

# **MATHEMATICAL ECONOMICS**

**14(21)**



The Publishing House  
of Wrocław University of Economics  
Wrocław 2018

Reviewers cooperating with the journal

*Mariusz Czekala, Ewa Dziwok, Francesca Greselin,  
Marian Matloka, Anatoliy Pilyavskyy*

Copy-editing

*Elżbieta Macauley, Tim Macauley, Joanna Świrska-Korlub*

Proof reading

*Rafał Galos*

Typesetting

*Elżbieta Szlachcic*

Cover design

*Beata Dębska*

Front cover painting: Paris – Petit Pont  
(private collection)

This publication is available at:

[www.me.ue.wroc.pl](http://www.me.ue.wroc.pl), [www.journal.ue.wroc.pl](http://www.journal.ue.wroc.pl) and [www.ibuk.pl](http://www.ibuk.pl)

BazEkon, [http://kangur.uek.krakow.pl/bazy\\_ae/bazekon/nowy/advanced.php](http://kangur.uek.krakow.pl/bazy_ae/bazekon/nowy/advanced.php)

Dolnośląska Biblioteka Cyfrowa, <http://www.dbc.wroc.pl>

The Central European Journal of Social Sciences and Humanities, <http://cejsh.icm.edu.pl>

Ebsco, <https://www.ebscohost.com>

Information on submitting and reviewing papers is available on the Publishing House's websites  
[www.me.ue.wroc.pl](http://www.me.ue.wroc.pl); [www.wydawnictwo.ue.wroc.pl](http://www.wydawnictwo.ue.wroc.pl)

The publication is distributed under the Creative Commons Attribution 3.0  
Attribution-NonCommercial-NoDerivs CC BY-NC-ND



© Copyright by Wrocław University of Economics  
Wrocław 2018

ISSN 1733-9707  
e-ISSN 2450-1131

The original version: printed

Publication may be ordered in Publishing House  
tel./fax 71 36-80-602; e-mail: [econbook@ue.wroc.pl](mailto:econbook@ue.wroc.pl)  
[www.ksiegarnia.ue.wroc.pl](http://www.ksiegarnia.ue.wroc.pl)

Printing: TOTEM

## TABLE OF CONTENTS

<b>Marek Biernacki, Antoni Smoluk</b>	
The mirror of science .....	5
<b>Izabela Dziaduch, Paweł Hanczar</b>	
Railway crew scheduling in passenger transportation – optimization approach .....	19
<b>Arkadiusz Maciuk, Antoni Smoluk</b>	
A golden ratio as a generalization of the $2/3$ rule of Janusz Łyko .....	31
<b>Katarzyna Ostasiewicz, Achille Vernizzi</b>	
Decomposition of the Gini index in the presence of observations with negative values .....	37
<b>Agata Kliber, Aleksandra Rutkowska</b>	
Can Google Trends affect sentiment of individual investors? The case of the United States .....	51
<b>Wojciech Rybicki</b>	
Decision-making under risk and “statistical thinking” in the 20th century (selected models and persons) .....	71
<b>Agnieszka Matylda Schlichtinger</b>	
Methods of mathematical quantum theory in selected economic models .....	95
***	
<b>Antoni Smoluk</b>	
Michał Montygierd-Łoyba (1927-2015) .....	107