

JAN STOCKÝ, SOUTHERN BOHEMIA AND MATHEMATICAL METHODS IN ECONOMICS

JAN KODERA, PROKOP ZÁVODSKÝ, ONDŘEJ ŠIMPACH

University of Economics Prague,
W. Churchill sq. 4, 130 67 Prague 3 - Žižkov, Czech Republic
email: jan.kodera@vse.cz, prokop.zavodsky@vse.cz, ondrej.simpach@vse.cz

Abstract

The title of the paper reflects two main areas of activity of Czech macroeconomist Jan Stocký (1897–1959). In the first case we deal about Stocký's lifelong interest in the economic development of Southern Bohemia and its critical role in the management of major regional organization called "South-bohemian Macroeconomics Society" (Czech translation: Národohospodářskýsborjihočeský) throughout its existence (from 1925 to 1941). The main goal of our paper is to evaluate the pioneering work of Jan Stocký in the field of mathematical economics, already known in the 20s of the last century (e.g. the rational consumer's theory or the overall balance theory), which remain remarkable with high level and modernity after more than eight decades. These works of Jan Stocký found neither more support nor the followers during the interwar period and they are usually overlooked even in the current compendia of economic history in our country.

Key words: Jan Stocký, Southern Bohemia, Mathematical methods in economy.

1. Introduction

As a topic of our conference contribution on the application of mathematical methods in economics held in Southern Bohemia, we have chosen the theme about personality of macroeconomist Jan Stocký, who significantly contributed to the development of the region as the leading official of the "South-bohemian Macroeconomics Society" (Czech translation: Národohospodářskýsborjihočeský), and he also became the pioneer in the usage of mathematical methods in economic theories in Czechoslovakia during the 20s of the last century (Chytil and Sojka, 2003). His life and also the long-term regionalist organizational work is properly described in numerous contributions by PhDr. Jiří Dvořák, Ph.D. from the Historical Institute of the University of South Bohemia in České Budějovice¹, but Stocký's remarkable work on the mathematical economics did not arouse more attention of followers and the mention of his work is missing in the most of the current historical compendia of economic theories in our country. Therefore we primarily focused on those Stocký's works in our article.

2. The Life of Jan Stocký

Jan Stocký was born on 16th January 1897 in Březnice (district of Příbram), graduated at the secondary school in Písek and then he studied the building engineering at the Czech Technical University in Prague (CTU) during the years 1914–1919. He passed the doctorate in technical sciences (Dr.techn.) in the year 1921 on the basis of dissertation thesis in the field

¹ Bibliotheca Economica knows about the life and activity of Jan Stocký very small information, and often also incorrect: <http://www.bibliothecaeconomica.cz/>.

of the national economy. He also supplemented his study at the Faculty of Law and at the University of Business, and even in the 20s he studied sociology and the national economy at universities in Paris, Brussels and London².

Already during his studies (from 1st October 1918) he became an assistant at the CTU, and from 1st June 1922 at the Institute of National Economy at the University of Special Sciences of the CTU. The Institute directed by prof. F. X. Hodáč (1883–1943) until his death, was one of the greatest at the CTU, because it covered the lectures and seminars for all fields of study at the Czech Technical University³. At the end of 1927, Jan Stocký as already honoured docent was awarded by *venia docendi* from the field of the national economy on the basis of his work on the applications of mathematics in the national economy (Stocký, 1927a)⁴.

During the interwar period Stocký also collaborated among other things with the Czechoslovak Academy of Agriculture, with the Macroeconomics Institute of the Czech Academy of Sciences and Arts and also with the Masaryk Academy of Labour. In 1927 he was elected as the general secretary of the International Committee for Scientific Organization (seated in Prague) and he worked there for two periods. Between the 20s and 30s he published several tens of books – mainly about the economic theories, applications of mathematics in economics (detail below), on economic policy, issues of the South Bohemian region etc., he also participates in the translations of the national economy papers by Ch. Gide and F. Soddy, edited journals etc. Initially he was a supporter of classical economic liberalism, but under the influence of the Great Depression he began to lean towards the idea of planning and state interventionism. In politics he followed Antonín Švehla as a model, he was also engaged in the Agrarian Party⁵, and later met Švehla's successor Mr. Rudolf Beran.

The main field of Stocký's activity in the interwar period was a significant regional organization "South-bohemian Macroeconomics Society" (SMS). In 1924 Stocký suggested to Rudolf Beran the establishment of SMS with a plan for the economic and social development of South Bohemia. The Constituent General Meeting of SMS was held in May 1925 in the Municipal House in Prague. Just from the beginning the organizers managed the involvement into the activities of the Society with the deputies and senators elected in the South Bohemian districts, and also with many other Southern Bohemian natives occupying important positions in political parties and state institutions. SMS developed its activity in the vast territory of about a third of Bohemia⁶ – in a total of 25 political (and 60 judicial) districts, inhabited by about 1.4 mil. people⁷. The generous action plan assumed the creation of a comprehensive research program leading to the economic, social and cultural enhancement of the Southern Bohemian region and its gradual implementation. Systematic care of infrastructure development should stop the depopulation of underdeveloped and poor region of South Bohemia – mainly the construction of new railway lines and roads, electrification of settlements, adjustment of water flows, allowing them to navigability and use them to the extensive ameliorations, the development of school system at all levels, tourism etc. SMS also dealt with statistics and organized its own statistical surveys. Although SMS was declared as a

² ARCHIVE of the CTU, Carton 18th.

³ For students and listeners of the Insurance technics (later called Statistics and Insurance Engineering), extra lectures on financial science and national economic seminar. (See also Závodský, Šimpach, 2014).

⁴ ARCHIVE of the CTU, Carton 18th.

⁵ Republican Party of Agricultural and Peasant people (name since 1922).

⁶ Territory covered Domažlice on the west, it reached to the borders of Moravia on the east up to the German (Havlíčkův) Brod, and it included also Benešov with the surroundings in the north.

⁷ The number actual in 1930 (Stocký, 1930, p. 3).

non-partisan and non-political organization, the Agrarian Party had a dominant influence in it⁸. The chairman was R. Beran and activity of SMS was directed by J. Stocký⁹ from the position of Managing Director and Secretary General. SMS published its own journal between the years 1929–1941, whose last name was “*Jihočeský tisk: regionální přehled hospodářský*” (English translation: “The Bohemian Papers: Regional Macroeconomic Survey”), edited by J. Stocký. The Secretariat and other central authorities of SMS seated in Prague. Description of the complex organizational structure of SMS is omitted, but we can mention a remarkable organizational group only, which operated within the SMS from 1929 under the name of the Commission of Three. It was formed by significant personalities of the Southern Bohemian origin working in Prague, who were authorized by particular districts or towns to lobby for their interests¹⁰.

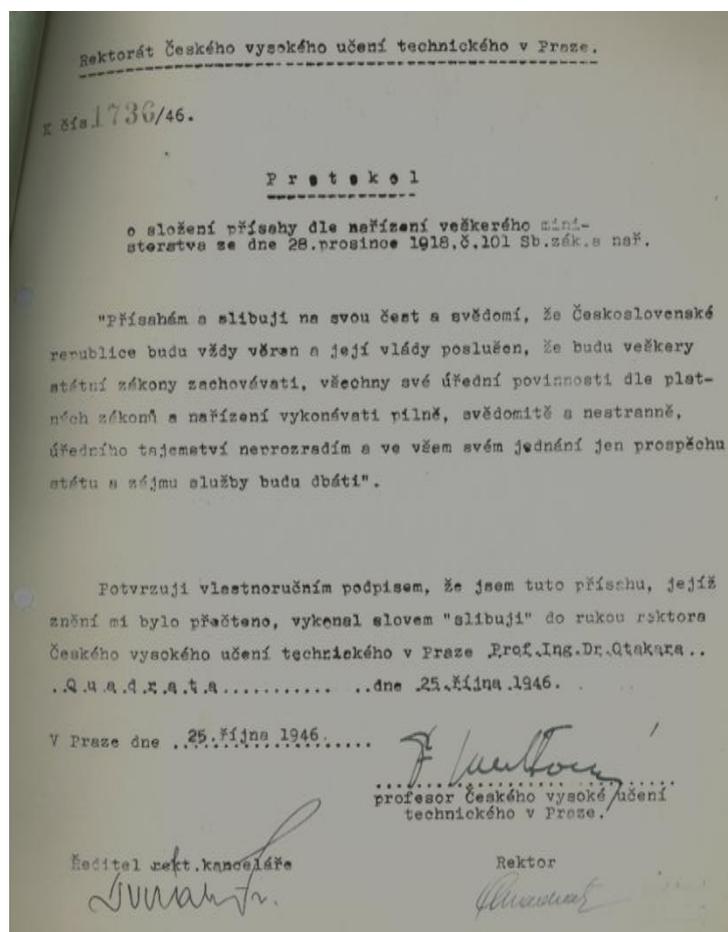


Figure 1. As a newly appointed university professor J. Stocký swore allegiance to the Republic before the rector of the Technical University.

Source: ARCHIVE of the CTU, Carton 18th, Author's illustration.

⁸ Leadership of SMS managed the involvement into the activities of Society also the deputies and senators of all parliamentary parties except the National Fascist and Communist Party. (From mentioned two joined the labour deputy Nepomucký since 1935).

⁹ At the end of 30s, Stocký was also vice-chairman of Beran, who was busy due to political functions.

¹⁰ Stocký, 1930, p. 26.

SMS reached many partial successes in its activities, but the initial expectations were not completely finished, mainly due to the World economic crisis, which significantly affected agriculture. Following the model of SMS there were created the similar regional macroeconomic societies throughout all territory of the Czechoslovakia in the 30s. Their leaders participated at two national macroeconomic conferences in 1935 and 1939, whose main organizer was J.Stocký. After March 1939 the SMS and other regionalist societies attempted to adapt their activities to Protectorate conditions. Many officials (including Stocký) were involved in the authorities of the National Co-union (in Czech: Národnísouřenství). Their efforts were finally futile, because the Nazi regime did not take into account the regionalist societies and their activities were considered as suspicious. Activity of SMS was definitely terminated in 1941. J.Stocký was imprisoned by the Gestapo in 1942–1943 and then deported from Prague to Březnice¹¹.

From 1945 there were the attempts to revive regionalist societies in Southern Bohemia, but almost nobody took into the account the participation of former agrarian Stocký. After 1948, these efforts had definitely no chance. J.Stocký returned to the Czech Technical University in 1945, where received the lectures on the national economy after the deceased prof. Hodáč. On October 1945 (with effect from 1st October 1946) he was appointed as Professor and took over the management of the Institute of National Economy, policy, national economic and financial sciences at the University of Special Sciences¹². Just like before the war, the Institute ensured the teaching of these subjects for all schools under the union of CTU. But already in the first wave of exclusion after the communist coup in February 1948, prof. Stocký was on the initiative of the Action Committee at the University of Special Sciences “relieved of active duty” with immediate effect and put on leave¹³. One year later (at age 52) was definitely retired by the Minister Nejedlý on 1st April 1949. His subsequent fate is not known by us¹⁴, but by Dvořák (1998, p. 89) he continues to live in Prague, and cooperated with the Prague psychiatric clinic. He died in Prague on 14th March 1959 and was buried in his native Březnice.

3. The Inspiration of Jan Stocký

J.Stocký is known as a practical economist, primarily due to his activities in the South-bohemian Macroeconomics Society. His work as a theoretical economist is less known, mainly because he stood outside the former mainstream of the Czech theoretical thinking. J.Stocký’s interest was focused mainly on the theory of general equilibrium that was practically unnoticed on the field of Czech economic thinking. However, in global point of view it had several eminent representatives in the last third of the 19th century, who worked at prestigious European universities. Let us very briefly mention some of those personalities that inspired J.Stocký the most. He is mainly Leon Walras (1834–1910), the founder of the theory of general equilibrium, who worked from 1870 to 1893 at the Department of Political Economy, University of Lausanne. His most famous work is the book “*Elements d’économie politique pure*” (English translation: Clean Fundamentals of the Political Economy). Another important personage was Vilfredo Pareto (1848–1923), who was strongly focused on the theory of utility. In 1893 was L.Walras replaced by V. Pareto in the leadership

¹¹ ARCHIVE of the CTU, Carton 18th.

¹² With seat in the street „Na Bojišti 3“.

¹³ Minister Nejedlý’s decision on 5th March, 1948. ARCHIVE of the CTU, Carton 18th.

¹⁴ We could not even find Stocký’s photo. We thank to director of Archives at CTU Mgr. Tayerlová for trying to help us.

of the Department of Political Economy at the University of Lausanne. His most famous work is “*Manuel d’économie politique*” (English translation: Handbook of the Political Economy) (Pareto, 1909). J. Stocký also dealt with the work of William Stanley Jevons (1835–1882). William Jevons worked at the University of London since 1876. His most important work is “The Theory of Political Economy”. Significant contribution to the economic theory is his theory of exchange.

J. Stocký was influenced by appointed economic theorists and significantly contributed to the promotion of their work in the Czech economic thinking. It is important to note that at the time when there were published the main Stocký’s publications based on the approach of mathematical economics, none of those personalities lived anymore. The effect of Stocký’s effort to introduce the general equilibrium theory to the Czech scientific public was not great. The cause of this small success was issue that the Czech economic thinking was under significant influence of Dr. Albín Bráf between the world wars, who was also heavily influenced by the Austrian school and also by the German Historical School. Another important personality of the Czech economic thinking Alois Rašín was not supporter of any theoretical stream, he was rather a pragmatist and later the macro economical practitioner. A prominent theorist was also Karel Engliš, who was influenced by the Austrian school, but he also created the original teleological economic theory. These personalities of the Czech economic science are mentioned because they were important authorities that influenced the former Czech economic thinking. They did not know the thinking of mathematical macroeconomic schools, but some of them, for example Bráf, acknowledged the contribution of mathematical economists, as were e.g. Gossen, Jevons and Walras for the macroeconomic theory¹⁵. Engliš acknowledged the usage of mathematics. Overall we can say that the interest of the Czech economic community on the applications of mathematics was not great. Stocký’s interpretations are also not accessible even to readers who are oriented in mathematics. It is complicated by quite little transparent symbolism and by long explanations and commentary.

J. Stocký published seven major works on mathematical methods in the national economy. From a methodological point of view the most advanced is the latest one (in 1927 published work) “*Role matematiky v bádání národohospodářském*”¹⁶ (English translation: The role of mathematics in the Economics research). In the introduction of this book is highlighted main motive of its publication, i.e. to introduce to the Czech scientific community the using of mathematical processes in the world, where a mathematical interpretation of economics is considered as normal. Stocký realized some backwardness of Czech economic science in the usage of mathematical methods. He considers the first part of the book, which speaks about the possibility and necessity to use mathematics in national economic science, as the most important one, although in the preface of this book is not this information explicitly said. The second part, which talks about the building a mathematical theory of national economy, is not a coherent interpretation, what the author knows and explicitly declares.

In the preface of the work is stated that the first part is his modified article published in the Agricultural archive¹⁷. Stocký solves two issues in the first part of the book. The first one is whether the economic theory is an exact science. If so, it started a second issue, whether the economic theory can be interpreted mathematically. It is important to realize that during the Dr. Stocký’s activities there was practically available just a Lausanne School theory and then

¹⁵Bráf, 1913.

¹⁶Stocký, 1927a.

¹⁷Stocký, 1927b.

the works by some mathematical economists. In solving the first issue – the exactness of the economic theory, he comes to the conclusion on common characteristics of all scientific systems. Interesting is his idea that the scientific research is not essentially a result of the perfection of human spirit, but rather of his imperfection. He positively answers on the first question¹⁸, whether the economic theory has the specifications of the exact disciplines, because in the national economy plays a large role the deductive concluding, analysis and synthesis. In addition to ever-changing conditions, which are by opponents an obstacle in exactness of economics, by Stocký there is a number of constants and stabilized type of behaviour of economic subjects. Besides natural conditions and conditions given by the level of technology (on the production side), there are psychological constants on the consumer side.

Second problem is to what extent this deductive system could be mathematically explained. In this part, Stocký chose the approach of naming his main opponents' objections and disproving them. Key objection is that the science about society (such as macroeconomic theory) is incompatible with the applications of mathematics. Incompatibility rises from the complexity of the psyche of particular agents that is the cause of the fact that national economy operates with too uncertain phenomena. Stocký answers this objection that macroeconomic science operates with quanta such as price, value, revenue etc., i.e. according to his opinion it is a theory where it is necessary to apply mathematics. A very important remark of Stocký is that the predictions are required from economics. Scientific predictions require usage of mathematics¹⁹. The objection against usage of mathematics is that mathematics heavily simplifies surveyed macroeconomic problem. Those objections were used against L. Walras and his general equilibrium. However, Stocký rightly objects here that also a verbal method commits simplification, which is in its consequences even worse than if apply mathematics²⁰. He sees a big advantage of mathematical interpretation during elaboration and development of the theory. If it is mathematically interpreted and further developed, it is possible to easily compare the system development, when structures of the theory are step by step built in the direction towards more sophisticated shapes. For example in current economic theory mainstream, which are the dynamic stochastic general equilibrium models, there is clearly seen the link with Walras theory of general equilibrium. Both approaches are strictly mathematically formulated and thanks to it on one hand a structural connections are seen and on the other hand it is clear what was added, i.e. problem dynamization and stochastic shocks.

Conclusion of Stocký's reflections about mathematics usage is following: In Stocký's view every science has areas where mathematics cannot be applied. It can also have areas where mathematics could be a good alternative to traditional methods of the explanation. Finally there could be areas where mathematics is applied exclusively. The same applies also to the economic science where in his opinion are also three areas. In the first one it is not possible to use mathematical interpretation. Contrary to that, in the second area of the analysis of macroeconomic problems it is not possible to do without mathematical approach. There is also third area, where the usage of mathematics is not necessary, but very efficient taking into account the problem arrangement, clarity and validity of the conclusions²¹.

¹⁸Stocký, 1927a.

¹⁹Stocký, 1927a, p. 10.

²⁰Stocký, 1927a, p. 12.

²¹Stocký, 1927a, p. 16.

How to conclude about Stocký's evaluation of the role of mathematics in macroeconomics theory? At his times he could argue only with that the subject of survey, i.e. macroeconomic system, has stable rules of behaviour, from which we derive natural law of system development. Possibilities of usage of deduction together with the phenomena in economics are quantities, facilitate the application of mathematics, the use of which streamlines and clarifies the interpretation. At that time, however, he missed an important argument that we have at hand now when we have a fairly well developed econometrics. Econometrics enables reformulation of equations of mathematical economy in order to estimate the parameters and use those equations to more or less successful predictions. And what is more, when they are formulated such as control problems, i.e. they contain variables that the central bank can affect, it is possible to predict the impact of economic policy. This argument for the use of mathematics in economic theory is the strongest, but unfortunately it was not possible to use it in Stocký's era due to the absence of econometrics. It is necessary to appreciate Stocký's modern attitude towards the relationship of deductive and mathematical method, where he identifies both approaches in line with modern logic²². So if science uses deductive method, it is possible to interpret it also mathematically. In the second part of the mentioned book the author treats the main objective of this publication – the interpretation of national economic theory by mathematical method.

4. Jan Stocký's Remarkable Works in Mathematical Economics

Before we start with the interpretation of the Stocký's approach, we remind that we utilize usual symbols developed later by J. Hicks, because the symbols of Stocký are somehow cumbersome. Describing Stocký's approaches we use general formulations only, while Stocký often uses numerical examples. Interpretation begins with the elementary task of the consumer budget equation

$$p_1x_1 + p_2x_2 = y, \quad (1)$$

where p_i , x_i ($i = 1, 2$) are respectively prices and quantities of consumptions of two types of goods, y is a consumer income. Preferences of the consumer are given by linearly homogenous Cobb-Douglas function

$$U = x_1^\alpha \cdot x_2^{1-\alpha}. \quad (2)$$

A method of Lagrange multipliers is used to solve the equation. However, it is not well-presented. A method of substitution is used alternatively.

The interpretation continues with analysis of utility and marginal utility, where Stocký uses only one type of goods. The starting point for exploration is the marginal utility (in Stocký's terminology an elementary satisfaction); total utility is obtained by integrating the marginal utilities. Consequently the cases for two and three kinds of goods are also investigated, which is further generalized to n commodities. Summary expression of marginal utilities (according to Stocký of elementary satisfactions) is then given by the following differential form (we generalize on n types of goods)²³:

$$f_1(x_1, \dots, x_n)dx_1 + \dots + f_n(x_1, \dots, x_n)dx_n, \quad (3)$$

²²Stocký, 1927a, p. 17.

²³ $f(x_1, \dots, x_n)$ decreases in variable x_i , the law of diminishing marginal utility.

where $f_i(x_1, \dots, x_n)$, $i = 1, \dots, n$ are marginal utilities (elementary satisfactions) i -th type of goods. There could be a function

$$\frac{\partial U(x_1, \dots, x_n)}{\partial x_i} = f_i(x_1, \dots, x_n). \quad (4)$$

We call this function a utility function. It does not have to exist in all cases, but in the analysed text its existence is assumed. Consumer behaviour is then described by utility function. The conditions on the supply side are given by so-called transformation equations which read as follows

$$\varphi_1(x_1, \dots, x_n), \dots, \varphi_m(x_1, \dots, x_n), \quad (5)$$

which might be interpreted as production relation or transformation relation²⁴. Finding the total equilibrium point, i.e. the point when the consumer reaches the maximum utility while limited by the transformation equations, is mathematically equivalent with solving the task on bounded maximum of multivariable function²⁵. The interpretation of the general equilibrium model is somewhat complicated; however, the attentive reader will find close connection with the later more modern and far more transparent Hicks's interpretation of the total equilibrium model, which is presented in (Allen, 1956).

²⁴Stocký, 1927a, p. 56.

²⁵Stocký, 1927a, p. 61.

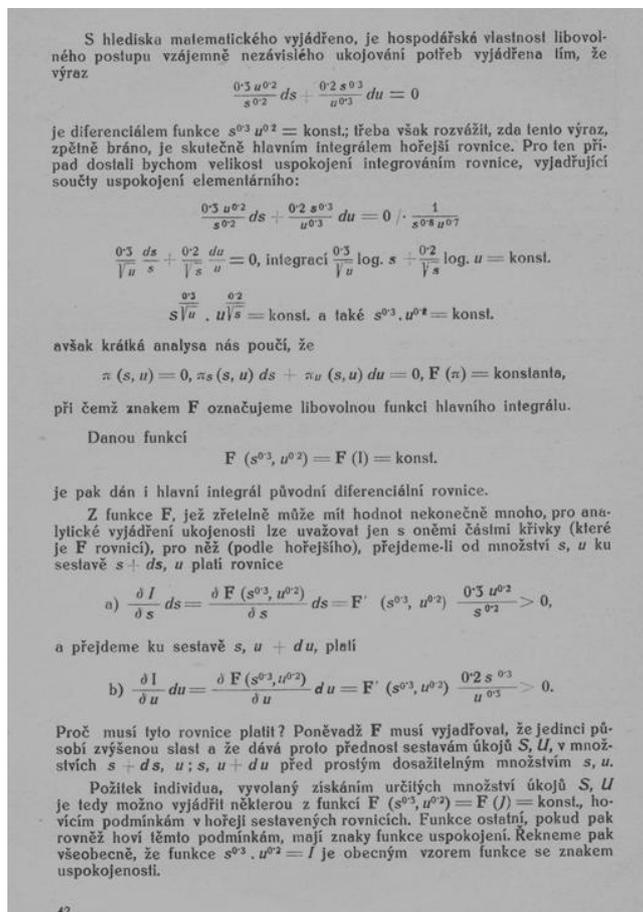


Figure 2. Sample of Stocký's books *Role matematiky v badání národohospodářském*. Úvod do početních stránek národního hospodářství. (English translation: The role of mathematics in macroeconomic survey. Introduction to the calculation parts of national economy). Source: ARCHIVE of the CTU, Carton 18th, Author's illustration.

Stocký's important publication "*Theorie rovnováhy v moderním badání národohospodářském*" (English translation: Theory of equilibrium in modern macroeconomic research) concerns, similarly to previous book, the interpretation of the general equilibrium theory. The study precedes in time Stocký's publication from 1927, which is undoubtedly based on it. For this reason we highlight only the parts concerning V. Pareto, which do not appear in Stocký's book (Stocký, 1927a). Vilfredo Pareto introduces indifference curves as a basic concept. Indifference curves are defined for two variables in order to easily display them in a graph. In case of more variables we talk about indifference hypersurface. Usually an indifference hypersurface is given by equation

$$U(x_1, \dots, x_n) = C, \quad (6)$$

where C is arbitrary constant.

For variously chosen constants C we receive system of indifference hypersurfaces. Function U in general does not have to fulfil the requirements for utility function. Usually it is assumed that those requirements are fulfilled. For discrete increasing function of one variable G gives the equation

$$G[U(x_1, \dots, x_n)] = C, \quad (7)$$

the same system of indifference surfaces and hence the same results during searching for the consumer equilibrium. We talk about so-called ordinalistic utility theory.

Another problem which concerns Pareto in his book is a problem of so-called integrability of utility function. We entre indifference hypersurface in annulated differential form

$$f_1(x_1, \dots, x_n)dx_1 + \dots + f_n(x_1, \dots, x_n)dx_n = 0. \quad (8)$$

The expression on the right side need not be a total differential even after multiplication by so-called integrated factor. Consequently we have the system of indifference hypersurfaces, but function U does not exist and hence the expression (6) cannot be used for description of indifference hypersurface. See²⁶ for detail. In other parts of publication the results of Walras in the area of equilibrium of economy are presented.

So far we were concerned with two books and one treatise about the importance of mathematics usage in macroeconomic theory. According to our opinion they are the main works of Stocký. However, other his works introducing mathematical economy to economic public are worth noticing. Particularly a paper “*O nové metody v národním hospodářství*” (English translation: About new methods in macroeconomy), which was published in *Technický obzor* (English translation: Technical horizon) already in 1923.²⁷ Just at the beginning of the paper an opinion of important Czech economist and important authority of Czech economic sciences, Karel Engliš, is cited: “Without mathematical solution it would not be possible to disentangle this fabric as it is too difficult”²⁸. First, the author introduces to the reader the marginal and total utility and the conditions of trade. He derives the curves of supply and demand and examines the equilibrium conditions. At the end he examines at simple case the conditions of the market equilibrium in case when the company has a monopoly.

In work *První pokusy o vybudování matematické teorie národního hospodářské*²⁹ (English translation: First attempts to build mathematical macroeconomic theories), published in *Technický obzor* (English translation: Technical horizon) in 1925, J. Stocký focuses older mathematical economists who are not (with possible exception of Cournot) that famous. The first one is N. F. Canard. He wrote a work *Principles d'économie politique* (1801) where he concerns the value and price theory. Canard is a supporter of the labour theory of value, but does not develop it further and he is dealing with variations in prices from the value in the mechanism of supply and demand. Another economist, Stocký deals with, is W. Whewell, whose main work is the *Mathematical exposition of some doctrines of political Economy* (Cambridge, 1850). Main questions which he is concerned about is a theory of rent (substantially Ricardians) and the influence of land tax on rent. Stocký assesses both economics critically, through the ambition of searching for exact forms of equations and the assumption that those formulas correspond to the reality. He is also concerned with works of J. H. Thunen – a German author, who beside other things analysed prices and studied quantitative impacts of the distance on costs for goods delivery. The first

²⁶Stocký, 1925c, p. 15.

²⁷Stocký, 1923.

²⁸Stocký, 1923, p. 127.

²⁹Stocký, 1925a.

one real mathematic economist is according to J. Stocký³⁰ A. Cournot. Cournot whose important work is *Recherchessur les principes mathématiques de la théorie des richesses*, (Paris, 1838) lived in years 1801–1876. Stocký pays relatively high attention especially to his theory of oligopoly, but his relation to Cournot theory is relatively critical. He objected that „he did not examine the whole economy, but he was trying to solve only separate questions which leads to mistaken conclusions³¹. Another Stocký's work is *Teorieubývajícíužitečnosti a vztah k matematickým metodám* (English translation: Theory of decreasing utility and the relation with mathematical methods), which was published in *Hospodářský archiv* (English translation: Archive of economics) in 1925³². It is an analysis of works of W. S. Jevons and H. H. Gossen, and also of less famous French engineer Etienne-Juvenal Dupuit. He explained the contribution of Gossen and Jevons to the theory of utility and marginal utility and basic terminology, which is included in every book of microeconomics. The works are not that important from the point of view of the modern economy. In 1926 two articles of Stocký are published in journal *Hospodářský archiv* (English translation: Archive of economics): *Poznámky ku Stanley Jevonsově teoriisměny*³³ (English translation: Notes to Stanley Jevons's exchange theory) a *Poznámky ku Léona Walrasově teoriisměny*³⁴ (English translation: Notes to Léon Walras's exchange theory). The first article gives succinct and relatively transparent, modern explanation of basic principles of Jevons' exchange theory. Stocký criticizes relatively limited Jevons' model, reasoning that it is only an exchange of two individuals and two types of goods. Second article is the relatively succinct explanation of a part of Walras theory.

5. Conclusion

We tried to document the benefit of prof. Jan Stocký to mathematical explanation of macroeconomic theory. It lies not only in his original attitude to usage of mathematical methods in economy but also in rigorous mathematical interpretation of economic theory. This interpretation, however, is influenced by the way of teaching mathematics at the time. For this reason, we attempted a more modern interpretation, which, of course, cannot substitute the reading of the original. Hopefully, that will allow at least some understanding of the benefits of this remarkable, but unfortunately little-known, mathematical economist.

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