


ISSN 1644-0757  
eISSN 2450-4602

**SCIENTIARUM POLONORUM**  
  
**ACTA**  
**UM**

---

**Oeconomia**

---

14 (4) 2015

# **ACTA SCIENTIARUM POLONORUM**

Czasopismo naukowe założone w 2001 roku przez polskie uczelnie rolnicze  
Scientific Journal established in 2001 by Polish Life Sciences Universities

**Oeconomia**

Economics

Ekonomia

14 (4) 2015



Bydgoszcz Kraków Lublin Olsztyn  
Poznań Siedlce Szczecin Warszawa Wrocław

### ***Acta Scientiarum Polonorum Programming Board***

Wiesław Nagórko (Warszawa), Ryszard Źróbek (Olsztyn), Józef Bieniek (Kraków),  
Krzysztof Szkucik (Lublin), Ewa Sobecka (Szczecin),  
Janusz Prusiński (Bydgoszcz), Jerzy Sobota (Wrocław) – chairman,  
Stanisław Socha (Siedlce), Waldemar Uchman (Poznań)

### ***Oeconomia Scientific Board***

Carol J. Cumber (South Dakota State University, Brookings, USA),  
Michael Ireland (University of Plymouth, Plymouth, UK),  
Roman Kisiel (University of Warmia and Mazury, Olsztyn, PL),  
Joseph Andrew Kuzilwa (Mzumbe University, Tanzania),  
Vera Majerova (Czech University of Life Sciences, Prague, CZ),  
Wiesław Musiał (University of Agriculture in Krakow, Kraków, PL),  
Janina Sawicka (Warsaw University of Life Sciences – SGGW, Warszawa, PL)  
– chairperson,  
Harun Ucak (Muğla Sıtkı Koçman University, Muğla, TR),  
Dorota Witkowska (University of Łódź, Łódź, PL)

### **Editing committee**

Jan Kiryjow – Warsaw University of Life Sciences Press  
Paulina Stolarczyk (WULS-SGGW) – *Oeconomia* secretary  
Paulina Tuka (WULS-SGGW) – *Oeconomia* secretary  
Marcin Chciałowski (WULS-SGGW) – *Oeconomia* secretary  
Renata Marks-Bielska – University of Warmia and Mazury in Olsztyn – thematic editor,  
Tomasz Wojewodziec – University of Agriculture in Krakow – thematic editor,  
Wojciech Pizło – WULS-SGGW – thematic editor,  
Iwona Pomianek – WULS-SGGW – thematic editor,  
Aleksandra Matuszewska-Janica – WULS-SGGW – statistical editor,  
Kuo-Liang “Matt” Chiang – South Dakota State University – language consultant

***The printed version of Acta Scientiarum Polonorum Oeconomia is an initial version  
of the journal***

Editorial staff  
Anna Dołomisiewicz

ISSN 1644-0757, eISSN 2450-4602

Edition: 200 prints



© Copyright by Warsaw University of Life Sciences Press

Wydawnictwo SGGW, ul. Nowoursynowska 166, 02-787 Warszawa

tel. 22 593 55 20 (-22; -25 – sprzedaż), fax 22 593 55 21

e-mail: [wydawnictwo@sggw.pl](mailto:wydawnictwo@sggw.pl)

[www.wydawnictwosggw.pl](http://www.wydawnictwosggw.pl)

Print: Agencja Reklamowo-Wydawnicza A. Grzegorzcyk, [www.grzeg.com.pl](http://www.grzeg.com.pl)

### ***From the Scientific Board***

*There has been the fourteenth year of the Acta Scientiarum Polonorum Oeconomia publishing. The Acta is the periodical including several thematic series with uniform graphics and similar format. The publication was set up by group of enthusiasts – employees of life sciences universities and has been published under the patronage of rectors of these universities. Constant involvement of academic society in increasing substantive and editorial level of the series, with efforts of the authors, the Programming Board and the Scientific Boards, has contributed to placing the Acta Scientiarum Polonorum (and our Oeconomia series) on the noticeable position in academic research society. Articles can be prepared in English with Polish title, abstract and keywords. Moreover, we publish latest issues in English only. The Scientific Board of the Oeconomia series, concerning the publication range, focuses its attention both on substantive content and precision of the form. The articles are revised in “double-blind review” process. Whole content of the Acta Scientiarum Polonorum Oeconomia is available in electronic version on the following website [http://acta\\_oeconomia.sggw.pl](http://acta_oeconomia.sggw.pl). We are glad to inform that Acta Scientiarum Polonorum Oeconomia are indexed within the AGRIS-FAO, EBSCO, SIGŹ, Copernicus Index, AGRO, BazEkon. Since 2013 each article published in Acta Sci. Pol. Oeconomia has 10 points at the Ministry of Science and Higher Education ranking list.*

*Please send the articles on one of following e-mail addresses:*

*janina\_sawicka@sggw.pl*

*acta\_oeconomia@sggw.pl*

*While sending a printout, please attach also the electronic version on CD or DVD. Letters including note “the Acta Scientiarum Polonorum Oeconomia” should be sent on the following address:*

*Prof. dr hab. Janina Sawicka  
Department of European Policy, Public Finances and Marketing  
Faculty of Economic Sciences  
Warsaw University of Life Sciences  
Nowoursynowska 166, 02-787 Warsaw, Poland  
tel.: (+4822) 593 40 70; fax: (+4822) 593 40 77*

*Yours sincerely  
Janina Sawicka  
Chairperson of the Scientific Board of the Acta  
Sci. Pol. Oeconomia series*