International Journal of Multicultural and Multireligious Understanding

http://ijmmu.com
editor@ijmmu.com
ISSN 2364-5369
Volume 11, Issue 6
June, 2024
Pages: 1-13

From Axiomatics Method to Multiple Axiomatics Method – Q.E. (Quantification of Everything) Method

Constantinos Challoumis

National and Kapodistrian University of Athens, Greece

http://dx.doi.org/10.18415/ijmmu.v11i6.5723

Abstract

This paper is about the classic method, which is used in the analysis of any scientific issue, and it could be used in every science. In this paper are submitted the most common methodological approaches, which are used in economics, and then the new methodology of Mu.A.M. (Multiple Axiomatics Method), also known as Q.E. (Quantification of Everything) method. The terminology of axiomatic methods is scrutinized extendedly in this paper. Also are given some paradigms of the Q.E. method from previous papers. Finally, it shows the revolution of the Axiomatic Method to the current form of Mu.A.M. using the remodification approach, and the multiple validity of the results through algorithmic forms.

Keywords: *Axiomatics Method; Mu.A.M. (Multiple Axiomatics Method); Q.E. (Quantification of Everything)*

Introduction

The axiomatics stand on the assumption that it is not known the result of one hypothesis. This is the key to the scrutiny of a scientific theory that is under examination. This paper will be used as a paradigm for economic issues (it is the same procedure in any scientific field). The hypothesis of an economic theory is the basis for the further study of each economic model that is under examination. Therefore, the axiomatics are trying to answer the background of an economic analysis and to confirm that the initial hypothesis of the modelz is satisfied. If the hypothesis is satisfied, then the model is consistent with the principles of the model that is under examination.

There are two cases for the results of the axiomatics. According to the first case, the axiomatics is satisfied, because the hypothesis of the model after the examination of the model is satisfied. The second case is about the incident that the axiomatics are not satisfied, because the initial hypothesis of the model is not satisfied (Challoumis, 2023e, 2023j, 2023z, 2023x, 2023i, 2024b, 2024f, 2024c, 2024d, 2024h, 2024i, 2024g, 2024a, 2024k; Challoumis & Savic, 2024). Therefore, in this case, it is concluded that the economic model is not sufficient. Then, the main concept of axiomatics stands on the correspondence of the initial hypothesis to the mathematical and economic result of the scrutiny. Since is plausible for the scientist to clarify the theory about the chosen model (Challoumis, 2018b).

In logic, the axiomatic method is a procedure that generates an entire system (e.g., a science) by logical deduction from certain basic propositions (axioms or postulates), which are constructed from a

few terms taken as primitive (Jiang et al., 2020; Sajid et al., 2016). These terms and axioms can be defined and constructed arbitrarily, or they can be conceived according to a model in which some intuitive warrant for their truth is felt to exist. Aristotle's syllogism and Euclid's geometry are the earliest examples of axiomatized systems (Challoumis, 2023d, 2023y, 2023r, 2023aa, 2023s, 2023n, 2023c, 2023f, 2023ae, 2023ai, 2023ad, 2023b, 2023h, 2023v, 2024j, 2024l, 2024m, 2024n, 2024e). Early in the twentieth century, the British philosophers Bertrand Russell and Alfred North Whitehead attempted to axiomatize all of mathematics. Scholars, such as J.H. Woodger, have even applied this method to empirical sciences.

Literature Review

The contradictions are the spot that the theory and the analysis of the economic model need reform and therefore the scientist should reconsider the assumptions or the data which is used for the study. Thence, the classic instance is that used a system of equations for the scrutiny of the economic model. In most cases, some more conditions support the system of equations that are under examination (Challoumis, 2021e, 2021b, 2022c, 2023t, 2023g, 2023o, 2023a, 2023l, 2023k, 2023q, 2023ab, 2023m, 2023p, 2023w, 2023u, 2023af, 2023ag, 2023ac). If the results do not comply with the mathematical structure of the model in combination with the theory, there is a contradiction. There should be adjustments to the theoretical background or the mathematical conditions used in the economic model. If it is obtained the adjustments needed to the model, then there are contradictions. The contradictions are between the hypothesis and the results of the economic model. Then, the two more classic ways to readjust the system of equations of the model is by the addition of more conditions, or subtraction of some conditions. Forasmuch as the economic model could be consistent if there are modified conditions used in combination with the equations of the analysis.

The term completeness of axiomatics in an economic theory is about the uniqueness of the solutions that are derived after the analysis (Azar et al., 2018; Castaño et al., 2016; Lal et al., 2018; Maier, 2012; McIsaac & Riley, 2020; Ruiz et al., 2017). Therefore, the system of equations that is used in the economic model should give a different result when changing the input values to the system. This makes the economic model complete, as the results are unique according to the changes in the variables. Thus, if there is the same solution with different inputs to the model, there probably should be a reconsideration of the system of equations subject to the conditions used in this model.

The axiomatics should be as weak as possible. The interpretation of this is that the axioms should be as general as possible. The reason is that the economic model should represent as widely as possible one economic situation because in that way could be more possible to clarify a rule about the subject of examination (Challoumis, 2018f, 2018b, 2018d, 2018e, 2019b, 2019c, 2020b, 2020c, 2021g, 2021j, 2021i, 2021a, 2021h, 2021f, 2021c, 2022d, 2022a, 2022e, 2023ah). The independence of axiomatics is placed on the that none of the axioms should be the product of the other expressing with that way repetitiveness between them. Therefore, the main thought is that the axioms should not contain parts of the other axioms that were used in the model. Thus, the results could be specific allowing the scientist to have precise conclusions.

The consistency and the completeness of the economic model are the most crucial elements in the analysis, as they are strongly connected with the hypothesis and the results of the model. If something is wrong with these two things, plausibly should be readjustments in the conditions of the economic model (Carfora et al., 2021; John, 2018; Reeves et al., 2019; Sultana et al., 2020; Woody & Viney, 2017; Wright et al., 2017). This possibly could happen by adding or subtracting the mathematical conditions or in any other way that can transform the model in a way that the theory would comply with the assumptions of the model. Thence, the concept is to clarify that the initial assumptions of the economic theory were adequate and well chosen (Challoumis, 2019e; Grove et al., 2020; Hartz & John, 2009; Waardenburg et al., 2020). Also, after the examination of the prior two elements, the compliance of weakness and independence. The next scheme is illustrated in the previous analysis:

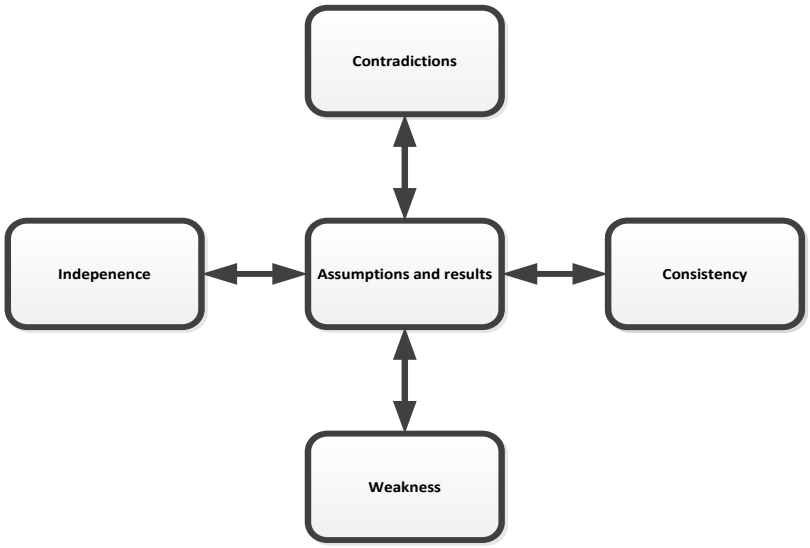

Figure 1. Elements of axiomatics

The satisfaction of the assumptions is plausible through the test of the equations that were chosen for the model that is under examination. It should be mentioned that there exists a distinction between the methods that are used for the tests of the assumptions. Then, there is the case of the direct tests and the case of the indirect tests:

- The direct tests are for the assumptions of the applied theorists. This means that the researchers of applied science have a strong concern about the testability of their results. Forasmuch as the scientists are testing the limits of applicability of their general theories.
- The indirect tests are the assumptions of pure theorists. This means that the researchers of the theoretical sciences need the testability of a system of ideas to clarify their theories. Thence, the pure theorists are checking the truth of their theories.

Therefore, it is obtained that pending about study the researchers estimate with a different way to the results of the assumptions. But, in any case, the results should comply with the initial hypothesis, as this is the key element of the adequacy of the chosen economic models. Some basic logical rules are followed to determine if the assumptions comply with the results:

- If all the chosen premises comply with the results of the economic analysis, then the model is fine to proceed.
- If any of the conclusions are not fine with the theoretical background, then one of the premises needs a readjustment.
- If any premise is not appropriate, then there will not be the appropriate results.
- Plausibly if the conclusions are fine this doesn't mean by sure that the premises are also fine.

Thence followed a logic of true and false between the results and the hypotheses of the economic model which are responsible for the conclusions (Challoumis, 2018a, 2018c, 2021d, 2022b, 2019f, 2019e, 2019g, 2019a, 2019d, 2020a, 2020d, 2021k). Therefore, the connection between the assumptions and the results is the source for the researcher to anticipate if the economic model meets the requirements. Thence, the hypotheses, and the results are the navigators for the adequacy of the research.

- As a result, there were concluded the three basic points that the hypothesis and mathematical determination required for the establishment of quality data at this point:

- The hypothesis is the focus of the first step. As a result, at this point, the scientist should respond to what is under consideration and what the goal of the scientific analysis is. Thus, the main point of this step is mathematical determination.
- The generator, which generates values for the independent variable, is the subject of the second step. The key element is the upper and lower limit, which are used to generate values during randomization. This method enables the formation of variables in a quantity control that is not directed by the scientist. After a certain number of irritants, it is possible.

Thence, these three steps are used for the confirmation of the model.

Results

According to the prior analysis it has established a general model as verification of the adequacy of any economic model. Using axiomatics:

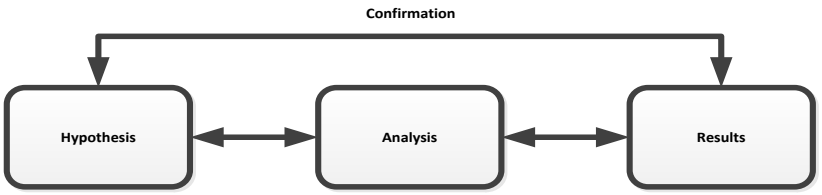

Figure 2: The mechanism of axiomatics

The procedure of the analysis functions as a connector between the hypotheses and the results. Hence, the results are used as indicators for the hypotheses. The establishment of a theory depends on the compatibility of results to the initial assumptions of each economic model (Challoumis, 2018c, 2019e, 2021j, 2023v, 2024j). The mathematical and non-mathematical economic approaches are fundamentally the same thing. Both try to cover the initial assumptions in the final results (de Vasconcelos et al., 2019; Feinschreiber, 2004; Gong et al., 2020; Jensen, 2020; Kartini et al., 2019). Therefore, the mainstream idea is the same for both. The difference between the two methods stands in the mathematical methods. This means that the mathematical economic approaches use mathematical analysis to determine that the results are the same as those of the mathematical hypotheses. On the other hand, the non-mathematical economic approaches use words to establish that the conclusions are fine with the assumptions, through reasoning processes.

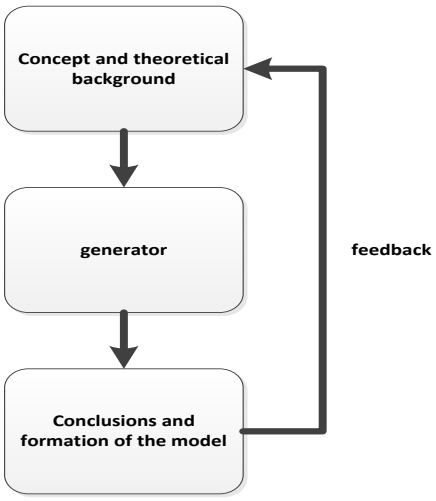

Figure 3: Method of quantification of quality data

The Q.E. method uses the prior three steps for the formation of the model. The theoretical background or the theory is the source of the generator which produces the data and gives shape to the mathematical approach. After the production of data and the formation of the equation is plausible to extract conclusions and/or to proceed to a further mathematical analysis.

It follows a paradigm. After which, using the Q.E. approach and the suitable orders of magnitude for the coefficients:

Table 1: Dataset for compile

Factors	*Values of s*	*Values of s'*
k	0,4	0,4
i	0.6	0.6
l	0.7	-
r	0.5	0.5
c	0.3	0.3
t	0.8	0.8
fs	< 0.3	< 0.3
fsi	< 0.3	< 0.3

The model's behavior, which is under determination, was founded by the generator based on the previous coefficients. As a result, the variables are bounded between 0 and 1. However s and $\tilde{s}$ are likely to have amounts higher than one. Are likely to receive amounts higher than one due to their mathematical concept. The following diagrams were derived after 461 repetitions:

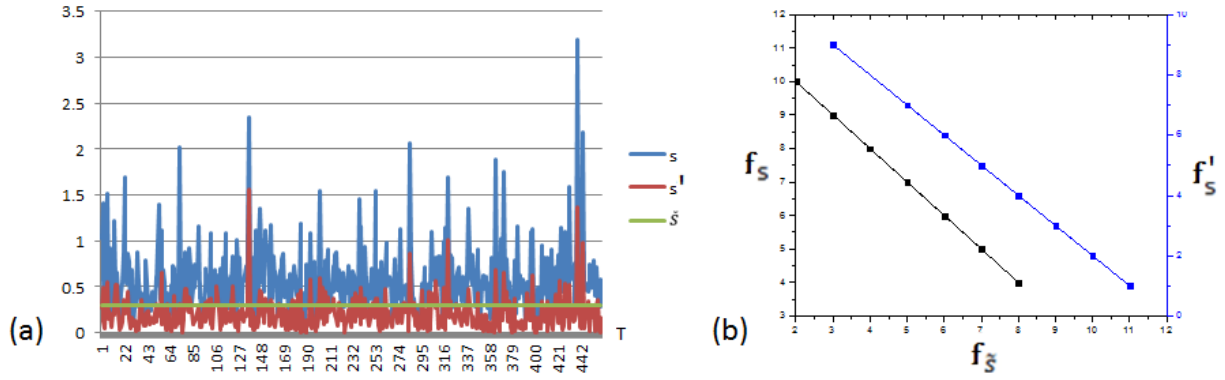

Figure 3: (a) s and s', (b) s and s' frequencies

The applied code (here was MATLAB) is based on the three steps of the Q.E. method, which is given in this paper (Challoumis, 2022a, 2023ah, 2023m, 2023a, 2024e):

A paradigm, and the general concept of the program: Program of simulations © ® 2017 Constantinos Challoumis:

```
%Q.E. method of Constantinos Challoumis for Transfer Pricing

q=0;

while q<10

q=q+1;
```

```
count=0;
counts=1;
counts1=1;
while count<10
if rand()<9
i=0.6*rand();
end
if rand()<9
l=0.7*rand();
end
if rand()<9
r=0.5*rand();
end
if rand()<9
 c=0.3*rand();
end
if rand()<9
t=0.8*rand();
end
s=(k+l)/(r+c+t);
s_tilda=0.3;
count=count+1
if s<0.3
counts=counts+1;
else
counts1=counts1+1;
end
end
s1=(k)/(r+c+t);
```

```
s_tilda=0.3;
count=count+1
if s<0.3
counts=counts+1;
else
counts1=counts1+1;
end
end
vec=[c,count,counts,counts1,i,l,q,r,s,s1,s_tilda,t;vec];
end
```

Conclusions

This paper showed the mainstream idea of the economic methods which based their analyses on axiomatics. Therefore, the assumptions and the results are the key elements of the adequacy of the method of axiomatics. This is plausible through the consistency and the completeness of axiomatics. The current methodology shows that multiple repetitions guarantee that the initial hypothesis complies with the final result. From Aristotle to the Q.E. method it showed the revolution from the simple hypothesis to the multiple checks of the final result through multiple readjustments of the mathematical background and theory using feedback and a generator between the results and the hypothesis. In that way, it is plausible to adjust a theory or mathematical background based on hypothesis and results using quantity data which are quantified to extract graphs and results.

References

Azar, A., Maldonado, L., Castillo, J. C., & Atria, J. (2018). Income, egalitarianism and attitudes towards healthcare policy: a study on public attitudes in 29 countries. *Public Health*, *154*. https://doi.org/10.1016/j.puhe.2017.09.007.

Carfora, A., Pansini, R. V., & Scandurra, G. (2021). The role of environmental taxes and public policies in supporting RES investments in EU countries: Barriers and mimicking effects. *Energy Policy*, *149*. https://doi.org/10.1016/j.enpol.2020.112044.

Castaño, M. S., Méndez, M. T., & Galindo, M. Á. (2016). The effect of public policies on entrepreneurial activity and economic growth. *Journal of Business Research*, *69*(11). https://doi.org/10.1016/j.jbusres.2016.04.125.

Challoumis, C. (2018a). Analysis of the velocities of escaped savings with that of financial liquidity. *Ekonomski Signali*, *13*(2), 1–14. https://doi.org/10.5937/ekonsig1802001c.

Challoumis, C. (2018b). Identification of Significant Economic Risks to the International Controlled Transactions. *Economics and Applied Informatics*, *2018*(3), 149–153. https://doi.org/https://doi.org/10.26397/eai1584040927.

Challoumis, C. (2018c). Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy. *Economics*, *6*(1), 33–43. https://doi.org/10.2478/eoik-2018-0003.

Challoumis, C. (2018d). THE IMPACT FACTOR OF HEALTH ON THE ECONOMY USING THE CYCLE OF MONEY. *Bulletin of the Transilvania University of Braşov*, *11*(60), 125–136. https://webbut.unitbv.ro/index.php/Series_V/article/view/2533/1979.

Challoumis, C. (2018e). The Keynesian Theory and the Theory of Cycle of Money. *Hyperion Economic Journal*, *6*(3), 3–8. https://hej.hyperion.ro/articles/3(6)_2018/HEJ nr3(6)_2018_A1Challoumis.pdf.

Challoumis, C. (2018f). The Role of Risk to the International Controlled Transactions. *Economics and Applied Informatics*, *2018*(3), 57–64. https://doi.org/I https://doi.org/10.26397/eai1584040917.

Challoumis, C. (2019a). The arm's length principle and the fixed length principle economic analysis. *World Scientific News*, *115*(2019), 207–217. http://www.worldscientificnews.com/wp-content/uploads/2018/11/WSN-115-2019-207-217.pdf.

Challoumis, C. (2019b). The cycle of money with and without the escaped savings. *Ekonomski Signali*, *14*(1), 89–99. https://doi.org/336.76 336.741.236.5.

Challoumis, C. (2019c). The Impact Factor of Education on the Public Sector and International Controlled Transactions. *Complex System Research Centre*, *2019*, 151–160. https://www.researchgate.net/publication/350453451_The_Impact_Factor_of_Education_on_the_Public_Sector_and_International_Controlled_Transactions.

Challoumis, C. (2019d). The Issue of Utility of Cycle of Money. *Journal Association SEPIKE*, *2019*(25), 12–21. https://5b925ea6-3d4e-400b-b5f3-32dc681218ff.filesusr.com/ugd/b199e2_dd29716b8bec48ca8fe7fbcfd47cdd2e.pdf.

Challoumis, C. (2019e). The R.B.Q. (Rational, Behavioral and Quantified) Model. *Ekonomika*, *98*(1), 6–18. https://doi.org/10.15388/ekon.2019.1.1.

Challoumis, C. (2019f). Theoretical analysis of fuzzy logic and Q. E. method in economics. *IKBFU's Vestnik*, *2019*(01), 59–68.

Challoumis, C. (2019g). Transfer Pricing Methods for Services and the Policy of Fixed Length Principle. *Economics and Business*, *33*(1), 222–232. https://doi.org/https://doi.org/10.2478/eb-2019-0016.

Challoumis, C. (2020a). Analysis of the Theory of Cycle of Money. *Acta Universitatis Bohemiae Meridionalis*, *23*(2), 13–29. https://doi.org/https://doi.org/10.2478/acta-2020-0004.

Challoumis, C. (2020b). Impact Factor of Capital to the Economy and Tax System. *Complex System Research Centre*, *2020*, 195–200. https://www.researchgate.net/publication/350385990_Impact_Factor_of_Capital_to_the_Economy_and_Tax_System.

Challoumis, C. (2020c). The Impact Factor of Costs to the Tax System. *Journal of Entrepreneurship, Business and Economics*, *8*(1), 1–14. http://scientificia.com/index.php/JEBE/article/view/126.

Challoumis, C. (2020d). The Impact Factor of Education on the Public Sector – The Case of the U.S. *International Journal of Business and Economic Sciences Applied Research*, *13*(1), 69–78. https://doi.org/10.25103/ijbesar.131.07.

Challoumis, C. (2021a). Chain of cycle of money.*Acta Universitatis Bohemiae Meridionalis*,*24*(2),49–74.

Challoumis, C. (2021b). Index of the cycle of money - The case of Belarus. *Economy and Banks*, *2*.

Challoumis, C. (2021c). Index of the cycle of money - The case of Greece. *IJBESAR (International Journal of Business and Economic Sciences Applied Research)*, *14*(2), 58–67.

Challoumis, C. (2021d). Index of the Cycle of Money - The Case of Latvia. *Economics and Culture*, *17*(2), 5–12. https://doi.org/10.2478/jec-2020-0015.

Challoumis, C. (2021e). Index of the cycle of money - The case of Montenegro. *Montenegrin Journal for Social Sciences*, *5*(1–2), 41–57.

Challoumis, C. (2021f). Index of the cycle of money - The case of Serbia. *Open Journal for Research in Economics (OJRE)*, *4*(1). https://centerprode.com/ojre.html.

Challoumis, C. (2021g). Index of the cycle of money - The case of Slovakia. *S T U D I A C O M M E R C I A L I A B R A T I S L A V E N S I A Ekonomická Univerzita v Bratislave*, *14*(49), 176–188.

Challoumis, C. (2021h). Index of the cycle of money - The case of Thailand. *Chiang Mai University Journal of Economics*, *25*(2), 1–14. https://so01.tci-thaijo.org/index.php/CMJE/article/view/247774/169340.

Challoumis, C. (2021i). Index of the cycle of money - The case of Ukraine. *Actual Problems of Economics*, *243*(9), 102–111. doi:10.32752/1993-6788-2021-1-243-244-102-111.

Challoumis, C. (2021j). Index of the cycle of money -the case of Bulgaria. *Economic Alternatives*, *27*(2), 225–234. https://www.unwe.bg/doi/eajournal/2021.2/EA.2021.2.04.pdf.

Challoumis, C. (2021k). The cycle of money with and without the enforcement savings. *Complex System Research Centre*.

Challoumis, C. (2022a). Conditions of the CM (Cycle of Money). In *Social and Economic Studies within the Framework of Emerging Global Developments, Volume -1, V. Kaya* (pp. 13–24). https://doi.org/10.3726/b19907.

Challoumis, C. (2022b). Impact Factor of the Rest Rewarding Taxes. In *Complex System Research Centre*. https://doi.org/10.2139/ssrn.3154753.

Challoumis, C. (2022c). Index of the cycle of money - The case of Moldova. *Eastern European Journal of Regional Economics*, *8*(1), 77–89.

Challoumis, C. (2022d). Index of the cycle of money - the case of Poland. *Research Papers in Economics and Finance*, *6*(1), 72–86. https://journals.ue.poznan.pl/REF/article/view/126/83.

Challoumis, C. (2022e). Structure of the economy. *Actual Problems of Economics*, *247*(1).

Challoumis, C. (2023a). A comparison of the velocities of minimum escaped savings and financial liquidity. In *Social and Economic Studies within the Framework of Emerging Global Developments, Volume - 4, V. Kaya* (pp. 41–56). https://doi.org/10.3726/b21202.

Challoumis, C. (2023b). Capital and Risk in the Tax System. In *Complex System Research Centre* (pp. 241–244).

Challoumis, C. (2023c). Chain of the Cycle of Money with and without Maximum and Minimum Mixed Savings. *European Multidisciplinary Journal of Modern Science*, *23*(2023), 1–16.

Challoumis, C. (2023d). Chain of the Cycle of Money with and Without Maximum Mixed Savings (Three-Dimensional Approach). *Academic Journal of Digital Economics and Stability*, *34*(2023), 43–65.

Challoumis, C. (2023e). Chain of the Cycle of Money with and without Minimum Mixed Savings (Three-Dimensional Approach). *International Journal of Culture and Modernity*, *33*(2023), 22–33.

Challoumis, C. (2023f). Comparisons of the Cycle of Money Based on Enforcement and Escaped Savings. *Pindus Journal of Culture, Literature, and ELT*, *3*(10), 19–28.

Challoumis, C. (2023g). Comparisons of the cycle of money with and without the mixed savings. *Economics & Law*. http://el.swu.bg/ikonomika/.

Challoumis, C. (2023h). Currency rate of the CM (Cycle of Money). *Research Papers in Economics and Finance*, *7*(1).

Challoumis, C. (2023i). Elements of the Theory of Cycle of Money without Enforcement Savings. *International Journal of Finance and Business Management (IJFBM)Vol. 2No. 1, 2023*, *2*(1), 15–28. https://journal.multitechpublisher.com/index.php/ijfbm/article/view/1108/1202.

Challoumis, C. (2023j). FROM SAVINGS TO ESCAPE AND ENFORCEMENT SAVINGS. *Cogito*, *XV*(4), 206–216.

Challoumis, C. (2023k). G7 - Global Minimum Corporate Tax Rate of 15%. *International Journal of Multicultural and Multireligious Understanding (IJMMU)*, *10*(7).

Challoumis, C. (2023l). Impact factor of bureaucracy to the tax system. *Ekonomski Signali*, *18*(2), 12.

Challoumis, C. (2023m). Impact Factor of Liability of Tax System According to the Theory of Cycle of Money. In *Social and Economic Studies within the Framework of Emerging Global Developments Volume 3, V. Kaya* (Vol. 3, pp. 31–42). https://doi.org/10.3726/b20968.

Challoumis, C. (2023n). Index of the cycle of money: The case of Costa Rica. *Sapienza*, *4*(3), 1–11. https://journals.sapienzaeditorial.com/index.php/SIJIS.

Challoumis, C. (2023o). Index of the cycle of money - The case of Canada. *Journal of Entrepreneurship, Business and Economics*, *11*(1), 102–133. http://scientificia.com/index.php/JEBE/article/view/203.

Challoumis, C. (2023p). Index of the Cycle of Money - The Case of England. *British Journal of Humanities and Social Sciences*, *26*(1), 68–77.

Challoumis, C. (2023q). Index of the cyclee of money - The case of Ukraine from 1992 to 2020. *Actual Problems of Economics*.

Challoumis, C. (2023r). Maximum mixed savings on the cycle of money. *Open Journal for Research in Economics*, *6*(1), 25–34.

Challoumis, C. (2023s). Minimum Mixed Savings on Cycle of Money. *Open Journal for Research in Economics*, *6*(2), 61–68. https://centerprode.com/ojre/ojre0602/ojre-0602.html.

Challoumis, C. (2023t). Multiple Axiomatics Method and the Fuzzy Logic. *MIDDLE EUROPEAN SCIENTIFIC BULLETIN*, *37*(1), 63–68.

Challoumis, C. (2023u). Principles for the Authorities on Activities with Controlled Transactions. *Academic Journal of Digital Economics and Stability*, *30*(1), 136–152.

Challoumis, C. (2023v). Risk on the tax system of the E.U. from 2016 to 2022. *Economics*, *11*(2).

Challoumis, C. (2023w). The Cycle of Money (C.M.) Considers Financial Liquidity with Minimum Mixed Savings. *Open Journal for Research in Economics*, *6*(1), 1–12.

Challoumis, C. (2023x). The Cycle of Money with and Without the Maximum and Minimum Mixed Savings. *Middle European Scientific Bulletin*, *41*(2023), 47–56.

Challoumis, C. (2023y). The cycle of money with and without the maximum mixed savings (Two-dimensional approach). *International Journal of Culture and Modernity*, *33*(2023), 34–45.

Challoumis, C. (2023z). The Cycle of Money with and Without the Minimum Mixed Savings. *Pindus Journal of Culture, Literature, and ELT*, *3*(10), 29–39.

Challoumis, C. (2023aa). The cycle of money with mixed savings. *Open Journal for Research in Economics*, *6*(2), 41–50.

Challoumis, C. (2023ab). The Theory of Cycle of Money - How Do Principles of the Authorities on Public Policy, Taxes, and Controlled Transactions Affect the Economy and Society? *International Journal of Social Science Research and Review (IJSSRR)*, *6*(8).

Challoumis, C. (2023ac). The Velocities of Maximum Escaped Savings with than of Financial Liquidity to the Case of Mixed Savings. *International Journal on Economics, Finance and Sustainable Development*, *5*(6), 124–133.

Challoumis, C. (2023ad). The Velocity of Escaped Savings and Maximum Financial Liquidity. *Journal of Digital Economics and Stability*, *34*(2023), 55–65.

Challoumis, C. (2023ae). The Velocity of Escaped Savings and Velocity of Financial Liquidity. *Middle European Scientific Bulletin*, *41*(2023), 57–66.

Challoumis, C. (2023af). Utility of cycle of money with and without the enforcement savings. *GOSPODARKA INNOWACJE*, *36*(1), 269–277.

Challoumis, C. (2023ag). Utility of Cycle of Money with and without the Escaping Savings. *International Journal of Business Diplomacy and Economy*, *2*(6), 92–101.

Challoumis, C. (2023ah). Utility of Cycle of Money without the Escaping Savings (Protection of the Economy). In *Social and Economic Studies within the Framework of Emerging Global Developments Volume 2, V. Kaya* (pp. 53–64). https://doi.org/10.3726/b20509.

Challoumis, C. (2023ai). Velocity of Escaped Savings and Minimum Financial Liquidity According to the Theory of Cycle of Money. *European Multidisciplinary Journal of Modern Science*, *23*(2023), 17–25.

Challoumis, C. (2024a). Approach on arm's length principle and fix length principle mathematical representations. In *Innovations and Contemporary Trends in Business & Economics*.

Challoumis, C. (2024b). Estimations of the cycle of money without escape savings. *International Journal of Multicultural and Multireligious Understanding*, *11*(3).

Challoumis, C. (2024c). Impact Factors of Global Tax Revenue - Theory of Cycle of Money. *International Journal of Multicultural and Multireligious Understanding*, *11*(1).

Challoumis, C. (2024d). Minimum escaped savings and financial liquidity in mathematical representation. *Ekonomski Signali*, *19*(1).

Challoumis, C. (2024e). Rewarding taxes on the cycle of money. In *Social and Economic Studies within the Framework of Emerging Global Developments* (Vol. 5).

Challoumis, C. (2024f). Rewarding taxes on the economy (The theory of cycle of money). *International Journal of Multicultural and Multireligious Understanding (IJMMU)*, *11*(3).

Challoumis, C. (2024g). Synopsis of principles for the authorities and controlled transactions. *Pindus*.

Challoumis, C. (2024h). The cycle of money - Escape savings and the minimum financial liquidity. *International Journal of Multicultural and Multireligious Understanding (IJMMU)*, *11*(4).

Challoumis, C. (2024i). The cycle of money - Minimum escape savings and financial liquidity. *International Journal of Multicultural and Multireligious Understanding (IJMMU)*, *11*(5).

Challoumis, C. (2024j). The impact factor of Tangibles and Intangibles of controlled transactions on economic performance. *Economic Alternatives*.

Challoumis, C. (2024k). THE INFLATION ACCORDING TO THE CYCLE OF MONEY (C.M.). *Economic Alternatives*.

Challoumis, C. (2024l). Velocity of the escaped savings and financial liquidity on maximum mixed savings. *Open Journal for Research in Economics*, *7*(1).

Challoumis, C. (2024m). Velocity of the escaped savings and financial liquidity on minimum mixed savings. *Open Journal for Research in Economics*, *7*(2).

Challoumis, C. (2024n). Velocity of the escaped savings and financial liquidity on mixed savings. *Open Journal for Research in Economics*, *7*(2).

Challoumis, C., & Savic, M. (2024). Rational and Behavioral economics. *Ekonomski Signali*, *19*(1).

de Vasconcelos, F. de A. G., Machado, M. L., de Medeiros, M. A. T., Neves, J. A., Recine, E., & Pasquim, E. M. (2019). Public policies of food and nutrition in Brazil: From Lula to Temer. *Revista de Nutricao*, *32*. https://doi.org/10.1590/1678-9865201932e180161.

Feinschreiber, R. (2004). *Transfer pricing Methods An Application Guide*. John Wiley & Sons.

Gong, B., Zhang, S., Yuan, L., & Chen, K. Z. (2020). A balance act: minimizing economic loss while controlling novel coronavirus pneumonia. *Journal of Chinese Governance*, *5*(2). https://doi.org/10.1080/23812346.2020.1741940.

Grove, A., Sanders, T., Salway, S., Goyder, E., & Hampshaw, S. (2020). A qualitative exploration of evidence-based decision making in public health practice and policy: The perceived usefulness of a diabetes economic model for decision makers. *Evidence and Policy*, *15*(4). https://doi.org/10.1332/174426418X15245020185055.

Hartz, S., & John, J. (2009). Public health policy decisions on medical innovations: What role can early economic evaluation play? *Health Policy*, *89*(2). https://doi.org/10.1016/j.healthpol.2008.05.011.

Jensen, P. H. (2020). Experiments and evaluation of public policies: Methods, implementation, and challenges. *Australian Journal of Public Administration*, *79*(2). https://doi.org/10.1111/1467-8500.12406.

Jiang, X., Ding, H., Shi, H., & Li, C. (2020). Novel QoS optimization paradigm for IoT systems with fuzzy logic and visual information mining integration. *Neural Computing and Applications*, *32*(21). https://doi.org/10.1007/s00521-019-04020-3.

John, P. (2018). Theories of policy change and variation reconsidered: a prospectus for the political economy of public policy. *Policy Sciences*, *51*(1). https://doi.org/10.1007/s11077-017-9297-x.

Kartini, D. S., Mulyawan, R., & Muradi, M. (2019). Public Policy Pragmatism on Special Economic Zone in Tanjung Lesung, Pandeglang Regency. *MIMBAR : Jurnal Sosial Dan Pembangunan*, *35*(1). https://doi.org/10.29313/mimbar.v35i1.4283.

Lal, A., Moodie, M., Peeters, A., & Carter, R. (2018). Inclusion of equity in economic analyses of public health policies: systematic review and future directions. In *Australian and New Zealand Journal of Public Health* (Vol. 42, Issue 2). https://doi.org/10.1111/1753-6405.12709.

Maier, E. (2012). Smart Mobility – Encouraging sustainable mobility behaviour by designing and implementing policies with citizen involvement. *JeDEM - EJournal of EDemocracy and Open Government*, *4*(1). https://doi.org/10.29379/jedem.v4i1.110.

McIsaac, J. L. D., & Riley, B. L. (2020). Engaged scholarship and public policy decision-making: A scoping review. In *Health Research Policy and Systems* (Vol. 18, Issue 1). https://doi.org/10.1186/s12961-020-00613-w.

Reeves, P., Edmunds, K., Searles, A., & Wiggers, J. (2019). Economic evaluations of public health implementation-interventions: a systematic review and guideline for practice. In *Public Health* (Vol. 169). https://doi.org/10.1016/j.puhe.2019.01.012.

Ruiz, J. C., Jurado, E. B., Moral, A. M., Uclés, D. F., & Viruel, M. J. M. (2017). Measuring the social and economic impact of public policies on entrepreneurship in Andalusia. *CIRIEC-Espana Revista de Economia Publica, Social y Cooperativa*, *1*(90)..

Sajid, N. A., Afzal, M., & Qadir, M. (2016). Multi-label classification of computer science documents using fuzzy logic. *Journal of the National Science Foundation of Sri Lanka*, *44*(2). https://doi.org/10.4038/jnsfsr.v44i2.7996.

Sultana, A., Or Rashid, M. H., Akter Eva, S., & Sultana, A. (2020). Assessment of Relationship Among Regional Economic Development Policy, Urban Development Policy and Public Policy. *Sumerianz Journal of Economics and Finance*, *310*. https://doi.org/10.47752/sjef.310.171.177.

Waardenburg, M., Groenleer, M., & De Jong, J. (2020). Designing environments for experimentation, learning and innovation in public policy and governance. *Policy and Politics*, *48*(1). https://doi.org/10.1332/030557319X15586040837640.

Woody, W. D., & Viney, W. (2017). A History of Psychology: The Emergence of Science and Applications, Sixth Edition. *A History of Psychology: The Emergence of Science and Applications, Sixth Edition*, 1–599. https://doi.org/10.4324/9781315544403/HISTORY-PSYCHOLOGY-WAYNE-VINEY-WILLIAM-DOUGLAS-WOODY.

Wright, A., Smith, K. E., & Hellowell, M. (2017). Policy lessons from health taxes: A systematic review of empirical studies. In *BMC Public Health* (Vol. 17, Issue 1). https://doi.org/10.1186/s12889-017-4497-z.