

# SpringerLink

- 1) Úvodní stranu této databáze najdete zde: <http://www.springerlink.com>.
- 2) Do vyhledávacího pole v horní části obrazovky zadáme „Depression economic“ a dáme „GO“.

SpringerLink

SEARCH FOR   Advanced Search Search Tips

AUTHOR OR EDITOR PUBLICATION VOLUME ISSUE PAGE

HOME MY SPRINGERLINK BROWSE TOOLS HELP SHOPPING CART LOG IN

**BROWSE** 4,971,188 Content Items

**BROWSE PUBLICATIONS BY CONTENT TYPE**

<b>Journals</b>	<b>Books</b>	<b>Book Series</b>	<b>eReferences</b>	<b>Protocols</b>
2,524	41,918	1,168	175	22,266

**BROWSE PUBLICATIONS BY TITLE**

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0-9

**FOR AUTHORS** **FOR LIBRARIANS** **FOR SOCIETIES**

Learn more about the benefits of publishing with Springer... Stay current on print and digital products offered by Springer... Get news about the benefits of partnering with Springer...

Frequently asked questions | General info on journals and books | Send us your feedback | Impressum | Contact us  
© Springer, Part of Springer Science+Business Media | Privacy, Disclaimer, Terms & Conditions, and Copyright Info

- 3) Jelikož bude vyhledáno přes 24 000 výsledků – budeme je muset trochu vyfiltrovat a zúžením nabídky vlevo.

SpringerLink

SEARCH FOR   Advanced Search Search Tips

AUTHOR OR EDITOR PUBLICATION VOLUME ISSUE PAGE

HOME MY SPRINGERLINK BROWSE TOOLS HELP SHOPPING CART LOG IN

**Search** Publications

Search results for 'depression economic' with no filters  
Viewing items 1 - 10 of 24,477

Sort by: **Relevance** Date Title First Previous 1 2 3 4 5 Next

Journal Article  
**Depression and poverty among African American women at risk for type 2 diabetes**  
...that contribute to depression, particularly among African American women at risk for type 2 diabetes. This study examined the relationships of economic and social resources...  
Mary de Groot, Wendy Auslander, James Herbert Williams, Michael Sherraden and Debra Haire-Joshu  
*Annals of Behavioral Medicine*, 2003, Volume 25, Number 3, Pages 172-181  
Download PDF (128.3 KB)

Journal Article  
**Family Processes in Adolescent Depression**  
...by which adverse family processes may operate to increase adolescents' vulnerability to depression. The review is organized into a description and evaluation of four potential...  
Lisa Sheeber, Hyman Hops and Betsy Davis  
*Clinical Child and Family Psychology Review*, 2001, Volume 4, Number 1, Pages 19-35

**Filter These Results**  
Add criteria from below to refine these results

- Collection
  - Medicine (7,948)
  - Humanities, Social Sciences and Law (4,586)
  - Behavioral Science (3,634)
  - Earth and Environmental Science (2,635)
  - Biomedical and Life Sciences (2,428)
- Copyright Year
- SpringerLink Date
- Author
- Content Type
- Language

- 4) Nejdříve si výsledky zúžíme na „Collection – Earth and Environmental Science“ a poté budeme stále vybírat „Subject“ a tím zužovat výsledky.
- 5) Subject budeme vybírat takto: Environmental management → Environment → Business and Economic → Development Economic → Environment, General.
- 6) Zůstane nám jediný výsledek s názvem: „An Evolutionary Economics Perspective in Industrial Transformation“, který si kliknutím na něj můžeme blíže zobrazit.

SpringerLink

SEARCH FOR  GO Advanced Search Search Tips

AUTHOR OR EDITOR PUBLICATION VOLUME ISSUE PAGE Krajska zdravotni, a.s/ Regional

HOME MY SPRINGERLINK BROWSE TOOLS HELP SHOPPING CART LOG IN

Search Publications

Search Within All Content  GO

Filter These Results

Remove criteria to expand these results

- Collection > Earth and Environmental Science
- Subject > Environmental Management
- Subject > Environment
- Subject > Business and Economics
- Subject > Development Economics
- Subject > Environment, general

Search results for 'depression economic' with filters: Earth and Environmental Science Environmental Management Environment Business and Economics Development Economics Environment, general

Viewing 1 item

Book Chapter

**An Evolutionary Economics Perspective in Industrial Transformation**  
 Jeroen C. J. M. van den Bergh, Marjan W. Hofkes and Frans H. Oosterhuis  
*Environment & Policy*, 2006, Volume 44, Understanding Industrial Transformation, Pages 119-140

Download PDF (302.3 KB) Look Inside

Frequently asked questions | General info on journals and books | Send us your feedback | Impressum | Contact us  
 © Springer, Part of Springer Science+Business Media | Privacy, Disclaimer, Terms & Conditions, and Copyright Info

- 7) Plný text si můžeme zobrazit přímo na stránkách pomocí „Look Inside“ nebo si jej můžeme za určitý poplatek stáhnout kliknutím na „Download PDF“

SpringerLink

SEARCH FOR  GO Advanced Search Search Tips

AUTHOR OR EDITOR PUBLICATION VOLUME ISSUE PAGE 1043/1 STL Czechia

HOME MY SPRINGERLINK BROWSE TOOLS HELP SHOPPING CART LOG IN

Related Book Series

View Related Documents

Journal Article  
 Evolutionary thinking in environmental economics Jeroen C. J. M. van den Bergh

Journal Article  
 Creation and Pursuit of Entrepreneurial Opportunities: An Evolutionary Economics Perspective Guido Buenstorf

Journal Article  
 On the divergence of evolutionary research paths in the past 50 years: a comprehensive bibliometric account Sandra Tavares Silva

Journal Article  
 Evolutionary models in economics: a survey of methods and building blocks Karolina Safarzyńska

EARTH AND ENVIRONMENTAL SCIENCE

UNDERSTANDING INDUSTRIAL TRANSFORMATION  
*Environment & Policy*, 2006, Volume 44, 119-140, DOI: 10.1007/1-4020-4418-6\_7

**An Evolutionary Economics Perspective in Industrial Transformation**  
 Jeroen C. J. M. van den Bergh, Marjan W. Hofkes and Frans H. Oosterhuis

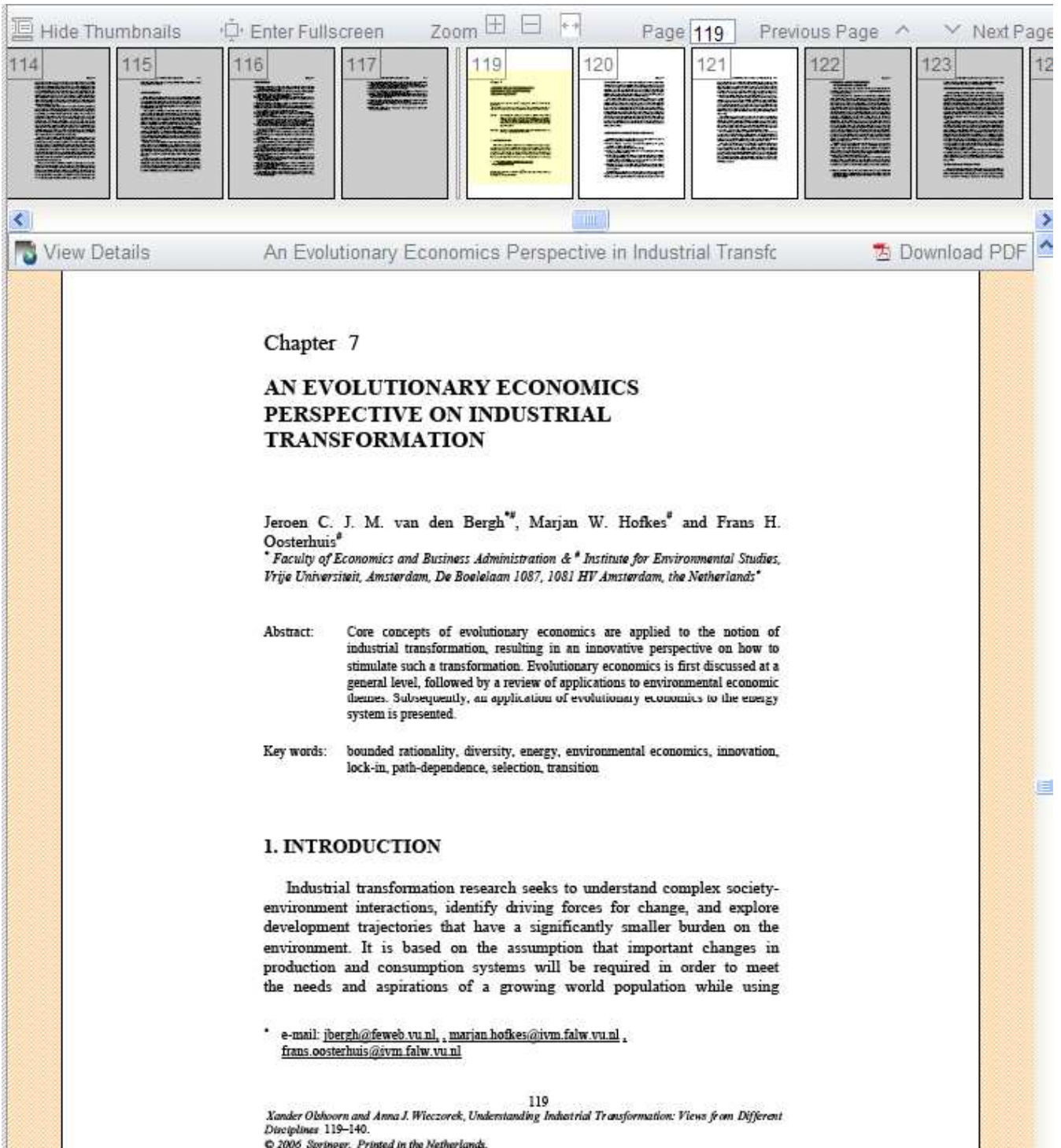
Link Out to this Chapter at Krajska zdravotni, a.s/ Regional Health Library:

SFX SFX plný text

Download PDF (302.3 KB) Look Inside

Permissions & Reprints  
 EXPORT CITATION ABOUT

- 8) Pokud zvolíte levnější verzi „Look Inside“, otevře se Vám prohlížeč rešerše přímo na stránkách a Vy si můžete alespoň část prolistovat.



Hide Thumbnails Enter Fullscreen Zoom Page 119 Previous Page Next Page

114 115 116 117 119 120 121 122 123 124

View Details An Evolutionary Economics Perspective in Industrial Transfrc Download PDF

## Chapter 7

### AN EVOLUTIONARY ECONOMICS PERSPECTIVE ON INDUSTRIAL TRANSFORMATION

Jeroen C. J. M. van den Bergh<sup>\*,†</sup>, Marjan W. Hofkes<sup>‡</sup> and Frans H. Oosterhuis<sup>§</sup>  
<sup>\*</sup> Faculty of Economics and Business Administration & <sup>†</sup> Institute for Environmental Studies, Vrije Universiteit, Amsterdam, De Boelelaan 1087, 1081 HV Amsterdam, the Netherlands<sup>\*</sup>

**Abstract:** Core concepts of evolutionary economics are applied to the notion of industrial transformation, resulting in an innovative perspective on how to stimulate such a transformation. Evolutionary economics is first discussed at a general level, followed by a review of applications to environmental economic themes. Subsequently, an application of evolutionary economics to the energy system is presented.

**Key words:** bounded rationality, diversity, energy, environmental economics, innovation, lock-in, path-dependence, selection, transition

#### 1. INTRODUCTION

Industrial transformation research seeks to understand complex society-environment interactions, identify driving forces for change, and explore development trajectories that have a significantly smaller burden on the environment. It is based on the assumption that important changes in production and consumption systems will be required in order to meet the needs and aspirations of a growing world population while using

<sup>\*</sup> e-mail: [jbergh@feweb.vu.nl](mailto:jbergh@feweb.vu.nl), [marjan.hofkes@ivm.falw.vu.nl](mailto:marjan.hofkes@ivm.falw.vu.nl), [frans.oosterhuis@ivm.falw.vu.nl](mailto:frans.oosterhuis@ivm.falw.vu.nl)

119  
Xander Olshoorn and Anna J. Wiczorek, *Understanding Industrial Transformation: Views from Different Disciplines* 119–140.  
© 2006 Springer. Printed in the Netherlands.

- 9) Nyní si vyhledáme ještě jednu rešerši podle jiných kritérií. Do vyhledávacího pole zadáme „Macroeconomics“ a dáme „GO“.

The screenshot shows the SpringerLink search interface. The search bar contains 'macroeconomic' and the 'GO' button is highlighted. Below the search bar, there are tabs for 'AUTHOR OR EDITOR', 'PUBLICATION', 'VOLUME', 'ISSUE', and 'PAGE'. The main content area displays 'BROWSE PUBLICATIONS BY CONTENT TYPE' with categories: Journals (2,525), Books (42,118), Book Series (1,171), eReferences (175), and Protocols (22,396). There is also a 'BROWSE PUBLICATIONS BY TITLE' section with an alphabetical index. The left sidebar shows a list of subject collections, with 'Business and Economics' being relevant to the search.

- 10) Jelikož je výsledků opět příliš mnoho, zase si je vyfiltrujeme. Jazyk (language) zvolíme Němčinu (German). Content Type zvolíme Journal Article. Collection dáme Business and Economics. A nakonec rok 2008.

- 11) Zůstat by nám měly 3 výsledky. My si vybereme ten třetí s názvem „Regional competitiveness in Poland: Creating an index“

This screenshot shows the search results for 'macroeconomic' with several filters applied: Language (German), Content Type (Journal Articles), Collection (Business and Economics), and Copyright Year (2008). The results are sorted by Relevance. Three results are displayed:

- Growth versus equalisation? An examination of strategies for regional policy in the Czech Republic, Hungary and Poland after EU accession** by Gerhard Heimpold. *Jahrbuch für Regionalwissenschaft*, 2008, Volume 28, Number 1, Pages 1-29. Download PDF (351.5 KB).
- Staatliche Gründungsfinanzierung: Stand der Forschung und offene Fragen** by Peter Witt and Andreas Hack. *Journal für Betriebswirtschaft*, 2008, Volume 58, Number 2, Pages 55-79. Download PDF (305.7 KB).
- Regional competitiveness in Poland: Creating an index** by Urszula Bronisz, Wim Heijman and Andrzej Miszczuk. *Jahrbuch für Regionalwissenschaft*, 2008, Volume 28, Number 2, Pages 133-143. Download PDF (267.3 KB).

The third result is highlighted with a blue box, indicating it is the selected one.

12) Po rozkliknutí rešerše si můžeme přečíst výtah z článku, ale také sis jej celý zobrazit v pdf.

SEARCH FOR   [Advanced Search](#)

AUTHOR OR EDITOR PUBLICATION VOLUME ISSUE PAGE

HOME MY SPRINGERLINK BROWSE TOOLS HELP

Related Issue Journal

**View Related Documents**

Journal Article  
Competitiveness and the Benchmarking of Nations—A Critical Reflection Thomas Berger

Journal Article  
Revisiting an Evasive Concept: Introduction to the Special Issue on Competitiveness Kart Aiginger


Journal Article  
Regional Development of Small Firms in Poland Subrata Ghatak

Journal Article  
Assessing the competitive power of a region V. P. Shorokhov

Journal Article  
ICTs and territorial competitiveness in the era of internet Roberto Camagni

BUSINESS AND ECONOMICS

JAHRBUCH FÜR REGIONALWISSENSCHAFT  
Volume 28, Number 2, 133-143, DOI: 10.1007/s10037-008-0026-y

 ORIGINAL PAPER  
**Regional competitiveness in Poland: Creating an index**  
Urszula Bronisz, Wim Heijman and Andrzej Miszczuk

Link Out to this Article at Krajska zdravotni, a.s/ Regional Health Library:

SFX plný text

**Abstract**

The present paper looks at the competitiveness from a regional perspective and examines the basic factor which have influence on this phenomenon. This article aims at evaluating Poland's regional competitive performance by constructing an overall index, which is composed in accordance with the Huggin's Institute approach. The purpose of the paper is both rank the 16 Polish regions (voivodships) according to their competitive position and see whether Huggin's approach was appropriate for measuring Polish competitiveness.

This article also aims to make a contribution to the debate surrounding the state of Polish regions competitiveness.

Der Beitrag betrachtet die Wettbewerbsfähigkeit von Regionen und bestimmt Faktoren, die darauf Einfluss haben. Es wird versucht, die Wettbewerbsfähigkeit der Regionen Polens mit einem zusammenfassenden Index zu messen, der dem Ansatz des Huggin's Instituts entspricht. Ziel dieses Artikels ist es, sowohl die 16 Regionen (Woiwodschaften) Polens nach deren Wettbewerbsfähigkeit zu ordnen als auch festzustellen, ob der Huggin's Ansatz geeignet ist, die Wettbewerbsfähigkeit polnischer Regionen zu messen. Außerdem soll dieser Artikel einen Beitrag zur Diskussion um die aktuelle Situation der Wettbewerbsfähigkeit der Regionen in Polen leisten.

**Keywords** Competitiveness - Region - Index - Poland - Regional Competitiveness

Fast and Free Log In  
Come and explore  
ClimateSciNet

- 13) A takto vypadá celý text, který najdete také na tomto odkaze:  
<http://www.springerlink.com/content/r22h8073t7243782/fulltext.pdf>

Jahrbuch für Regionalwissenschaft (2008) 28: 133–143  
DOI 10.1007/s10037-008-0026-y



ORIGINAL PAPER

## Regional competitiveness in Poland: Creating an index

Urszula Bronisz · Wim Heijman · Andrzej Miszczuk

Accepted: 24 June 2008 / Published online: 19 July 2008  
© The Author(s) 2008

**Abstract** The present paper looks at the competitiveness from a regional perspective and examines the basic factor which have influence on this phenomenon. This article aims at evaluating Poland's regional competitive performance by constructing an overall index, which is composed in accordance with the Huggin's Institute approach. The purpose of the paper is both rank the 16 Polish regions (voivodships) according to their competitive position and see whether Huggin's approach was appropriate for measuring Polish competitiveness.

This article also aims to make a contribution to the debate surrounding the state of Polish regions competitiveness.

**Keywords** Competitiveness · Region · Index · Poland · Regional competitiveness

**Zusammenfassung** Der Beitrag betrachtet die Wettbewerbsfähigkeit von Regionen und bestimmt Faktoren, die darauf Einfluss haben. Es wird versucht, die Wettbewerbsfähigkeit der Regionen Polens mit einem zusammenfassenden Index zu messen, der dem Ansatz des Huggin's Instituts entspricht. Ziel dieses Artikels ist es,

---

U. Bronisz (✉)  
Faculty of Political Science, Maria Curie-Skłodowska University, Plac Litewski 3, 20-080 Lublin,  
Poland  
e-mail: u-bronisz@tlen.pl

W. Heijman  
Social Science, Economics of Consumers and Households, Wageningen University, P.O. Box 8130,  
6700 Wageningen, The Netherlands  
e-mail: wim.heijman@wur.nl

A. Miszczuk  
Centre for European Regional And Local Studies, Warsaw University, Krakowskie Przedmieście 30,  
00-927 Warszawa, Poland  
e-mail: a.miszczuk@uw.edu.pl

sowohl die 16 Regionen (Woiwodschaften) Polens nach deren Wettbewerbsfähigkeit zu ordnen als auch festzustellen, ob der Huggin's Ansatz geeignet ist, die Wettbewerbsfähigkeit polnischer Regionen zu messen. Außerdem soll dieser Artikel einen Beitrag zur Diskussion um die aktuelle Situation der Wettbewerbsfähigkeit der Regionen in Polen leisten.

## 1 Introduction

In economic life and beyond, competition is one of the fundamental sources of mobilization and creativity and therefore it has immense impact on regional development and growth. There are many different approaches concerning competitiveness. However, the overall competitiveness of nations or regions is difficult to measure because it is a complex function of different variables and factors, which importance varies over time. In today's global economy the primary spatial units which compete for the key economic assets are regions. They are considered as places within which both knowledge and innovation are produced and diffused.

In 2004 Poland joined the European Union. It created for Polish regions a great opportunity to develop and become more competitive. Poland's membership in EU meant fully righted involvement in creating and taking advantages from the benefits of European policies. Participation in the EU regional policy gave Poland an opportunity to assist the lagging regions with the Union's resources and expertise (Grosse 2006, Hübner 2004, Czyzewski et al. 2003, Boeckhout 2004). By 2005, Poland had improved its competitive position, measured by GDP per capita in PPP terms, both toward the EU 15 countries and the new EU member state (Weresa 2006). In 1996–2006 Poland managed to decrease the distance to the average of the UE-25 (measured by GDP per capita) above 10 points per cent accomplishing 51,3% this average (53,4% average UE-27) (Żuber and Sudak 2007). But although, in the past few years we have noticed an enhancement in Polish economy we also observed increasing regional disparities. Some scientists and politicians noticed the disparity among regions in benefits from the access to European markets resulting in divergent economic growth results (Tomidajewicz 2003). Although there is a great support from the European Union for regional development, some regions are lagging behind in economic development. Poland's economically weakest regions are still at the tail end of Eurostat's list which illustrate inter-regional diversity in EU Member States.

This article aims at evaluating Poland's regional competitive performance from a comparative perspective. The purpose of this paper is to create an index concerning regional competitiveness in Poland which enables to establish the competitive position of the Polish regions. The 16 voivodships, which correspond to the EU NUTS II level, will be ranked according to their competitive position in accordance with Huggin's three-factor model of regional competitiveness. Furthermore, the competitiveness ranking we used enables us to compare different components of competitiveness. This allows for a more detailed overview of the indicators contributing to regional competitiveness. The aim of this paper is also to make a contribution to the debate surrounding the state of Polish regions competitiveness. The structure of the paper is as follows. The first section outlines the conceptual problems connected with the phe-

nomenon of the competitiveness. The next part concerns the research framework, the approach applied in the paper. The following section focuses on creating index of Polish regional competitiveness. The final section provides a conclusion and reflections on the state of Polish regions.

## 2 Competitiveness – Definitional problems

Competitiveness has become a key priority for governments and regional authorities across Europe. It is apparent that competitiveness affects the development and the state of the economy. Although, the term “competitiveness” has been widely used by academics and policy practitioners, the concept in itself is rather complicated and easily misunderstood (Porter and Ketels 2003). The problem with defining competitiveness is similar with defining globalization. These terms have become very generic concepts, widely used but not defined precisely (Budd and Hirmis 2004). There are number of studies concerning competitiveness but there is no generally accepted definition of it in literature. In the European Competitiveness Report (EU 2006) competitiveness “*is understood to mean a sustained rise in the standards of living of a nation or region and a level of involuntary unemployment as low as possible*”, whereas according to Dunning et al. (1998): “*Competitiveness is a way of discussing the relative performance of economies in a benchmarking sense. It can help identify areas of the economy that are lagging behind but not the reason for those lags.*”

According to the representatives of the World Economic Forum (WEF 2004): “*competitiveness concerns adapting state economic institutions and economic structures to produce a growth visible in the international scale. The national economy is competitive in the international scale if its institutions and policy support rapid and stable economic growth*”. The Global Competitiveness Report provided by the World Economic Forum ranks countries according to certain key characteristic that affect and improve national competitiveness. The WEF pointed out 12 pillars of components that make a country competitive. Three most important pillars of competitiveness have been constructed to provide a shorter and less complex version of the global competitiveness index, namely the growth competitiveness index. This index consists of indices grouped together under: Technology and Innovation, Institutions and Macroeconomic structure. According to the representatives of the WEF these are the most important factors of national economies that ensure widely comprehended competitiveness.

A more concise definition on competitiveness is provided by the Organization for Economic Cooperation and Development (OECD). The OECD defines competitiveness as follows:

*“The degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term.”*

The competitive region is defined as “*a region where the optimal structural relations between production factors, in changing conditions, are used to improve*



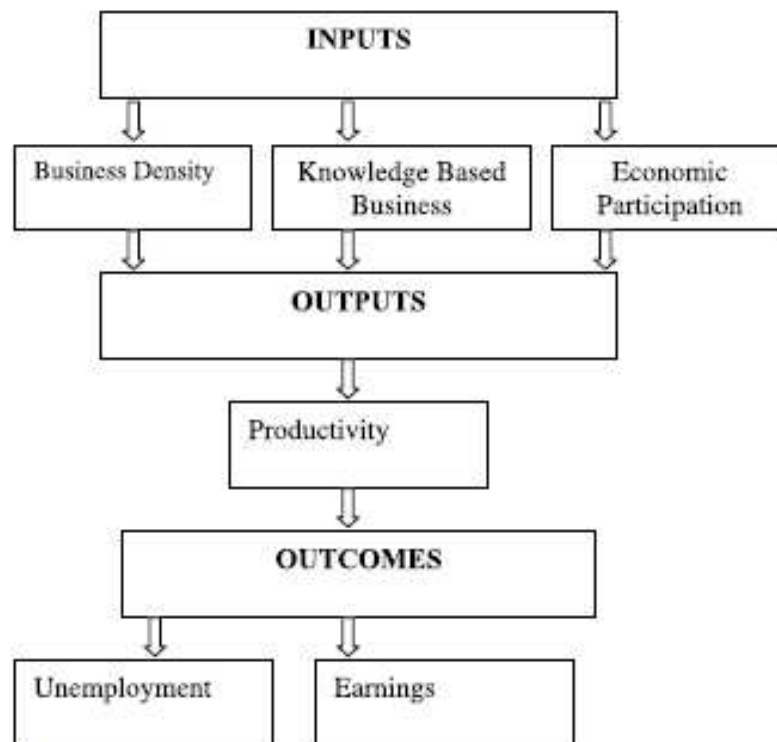
*inhabitants, standard of living, attract new investors and encourage multi-purposed development of the area”* (Ciechomski 2004).

Although, there are a number of studies concerning competitiveness in literature, we take up the definition formed by Robert Huggins Associates. They describe “*competitiveness as referring to the capacity of an economy to attract and maintain firms with stable or rising market shares in an activity, while maintaining stable or increasing standards of living for those who participate in it*” (Huggins 2004).

The competitiveness can be examined from two perspective. One of them take into account the potential level of competitiveness of nations or regions and this is so-called ex-ant approach. And there is also second method which is relying on the revealed effect of competitiveness. The competitiveness ranking created in this paper will use both perspectives and combine them into one approach. The carried out analysis of the regional competitiveness enable us to identify the most important factors and conditions which contribute to the economic development. The importance of the phenomenon of competitiveness is entrenched within economic policies both at national and regional level. That is why measuring and analyzing competitiveness become inherent factor of boosting economic performance of nations and regions.

### 3 Research framework

In order to present the performance of regional competitiveness in Poland we created an overall index which forms a composite picture of how Polish regions are performing and highlight the weaknesses, strengths and disparities that exist across Poland in terms of economic development and prosperity. We used the method worked out by Robert Huggins Associates. They produce the World Knowledge Competitiveness Index, which seeks to benchmark the globe’s leading knowledge economy regions and the European Competitiveness Index which ranks cities and regions (Robert Huggins Associates 2004a, b). There are 16 voivodships in Poland and there are substantial economic disparities between them. In order to create an index concerning the overall picture of regional competitiveness and measure the level of competitiveness of Polish regions we followed the Huggins Institute approach (Huggins 2003). They identified the crucial variables required to assess the regional competitiveness and to rank regions according to the scores on these variables. They took into account the impact of three different categories: inputs, outputs and outcomes. The key input factors were: business density, knowledge based business and economic participation, although, there were many indicators underneath these subsets. Next, these variables were conceptualized as contributing to the output – productivity, measured GDP per capita. And finally, as the impact of these measures – the outcomes – the earnings and unemployment were given (see the Fig. 1). Then they ranked regions according to different assumptions on the importance of his indicators, checking for robustness of his factor model (Huggins and Davies 2006). This approach provided an overall picture of the regional level of competitiveness. In this paper data of essential measures were gathered from Eurostat and Central Statistical Office of Poland (GUS) sources.



**Fig. 1** Three-factor model for measuring local and regional competitiveness

The comparative analyses covered the evaluation of:

- *GDP per capita*,
- *Average earnings (full time wages)*,
- *Business density*: the number of patent application, business units per million inhabitants in machinery and equipment manufacturing, post and telecommunications, research and development, the number of entities newly registered in public sector, and the number of entities newly registered in private sector,
- *Knowledge based business*: the number of patent applications per million inhabitants in: high tech, ICT, biotechnology, percent of business units of total em-

**Table 1** Potential weighting scenarios for the composite index

	Business density	Knowledge based business	Economic participation	Productivity	Earnings	Unemployment
3-factor model	1	1	1	3	1.5	1.5
Equal weighting	1	1	1	1	1	1
Knowledge-intensive	1	3	1	1	1	1
Outcome-biased	1	1	1	3	1	1
Input-biased	3	3	3	1	1	1
Output-biased	1	1	1	1	3	3
Activity-led	1	1	3	1	1	1
Earnings-led	1	1	1	1	3	1
Business density-led	3	1	1	1	1	1

Sources: Huggins (2003)

Table 2 Composite indices for a range of weighting scenarios

Poland	Equal weighting		3-factor		Knowledge intensive		Outcome biased		Input biased		Output biased		Activity biased		Earning biased		Business density biased		Final ranking
	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	
pl11 Łódzkie	90,2	7	93,4	10	82,3	7	79,6	7	85,6	9	93,8	7	90,9	7	91,2	7	90,6	88,64148	7
pl12 Mazowieckie	204,6	1	187,4	1	228,3	1	179,3	1	236,1	1	174,9	1	203,5	1	188,2	1	229,3	203,53	1
pl21 Małopolskie	130,9	3	120,0	2	147,1	4	106,5	3	144,6	3	122,1	3	131,7	3	123,0	4	134,6	128,9457	3
pl22 Śląskie	141,1	2	132,6	3	134,8	2	124,5	2	157,0	2	125,9	2	161,3	2	133,7	2	151,1	140,2345	2
pl31 Lubelskie	83,6	12	84,7	9	85,9	12	65,8	10	76,2	8	94,2	13	74,3	10	86,2	8	79,5	81,14631	10
pl32 Podkarpackie	76,3	14	78,7	12	69,9	14	62,7	13	68,9	12	85,3	12	78,7	13	79,6	13	69,1	74,35078	13
pl33 Świętokrzyskie	64,2	16	72,0	16	55,7	16	57,2	16	50,8	15	76,3	16	60,7	16	71,6	16	56,2	62,74923	16
pl34 Podlaskie	85,7	9	87,3	7	91,0	11	68,9	9	78,4	6	95,3	10	80,2	9	87,9	12	74,9	83,27333	9
pl41 Wielkopolskie	111,7	5	111,7	6	107,4	5	99,8	5	114,3	5	107,6	5	114,8	5	108,2	5	116,9	110,2475	5
pl42 Zachodniopomorskie	78,8	11	84,9	13	69,9	9	74,4	12	71,6	14	83,1	11	79,6	12	84,0	10	76,2	78,05903	12
pl43 Lubuskie	87,3	8	90,1	8	90,4	8	77,9	8	83,6	10	89,7	8	90,0	8	88,5	11	76,0	85,96411	8
pl51 Dolnośląskie	125,0	4	118,2	4	133,5	3	111,5	4	138,2	4	112,2	4	125,6	4	120,5	3	135,8	124,4999	4
pl52 Opolskie	73,6	13	81,1	14	67,0	13	65,2	14	61,0	13	84,9	14	69,0	14	79,4	14	66,0	71,91269	14
pl61 Kujawsko-Pomorskie	81,6	10	86,2	11	74,8	10	74,1	11	75,7	11	85,7	9	82,5	11	84,4	9	78,7	80,40586	11
pl62 Warmińsko-Mazurskie	66,0	15	72,7	15	58,8	15	59,5	15	55,2	16	75,4	15	63,3	15	72,2	15	59,7	64,76154	15
pl63 Pomorskie	104,6	6	104,6	5	107,5	6	93,1	6	105,4	6	103,5	6	98,0	6	105,5	6	109,5	103,525	6



Fig. 2 The map of 16 Polish voivodships

Table 3 Ranking of regional competitiveness

Rank	Region	Code
1	Mazowieckie	MA
2	Śląskie	SL
3	Małopolskie	MP
4	Dolnośląskie	DS
5	Wielkopolskie	WP
6	Pomorskie	PM
7	Łódzkie	LD
8	Lubuskie	LB
9	Podlaskie	PD
10	Lubelskie	LU
11	Kujawsko-Pomorskie	KP
12	Zachodniopomorskie	ZP
13	Podkarpackie	PK
14	Opolskie	OP
15	Warmińsko-Mazurskie	WM
16	Świętokrzyskie	SW

ployment in total knowledge intensive services, percent of business units of total employment in high and medium tech manufacturing, expenditures on innovation activities, expenditures on research development activity,

- *Economic participation*: the number of upper secondary students, vocational educational students, tertiary students (academic), tertiary students (occupations), economic activity rate,
- *Unemployment*,
- *Earnings*.

The 16 Polish regions (see the Fig. 2) were ranked according to their scores on each indices. Then was assessed the importance of business density, knowledge based business, economic participation, productivity, earnings and unemployment on the basis of the scenarios created by Huggins Institute (see the Table 1). And afterward we achieved the final *f* results of competitiveness of Polish 16 voivodships (see the Table 2 and Table 3). In Huggin's article UK competitiveness rankings are created on both the regional and local level to compare the performance of the regions (Huggins 2003). Based upon factor analysis Huggins proposes a weighing system for different components of competitiveness and test the robustness of the results with different weighing systems.

In this paper we could consider only the regional dimension, data concerning the communes from local level was not available. The number of cases in this research ( $N = 16$ ) did not allow for a detailed statistical analysis. Here we deviated from Huggins' approach by taking the results of his factor analysis on the regions and localities in England and compared the ranking of this weighing systems to the other proposed weighing systems for the competitiveness of regions and applied this on the Polish regions. We tried to use this approach for the 16 voivodships in Poland to first of all rank the regions according to their competitive position and secondly to see whether Huggins approach can be used to measure Polish competitiveness as well.

#### 4 Index of regional competitiveness

The regional competitiveness specified in the created ranking means competitiveness resulting from objective conditions. The most competitive Polish region is undoubtedly the Mazowieckie voivodship. It took the first position regardless of the scenarios taken into account. It is a capital region where significant concentration of economic activity occurs in the political center of the country. In the top head of ranking we can find also Śląskie, Małopolskie and Dolnośląskie voivodships. These are the regions that have the ability to attract skilled, creative and innovative people, to provide high quality cultural facilities; and to encourage the development of social networks and institutional arrangements that share a common commitment to regional prosperity. These are also regions that have the highest density of firms, the most knowledge-intensive firms and the highest level of economic participation. Furthermore, relatively developed infrastructure and low labour costs combines with labour force skills, all contributed to stimulate markets and encourage investment into Mazowieckie, Małopolskie, Śląskie or Dolnośląskie regions (Gorzelać 2000). In these regions new firms stimulate competitiveness via market selection and competitive pressures, by forcing less efficient incumbents to exit or to improve their productivity this way, both the creation and destruction of firms may improve competitiveness (Bosma et al. 2006). The more middle-ranked regions have more fluidity in their rankings.

The most economically disadvantaged regions in Poland are located at the eastern periphery of the country, namely Świętokrzyskie, Warmińsko – Mazurskie, and Podkarpackie voivodships. The poor economic performance of these regions can be

caused by the predominance of agriculture in regional economy and also because of the comparatively unfavorable geographical location of those regions. They border with less economically developed countries like Belarus, Ukraine and Russia what makes difficult new economic initiatives and limits the opportunities for fruitful trans-border cooperation (Sadowska-Snarska 2002). It is widely acknowledged that less developed regions face particular challenges in promoting and developing innovation potential (Boeckhout 2004). The problem of these regions is an absence of basis innovative capacity in business what is especially significant in such areas as Podlaskie, Warmińsko-Mazurskie, Podkarpackie and Opolskie voivodships. That is why here should be put more emphasis on mobile investment and on creating environments where high-quality business can start and succeed (Turok 2004).

The standard measure of regional success is GDP per capita. The most affluent voivodship in Poland with GDP per capita of 164% of the national average is Mazowieckie. Among the other regions, above average GDP per capita have also Śląskie, Wielkopolskie, Dolnośląskie and Pomorskie. Furthermore GDP growth in Polish regions is characterized by high regional concentration, namely Mazowieckie, Śląskie and Wielkopolskie generate one fourth of the total gross domestic products. With regard to the unemployment, in 2005 17.7% of the active labour force in Poland was unemployed. Recent developments on the Polish labour market justify some optimism, but a heavy structural unemployment component makes rapid improvement unlikely (Narożny 2006). Ideally, both employment growth and productivity growth should go together (Kitson et al. 2004): increasing productivity causes an improved competitive position, which leads to higher demands of the goods and services produced, which in turn leads to an increased demand for labour inputs (Bosma et al. 2006).

## 5 Conclusion

In the world of “performance indicators and ranking” it is apparent that regions should be compared against each other in terms of their economic position. The present article looked at competitiveness from a regional perspective and has attempted to conceptualize regional competitiveness by combining some data, namely inputs, outputs and outcomes into one global index. It allowed to measure the state of Polish 16 regions and ranked them according the final result. The Huggins approach concerning competitiveness was applied in order to create the ranking of competitiveness of Polish regions consisted of many different components. The ranking enabled both the examination of the performance of regions and comparison the state of Polish voivodships.

Poland represents a country with growing regional disparities which is an unavoidable consequence of the process of transformation and economic growth. However the differences in economic development of the Polish voivodships will not fade in the next few years, the gaps between the most and least rapidly developing regions are to widen (Sadowski 2005). The low level of ability of the economy to introduce innovations, observed in almost the whole country, has a great impact on the slow course of restructuring processes among enterprises as well as on structural changes. Therefore the basis of the country's competitive advantage has to be redefined (Weresa

2006). Investment in research and development are crucial, furthermore the engines for growth are improvements in both technology and human capital. It is worth to remember that improvement in competitiveness is not a linear process, but the enhancement of competitiveness requires progress on multiple areas simultaneously.

Nowadays, regional competitiveness is an outcome of economic performance, based on various factors. The level of regional competitiveness depends mainly on the quality of human capital, innovations, knowledge and efficiency of local economy and is determined by long-term perspectives of development.

**Open Access** This article is distributed under the terms of the Creative Commons Attribution Noncommercial License which permits any noncommercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.

## References

- Boeckhout S (2004) Regional innovation strategies in Poland: Lessons and Recommendations. ECORYS Research and Consulting, Rotterdam
- Bosma N, Stam E, Schutjens V (2006) Creative destruction and regional competitiveness: Scientific analysis of entrepreneurship and SMEs. SCALES, Zoetermeer
- Budd L, Hirmis AK (2004) Conceptual framework for regional competitiveness. *Reg Stud* 38(9):1015–1028
- Czyżewski AB, Orłowski WM, Zienkowski L (2003) Macroeconomic costs and benefits of Poland's membership in the EU: Analysis and evaluation in cost and benefits of Poland's membership in the European Union. Centrum Europejskie Natolin, Warsaw
- Dunning J, Bannerman E, Lundan SM (1998) Competitiveness and industrial policy in Northern Ireland. Monograph 5, March. Northern Ireland Research Council, Belfast
- EU (2006) European competitiveness Report 2006. Commission Staff Working Paper SEC
- European Commission (2004) A new partnership for cohesion: Convergence, competitiveness and co-operation. European Commission, Brussels
- Gorzela G (2000) Poland. In: Bachtler J, Downes R, Gorzela G (eds) Transition, cohesion and regional policy in central and eastern europe. Ashgate Publishers, Aldershot, pp 125–154
- Grosse TG (2006) Euro-commentary: An evaluation of the regional policy system in Poland: Challenges and threats emerging from participation in the EU's cohesion policy. *Eur Urban Reg Stud* 13:151–165
- Huggins R (2003) Debates and surveys creating a UK competitiveness index: Regional and local benchmarking. *Reg Stud* 37(1):89–96
- Huggins R, Davies W (2006) European Competitiveness Index 2006–07. Robert Huggins Associates Ltd, United Kingdom
- Hübner D (2004) Impact of the membership in the European Union on economic growth in Poland. Transformation, Integration and Globalization Economic Research. No 51, Warsaw
- Kitson M, Martin R, Tyler P (2004) Regional competitiveness: An elusive yet key concept? *Reg Stud* 38:991–999
- Lobatch AI (2004) EU membership and growing regional disparities: Poland's strategy options to optimize structural transfers from the union. Paper presented at the twelfth NISPAcee annual conference "Central and Eastern European countries inside and outside the European Union: avoiding a new divide", Vilnius, Lithuania, May 13–15 2004
- Martin RL (2003) A study on the factors of regional competitiveness. A draft final report for the European Commission Directorate-General Regional Policy. ECORYS-NEL, Rotterdam
- Ministry of Regional Development Poland (2004) Sectoral operational programme improvement of the competitiveness of enterprises years 2004–2006. Ministry of the Economy Labour and Social Policy, Warsaw
- Narozny M (2006) High unemployment in Poland – not only a labour market problem. Economic analysis from the European Commission's Directorate-General for Economic and Financial Affairs, vol III, Issue 6, Office for official Publications of the European Communities, Luxembourg

- Porter ME (2000) Location, competition and economic development: Local clusters in a global economy. *Econ Dev Q* 14(1):15–34
- Porter ME (2003) The economic performance of regions. *Reg Stud* 37(6–7):549–578
- Porter ME, Ketels CHM (2003) UK competitiveness: Moving to the next stage, DTI Economic Paper 3. Department of Trade and Industry, London
- Robert Huggins Associates (2004a) World knowledge competitiveness index. Robert Huggins Associates, Pontypridd
- Robert Huggins Associates (2004b) European competitiveness index. Robert Huggins Associates, Pontypridd
- Sadowska-Snarska S (2002) Struktura Gospodarki a Poziom Rozwoju Regionów Wschodniej Polski (Economic structure and the level of development of eastern Polish regions). In: Sadowska-Snarska S (ed) *Problemy Rozwoju Przygranicznych Regionów Wschodniej Polski* (Problems of development of border regions in eastern Poland). Białystok School of Economics, Białystok, pp 131–165
- Sadowski M (2005) Poland: Regional economic forecasts 2005–2008. PMR, Kraków
- Tomidajewicz JJ (2003) Sektory Wrażliwe na Proces Integracji z UE a Problemy Polityki Gospodarczej w Procesie Akcesyjnym (Sectors Vulnerable to the Process of Poland's Integration into the European Union and the Problems of Economic Policy in the process of Poland's accession to the EU). In: Tomidajewicz JJ (ed) *Polityka Gospodarcza w Procesie Akcesji Polski do UE* (Economic policy in the process of Poland's accession to the EU). Wydawnictwo Akademii Ekonomicznej, Poznań
- Turok I (2004) Cities, regions and competitiveness. *Reg Stud* 38(9):1069–1083
- WEF (2004) The global competitiveness report 2004–2005. Palgrave Macmillan, Hampshire, England
- Weresa MA (2006) Science, technology and innovation. In: Weresa MA (ed) *Poland competitiveness report 2006 the role of innovation*. World Economy Research Institute Warsaw School of Economics, Warsaw
- Zuber P, Sudak S (eds) (2007) *Ocena postępów Polski w zakresie spójności z Unią Europejską* (The evaluation of development Polish cohesion policy with the European Union). Ministerstwo Rozwoju Regionalnego, Warszawa 2007