

# MATHEMATICAL ECONOMICS

## 11(18)



The Publishing House  
of Wrocław University of Economics  
Wrocław 2015

Reviewers cooperating with the journal

*Maria Balcerowicz-Szkutnik, Alessandro Barbiero, Francesco Bosello, Lucio De Capitani,  
Mirko Cesarin, Jacek Cukrowski, Igor N. Dubina, Ewa Dziwok, Pier Alda Ferrari, Vladimir Gazda,  
Alessandro De Gregorio, Francesca Greselin, Giancarlo Manzi, Marian Matłoka, Jerzy Mika,  
Paweł Milobędzki, Anatol Pilawski, Angiola Pollastri, Francesco Porro, Giuseppe Porro,  
Emanuela Raffinetti, Nadia Solaro, Tadeusz Stanisz, Achille Vernizzi*

Copy-editing

*Elżbieta Macauley, Tim Macauley*

Proof reading

*Aleksandra Śliwka*

Typesetting

*Elżbieta Szlachcic*

Cover design

*Robert Mazurczyk*

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://wwwdbc.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 2015  
ISSN 1733-9707  
e-ISSN 2450-1131

The original version: printed

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

### **Dominika Bogusz, Mariusz Górajski**

The influence of consumer recommendations on advertising strategies in a non-linear optimal goodwill model with market segmentation .....	5
--	---

### **Beata Ciałowicz**

Analysis of consumer innovativeness in an axiomatic approach .....	21
--	----

### **Igor N. Dubina**

A basic formalization of the interaction of the key stakeholders of an innovation ecosystem .....	33
--	----

### **Monika Hadaś-Dyduch**

Wavelets in the prediction of short-time series .....	43
---	----

### **Agnieszka Lipieta**

Existence and uniqueness of the producers' optimal adjustment trajectory in a Debreu-type economy.....	55
---	----

### **Arkadiusz Maciuk, Antoni Smoluk**

Partitions and branching processes .....	69
--	----

### **Arkadiusz Maciuk, Antoni Smoluk**

Vortices and complex numbers .....	77
------------------------------------	----

### **Michał Milek**

Comparing changes over time for two phenomena .....	89
---	----

### **Piotr Peternek, Marek Kośny**

The allocation of seats in the European Parliament and the principle of degressive proportionality .....	99
---	----