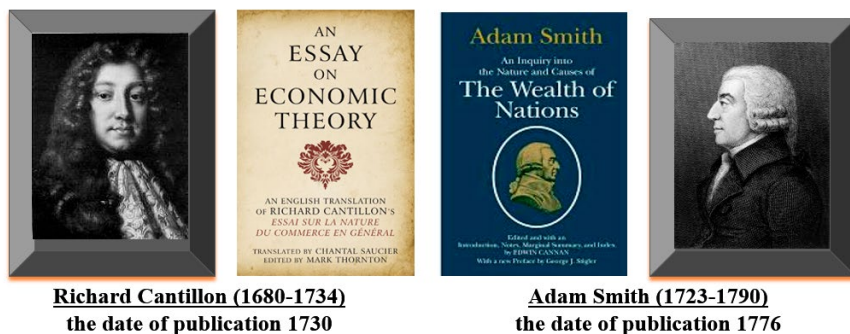
The analysis of Cantillon of market prices indicates a causal relationship between demand and the existing stock of goods for price creation. The issue of price creation in the "Real world", which we call current market prices, rather than the imaginary level of prices over a long period of time, was one of the more absorbing issues in the banker's considerations. The law created by Cantillon states that "in the long run, market prices are moving towards the 'intrinsic value' of the commodity", which he called the cost of producing the commodity in terms of land and labour – now the theory of price equilibrium of Smith-Ricardo, extended to the theory of equilibrium by Walras. The Frenchman clearly formulated his idea that "real market prices are determined by demand, which is subjective and depends on moods, preferences, lifestyle, etc. Therefore, value to products is really given by the consumer by a biased valuation of a given good – its usefulness and rarity." The theory on a scholastic basis says that the higher the usability, the higher the value, and the

higher the supply, the lower the value and price of the product on the market (see also: O'Mahoney, 1985, p. 259-268, Spengler, 1954, pp. 281-295).

"It often happens that many things with intrinsic value are not sold in that value: it depends on the moods and whims of people and their consumption". It is clear that the quantity of a product or good offered for sale, in proportion to its demand or the number of buyers, is the basis for already established or future actual market prices". More importantly, all of Richard Cantillon's theories were supported by empirical experience or an observed, specific example of the behaviour of economic entities operating in his market economy at the time. Thanks to them, he made the general conclusion that consumer demand determines sales and price, and the cost of production (land plus work) is to determine the profitability of business – thus showing whether profits are able to cover costs so as not to generate a loss that will lead to the closure of the project. Thus, "the process of moving towards long-term sustainability does not mean adapting market prices to real long-term production costs, but the shift of employees and managers between different production lines until production costs and sales prices level out", therefore he noted that production costs did not set prices.

He was the first to find a direct connection and the entrepreneur's role for the entire economic system. "The market is saturated with uncertainty, and the task of a businessman and entrepreneur is to face and cope with this uncertainty by investing and paying costs in hope of a profit. Then, the profits are the reward for successfully predicting the future and for dealing with uncertainty in the production process." By dividing producers in the market economy into two groups: "hired employees" with stable earnings and entrepreneurs – with variable, uncertain profits", he defined their roles and tasks in the economic model he created. "An entrepreneur-farmer bears the risk of fixed production costs and uncertain prices, just as a trader or producer incurs similar costs and is dependent on uncertain profits. As sales and prices are uncertain and variable, their business income becomes an uncertain result." Therefore, competition emerging on the market and gradually strengthening its position contributes to competition and entrepreneurship, which are connected links, affecting each other (figure 7).

Figure 7. Works of Robert Cantillon and Adam Smith



Source: own elaboration

Richard Cantillon in his essay also defines the theory of entrepreneurship, designating the entrepreneur – a person dealing with uncertainty bearer – essential in the whole process than just focusing on aspects of his personality (see also: Hulsmann, 1997). This approach is so far from the theory of J. Schumpeter, and synonymous with the theory of F. Knight was presented and written in France in 1730 and published anonymously in England about twenty years after the death of Cantillon – i.e. around 1754 (see also: Schumpeter, 1991, pp. 258-259). The work of A. Smith, however, dates back from 1776. Therefore, it can be presumed that, as in the case of M. Kalecki, the cognitive value of works from this period, published in a language other than English (in this case French) constituted a significant barrier enabling proper attribution of merits to relevant economists from a given period.

## 5. METHODOLOGY

The presented research results are based on an auditorium survey carried out in 2016-2020 among students of one of the Polish universities, first and second degree studies, which have a social subject in their syllabus– economics or finance. Each year, the same number of students ( $N_i^{120}$ ) was subjected to the study, taking into account the gender of the respondents ( $N_i^{W60}$  and  $N_i^{M60}$  – therefore, the same

number of women and men, respectively), who in each experiment divided into the year of the study ( $N_{i=\text{year}}$ ) had the same weights and shares, broken down into persons only studying, as well as persons studying and professionally active on the labour market (formulas 1, 2, and 3).

Formula 1 General sample

$$N_i^{600} = \sum_{i=2016}^{2020} (N_i^{W60} + N_i^{M60})$$

Formula 2 Women's sample

$$N_i^{W300} = \sum_{i=2016}^{2020} (N_i^{WS} + N_i^{Wwp})$$

Formula 3 Men's sample

$$N_i^{M300} = \sum_{i=2016}^{2020} (N_i^{MS} + N_i^{Mwp})$$

where:

$i$  - study year

$W$  - women's sample

$M$  - men's sample

$S$  - people only studying

$wp$  - people studying and working

To obtain the results presented in the article, mathematical analysis tools were used, which enabled the calculation of shares, determination of sets of common features and tendencies in making choices by 600 respondents in the analysed period. The tool for collecting data was the auditorium survey, containing both: open and closed questions, using the seven-points Likert scale, the usage legitimacy of which is motivated by greater "sensitivity" – more differentiating the answers of the respondents (table 1).

Table 1. Values and structure of the research sample

year		2016	2017	2018	2019	2020
I degree						
women	$N_i^W$	30	30	30	30	30
	$N_i^{WS}$	15	15	15	15	15
	$N_i^{Wwp}$	15	15	15	15	15
men	$N_i^M$	30	30	30	30	30
	$N_i^{MS}$	15	15	15	15	15
	$N_i^{Mwp}$	15	15	15	15	15
II degree						
women	$N_i^W$	30	30	30	30	30
	$N_i^{WS}$	15	15	15	15	15
	$N_i^{Wwp}$	15	15	15	15	15
men	$N_i^M$	30	30	30	30	30
	$N_i^{MS}$	15	15	15	15	15
	$N_i^{Mwp}$	15	15	15	15	15

Source: own research

Tables and graphs were used to diversity the shares depending on the analysed research criterion: (1) degree of studies, (2) gender of the respondent, (3) respondent's professional activity, (4) place of origin (village / city) of the respondents, (5) knowledge of foreign languages. In all tables, the results obtained on the Likert scale were described according to weights and shares in which: (1) DN means definitely no, (2) N – no, (3) RN – rather not, (4) ? – hard to say, (5) RY – rather yes, (6) Y – yes, (7) DY – definitely yes.

## 6. TRANSFORMING THEORETICAL ECONOMIC MODELS INTO PRACTICAL CONSTRUCTIONS OF ECONOMIC KNOWLEDGE IN THE LIGHT OF EMPIRICAL RESEARCH

General knowledge about the history of economic though allows the thorough understanding of the economic changes taking place. As a scientific discipline of a theoretical nature, it describes both: research and the processes of shaping subsequent economic views. Economic issues have always existed and accompanied human activities,

and elementary knowledge allows better management of both private resources and portfolios of managed enterprises.

Hence the idea of conducting an auditorium survey among students at one of the Polish universities who have a compulsory economics course in their curriculum in order to examine the level and importance of this knowledge, as well as the possibility of its transformation into modern economic models and practical economic structures as the next generation shaping economic environment.

The auditorium survey was conducted among students at one of the Polish universities who have a compulsory economics course in their study program. The presented studies - due to their complexity and extensive analysis possibilities - have been limited to several research criteria, taking into account the gender and degree of active involvement of the respondent on the labour market (respectively: women only studying -  $N_i^{WS}$ , women studying and working  $N_i^{Wwp}$ , men only studying -  $N_i^{MS}$ , men studying and working at the same time  $N_i^{Mwp}$ ), who were first asked to express an opinion on the need for general knowledge of the history of economic thought (table 2).

Table 2. The role and importance of the history of economic thought for the current Student

Lickert scale		DN	N	RN	?	RY	Y	DY
		[%]						
		I & II degree						
women	$N_i^{300}$	8.00	40.33	9.67	7.00	6.00	23.00	6.00
	$N_i^{WS}$	8.00	46.67	0.00	14.00	9.33	22.00	0.00
	$N_i^{Wwp}$	8.00	34.00	19.33	0.00	2.67	24.00	12.00
men	$N_i^{300}$	15.33	41.00	7.00	7.33	9.33	20.00	0.00
	$N_i^{MS}$	10.67	46.67	0.00	14.67	9.33	18.67	0.00
	$N_i^{Mwp}$	20.00	35.33	14.00	0.00	9.33	21.33	0.00
ALL	$N_i^{600}$	11.67	40.67	8.33	7.17	7.67	21.50	3.00
	$N_i^{WS}$	9.33	46.67	0.00	14.33	9.33	20.33	0.00
	$N_i^{Wwp}$	14.00	34.67	16.67	0.00	6.00	22.67	6.00

Source: own research

Generally, it can be seen that students, i.e. people who will manage enterprises in the future – do not see the need to explore economic



thought (364 DN sample – definitely no, N – no and RN – rather no, versus 193 RY answers – rather yes, Y – yes, DY – definitely yes). A detailed analysis taking into account the gender of respondents showed that the result of the general sample is determined by both genders, assuming almost identical weights (respectively, women: DN – 9.33%, N – 46.6%, RN – 0.00%, men: DN – 14.00%, N – 34.67%, RN – 16.67%), while activity on the labour market is not a criterion influencing the opinion of the respondents.

Therefore, it was decided to check whether knowledge about prices and interest rates is an important criterion for respondents to assess the role and importance of economics in acquiring knowledge and the importance of education in this area (table 3).

Table 3. The role and importance of knowledge in the area of market prices and interest rates

Lickert scale		DN	N	RN	?	RY	Y	DY
		[%]						
		I & II degree						
women	$N_i^{300}$	5.67	30.33	19.00	4.33	13.67	16.00	11.00
	$N_i^{WS}$	11.33	50.67	19.33	8.67	4.00	5.33	0.67
	$N_i^{Wwp}$	0.00	10.00	18.67	0.00	23.33	26.67	21.33
men	$N_i^{300}$	7.33	36.00	10.67	2.33	8.33	23.67	11.67
	$N_i^{MS}$	9.33	55.33	20.67	4.67	2.00	8.00	0.00
	$N_i^{Mwp}$	5.33	16.67	0.67	0.00	14.67	39.33	23.33
ALL	$N_i^{600}$	6.50	33.17	14.83	3.33	11.00	19.83	11.33
	$N_i^{WS}$	10.33	53.00	20.00	6.67	3.00	6.67	0.33
	$N_i^{Wwp}$	2.67	13.33	9.67	0.00	19.00	33.00	22.33

Source: own research

The general results of the analysed issue showed that the role and significance of economic knowledge were considered irrelevant by the respondents (respectively, DN – 6.50%, N – 33.17%, RN – 14.83% – total: 57.83%), however this result determines the answers of respondents who are only students – professionally inactive on the labour market. Because even after taking into account the gender criterion, this information for both: men and women, have been considered important and desirable (respectively, women: RY – 23.33%, Y – 26.67%, DY – 21.33% – total: 71.33% women, men: RY – 14.76%, Y – 39.33%,

DY – 23.33%, total – 77.33% men), which gives 74.33% of working people in the whole population versus 10% among students only).

The two results may indicate both the needs and the lack of life maturity of the respondents, who, without manifesting active economic attitudes – do not take profit-making activities – and, being 100% dependent on their parents, do not even show interest in the economic aspects of revenues or external determinants of the financial portfolio level (see also: Małeczka, 2018, pp. 246-253). To confirm this thesis, the respondents were asked about their knowledge of the concept of economics and the area of issues of the analysed scientific field (table 4).

Table 4. Knowledge of the concept of economics

Lickert scale		DN	N	RN	?	RY	Y	DY
		[%]						
		I & II degree						
women	$N_i^{300}$	1.67	28.33	22.33	14.33	17.00	10.00	6.33
	$N_i^{WS}$	0.00	31.33	28.00	28.67	8.67	3.33	0.00
	$N_i^{Wwp}$	3.33	25.33	16.67	0.00	25.33	16.67	12.67
men	$N_i^{300}$	2.67	32.00	18.67	13.00	7.67	22.00	4.00
	$N_i^{MS}$	0.00	32.00	26.67	26.00	4.67	10.67	0.00
	$N_i^{Mwp}$	5.33	32.00	10.67	0.00	10.67	33.33	8.00
ALL	$N_i^{600}$	2.17	30.17	20.50	13.67	12.33	16.00	5.17
	$N_i^{WS}$	0.00	31.67	27.33	27.33	6.67	7.00	0.00
	$N_i^{Wwp}$	4.33	28.67	13.67	0.00	18.00	25.00	10.33

Source: own research

The main sample showed that 52.83% of respondents could not define the concept of “economy” (respectively: DN – 2.17%, N – 30.13%, RN – 20.50%), a detailed analysis broken down by gender showed similar statistics for both genders (respectively: 33.67% of men have no problems with proper defining and 33.33% of women), with the same regularity for both students (S) and working students (wp) observed in both analysed sets – adequately: 54.67% of studying and working women and 42.00% of men can define the term of “economics (versus respectively: 12.00% and 15.33% of the studied population of students who are not economically active).

It is worth emphasizing the phenomenon of the lack of “hard to say” answers - in all three criteria discussed - only among a group of working students, regardless of respondent’s gender. This confirms once again the thesis about maturity corresponding to gaining professional experience and the ability to formulate clear positions and the competence to assess the level of own knowledge, as well as the ability to define gaps in it.

The chi-square test ( $\chi^2$ ) was used to examine the existence of statistical significance between gender and understanding the significance of issues related to the field of economics, formulating the thesis: the distribution of the results obtained is independent – gender does not affect the level of knowledge about the economics science.

Assuming the level of identical significance in social sciences  $p=0.05$  and the number of degrees of freedom  $df=6$ , the value of the assumed level of probability was calculated, which is the critical value of the chi-square distribution and amounts to 12.59. Based on the collected data, the values of test statistics were calculated (table 5).

Table 5. Value of test statistics  $\chi^2$

MALE / ANSWER		DN	N	RN	?	RY	Y	DY
women ( $n_i$ )	quantity	5	85	67	43	51	30	19
	share	0.8%	14.2%	11.2%	7.2%	8.5%	5.0%	3.2%
men ( $n_i$ )	quantity	8	96	56	39	23	66	12
	share	1.3%	16.0%	9.3%	6.5%	3.8%	11.0%	2.0%
$\chi^2$	0	0.34615	0.33425	0.49187	0.09756	5.29730	6.75000	0.79032
$\chi^2$	0	0.34615	0.33425	0.49187	0.09756	5.29730	6.75000	0.79032

Source: own research

Thus, by checking whether a given result is statistically significant, assuming a 5% chance of making a mistake in reasoning  $p = 0.05$  and a number of degrees of freedom of 6, the critical value of the chi-square test is 13.1343. The obtained  $p$  value is 0.40952558, therefore it is lower than the assumed level of significance, therefore there is a statistically significant relationship, and the hypothesis presented should be adopted.

In an attempt to determine the significance and role of individual representatives of currents and economic schools, it was found that 100% of the surveyed population had never even heard names such Fridrich List or Richard Cantillon. Nobody also pointed to an

Austrian or Chicago school. Only a few economists were recognizable, including the following names: Francois Quesnay (1.83%), Adam Smith (69.00%) and John Maynard Keynes (3.00%), however without the ability to indicate specific connotations and views influencing the economic aspects of modern market economies

## CONCLUSIONS

Cantillon is known in particular for his treatise: *“Essai Sur la Nature du Commerce en Général”*, written in France in 1730 and published anonymously in England about twenty years after his death. Although his work was well known to physiocrats and the French school, Cantillon was forgotten in England until it was rediscovered by W. Stanley Jevons at the end of the 19<sup>th</sup> century.

In view of current knowledge, he was the first economist to define long-term balance, as a equilibrium of income flows, thus creating the foundations for physiocrats, classical economics and the Austrian school. Paving new paths, enriched with the banker’s empirical knowledge, he developed a system of general equilibrium that enabled him to define price theory (determined by the cost of production), as well as the exit theory.

The demand and supply mechanism described in the essay, determining short-term market prices, gives grounds to give Cantillon the name of the precursor of the marginalist revolution. In particular, his views on entrepreneurship, described through the prism of arbitration, allow us to determine the impact he had on the Austrian school. Cantillon was the first to develop a quantitative theory of money. His theory resulted in the transition to quasi-mercantilist positions. As a way to increase national wealth, Cantillon supported trade balance, but with a peculiarity: he was in favour of importing agricultural production and exporting “non-agricultural” goods.

An auditorium survey conducted in 2016-2020, with a total sample of *Ni600*, was used to examine the knowledge of the history of economic thought and its importance for university students who have economics courses in their study program. The results clearly showed that knowledge about economic issues is insufficient, while the determinant of the results obtained was not so much gender as

performing professional activity among both women and men. At the same time, only those surveyed who are active on the labour market as entrepreneurs perceive the need to raise qualifications and supplement knowledge in the examined subject. Therefore, the scope of knowledge in the field of economics significantly affects the ability to verify their own knowledge resources and attitudes represented.

It should be noted that modern economics usually bypasses the entrepreneur in economic models and in the literature on the subject, re-designated by Schumpeter's theory of economic development, where innovation and credit, belonging to the three conditions constituting a specific integrity of internal factors of economic development should be supported by the existence of a creative entrepreneur. However, Cantillon, in his 1730 essay, emphasizes the entrepreneur as a key link, a fundamental economic factor directly affecting all indicators, both micro and macroeconomic. This is particularly evident when theoretical economic models are transformed into practical economic constructions.

The connections and mutual influences described by Cantillon are conducive to a thorough understanding of the economic phenomena occurring, and the presented models fully describe the changes taking place and the dynamic nature of real world economies. Cantillon, according to current knowledge, was the first theoretician in his work setting the boundaries of the independent zone of investigation - economics - taking into account all its aspects. This knowledge should be spread not only for better economic estimation, but also for a better understanding of events occurring in the world and the resulting implications.

The results of the research clearly indicate a knowledge gap of future generations in this area, which should be reviewed and verified by the programs of economic courses at universities. They also indicate new directions for further research, because despite the fact that the research perspective covers four years, they were limited to one university, which should be extended to at least all existing types of universities in Poland - both profilled and technical universities, giving a broader picture of the implications of the considerations conducted in the essay, in the face of modern, turbulent and global economic markets.

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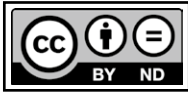
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