AN UNFINISHED PROJECT OF AN INNOVATIVE BOOK ABOUT DEMO(GRA)STATISTICS AND DEMOGRAPHYSICS (STILL AVAILABLE FOR ANY INTERESTED PUBLISHING HOUSE)

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Abstract. *A new book may not appear for reasons independent of the will of the authors... This article describes a project of such a book that has never appeared before and which I discussed with two good friends and co-authors, Mircea Gligor and Constantin Andronache, who unfortunately disappeared shortly after each other. The idea of the book was probably the result of the activity of a demographer and statistician, on the one hand, but also of the desire to dissipate the reservations towards classic demography and especially in relation to the falsifications present in the statistics of classic socialist type demography in particular (Alain Besancon). I have not modified the initial project, part of which exists as ideas in the articles published in the ESMSJ magazine over the years. The project was sent to a prestigious publishing house (ELSEVIER) which had already published Econophysics: Background and Applications in Economics, Finance, and Sociophysics (2012), but it was refused at this stage and then suddenly interrupted by the disappearance of Mircea Gligor and more recently of Constantin Andronache ... Maybe other authors or other publishing houses will find resources to initiate a better project, and in their memory I saw fit to publish it as an independent article. I left almost everything in the present tense in the project, the past and the future being always subjective for any observer, especially when he considers himself independent. If I think about it better, even in the present time, the observer who declares himself independent, but never being so, can influence the development of any experiment or project...*

Keywords: *Interdisciplinary Sciences; Demography; Demo(gra)statistics; Demographysics; Book project.*

1. INTRODUCTION

The project of this demographics book was no longer completed because my good friend Mircea Gligor died during his teaching activity and left a huge open space in the hearts of those who knew him. A few years later, Constantin Andronache also left the collaboration space just as suddenly and with the same astonishing modesty specific to these completely open minds. I decided to publish this project because I hope that in the future someone will try to rethink it by capitalizing on Artificial Intelligence, why not.

2. PROSPECTUS FOR DEMO(GRA)-STATISTICS AND DEMOGRAPHYSICS

Book title: Demo(gra)statistics & Demographysics
Editor: *Gheorghe Săvoiu*

Authors/Contributors: Gheorghe Săvoiu & Mircea Gligor (Andronache Constantin)

Aims and Scope

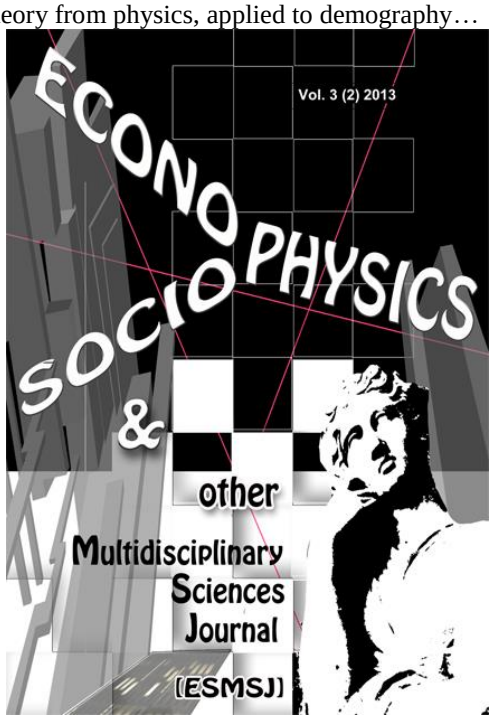
This book represents a totally new approach to the phenomena specific to classic demography [1], but also to interdisciplinary sciences like demo(gra)-statistics and demographysics by means of statistical methods or instruments and physical modelling. The structure of the book is balanced, falling in three parts; the first describes classical demography and the emergence of demo(gra)-statistics and demographysics, the second one to statistical methods and instruments or physical models applied to the study of demographical phenomena, and the last part identifies a set of collateral interdisciplinary approaches that were opened, beyond classical demography, by the creative demo(gra)statistics estimations and demographysics prognoses.

The first part starts with a brief review of the appearance of the alphabet and the first writings about demography, followed by a succinct history of censuses and its importance as the measurement of the major political, military, economic and social factor, as well as the new impact of statistical methods or instruments and physical modelling on censuses. Inside a distinctive chapter, the assault or even onslaught of the twelve classical demographies is described together with the structure and delimitations of classical demography. The theoretical mirrors of the world's populations and their artisans, as well as the historical and quantitative evaluation of the number and structure of the population, as a statistical and economic synthesis of classical demographical evolution, are well delimited and necessary topics.

The second part of the book is defined through its pragmatic character and the innovativeness of the statistical methods and instruments or of the physical modelling, through theories generating new solutions, ready to offer more clearly explanations to complex and various contemporary demographical phenomena, from urban planning, demographical networks, social impact, phase transitions, series of temporal data of demographic character, evolutions of the fractal type of towns and cities, profiled methods, etc. The collateral interdisciplinary approaches open and the demographic prognoses describing a century

polarized through demographic explosion and implosion end the book by a number of remarks.

Therefore, this book, as one written by two (maximum three) members of the group of the international workshop EDEN called Romanian school of Econophysics and Sociophysics, offers a different approach to human population than the classical demographical vision, based on statistical methods and instruments, and also on models and theory from physics, applied to demography…



EDEN was periodically interrupted by ARFYT as a natural need for better scientific knowledge and understanding of the more complex reality of modern research, inter- trans- and multidisciplinary education, classical demography, new economics, and sociological phenomena.

The book also presents interdisciplinary sciences of demo(gra)statistics and demographysics, as new scientific paradigms and new terms, based on original statistical methods, techniques and instruments or innovative models from physics. These narrative and applied texts reveal new solutions for the changing reality in modern demography. Based on the key points and paving the ground for a better knowledge approach book is somehow supported and expressed in examples, case studies and prospective aspects, calculus, measurements, indicators and indices. This new approach will hopefully distinguish this book as an original point of view from any other books and articles dedicated to classical demography.

In order to reach a large audience, and to address key policies in demographical phenomena and issues, as well as highlighting the originality of the new vision, presenting interdisciplinary sciences of demo(gra)statistics and demographysics based on physical models and thinking principles and ideas of this book relates to global evolution of population in the international milieu.

Readers include undergraduate students, bachelors, MA students, PhD students, professional researchers and academic teachers, and also any other specialists inspired by passion for demography, and perhaps for the new inter-disciplinary sciences of demo(gra)statistics and demographysics and analysts from the media following the demographic context, and derived politic, military, economic and social phenomena.

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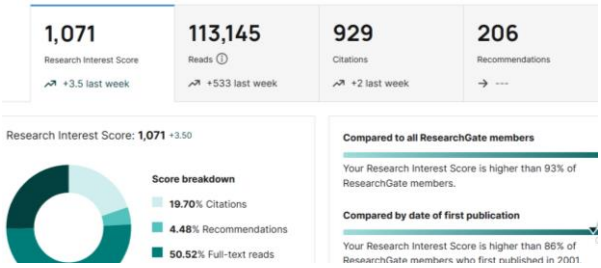
(Co)Author or editor of more than 40 books: Romanian Statistics Society (RSS) - Science, Research, Practice and Statistical Education (2016), Conceiving, Writing and Publishing A Scientific Paper. An approach in the Context of Economic Research (2016), Statistical Financial Accounting Situations and Derived Statistical Indicator Systems (2013),Economic-financial modelling. Econometric thinking applied in the financial field (2013), Economic - financial modelling. Econometric thinking applied in the financial field (2013), Econophysics: Background and Applications in Economics, Finance, and Sociophysics (2012), Multidisciplinarity and academic education (2011),

Applied statistical thought (2010), Exploratory Domains of Econophysics. News EDEN I&II (2009), Statistics. A scientific way of thinking (2007), The world population between demographic explosion and implosion (2006), Some marketing researches and models, Quantitative methods of market research (2005), The Price Universe and interpreter indices (2001), etc.

(Co)author of 70 papers Core Collection Web of Sciences (WoS), and 250 journal and conference papers. Project manager / member of the project's team in more than 10 projects.

Major domains of interest: Statistics, Econometrics, Econophysics, Sociophysics, Demography, Scientific Research, Logic, Philosophy, Economics, Marketing researches, Ecology, Management's methods, Price universe and interpreter indices, Rural tourism, etc.



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Competing Titles

There is no similar book or similar paper's approach, but there are some important references for this original idea of Demographysics, by definition *unifying* the scientific Physics thought with the demographical laws and theories, and thus, bringing together an increasingly large number of demographic facts and observations, supplemented with the maximum value of physics' knowledge (models and methods which exceed even those specific to logic, mathematics, etc.) [2-4] :

[2] Stewart, John Quincy, 1948. *Demographic gravitation*. Beacon, N.Y.: Beacon House. Sociometry, 11, no. 1-2, pp. 31-58. [(OCoLC)826631559; OCLC Number: 54700889]

This fundamental paper is an attempt to use equations and notions of classical physics - such as gravity - to seek simplified insights and even laws of demographic behaviour for large numbers of human beings. A basic conception within it is that large numbers of people, in a city for example, actually behave as an attractive force for other people to migrate there, hence the notion of demographic gravitation.

[3] Schweitzer, F., Steinbrink, J, 1998. *Estimation of megacity growth: simple rules versus complex phenomena*. Applied geography (Sevenoaks, England) 1998 Jan; 18(1), pp. 69-81

This paper describes the growth of large urban aggregates (megacities) being analogous to the development of self-organized structures known in physics. Using empirical data about changes in the built-up areas of different cities as input, the self-organizing model employed here suggests that megacities evolve towards a hierarchical form of spatial organization, and provides estimates of the size of subclusters that compose the urban aggregate.... The model has been validated by reproducing the evolution of the Berlin area over a period of 35 years (1910-45). Using the same assumptions, the evolution of the built-up area of Daegu (Korea) is simulated up to the year 2010.

[4] Stauffer, D. and Solomon, S. 2009. *Physics and Mathematics Applications in Social Science*. Encyclopedia of Complexity and Systems Science / Ed. by R. A. Meyers, pp. 6804-6810, New York, NY. Springer.

This paper introduces into the world of Social Sciences, concentrating on the applications of physics in this domain, including also computer simulations taken from physics, and applications of these simulations of models which basically existed already in physics before they were applied to social.

****Note: The project of the book is drafted per chapters in proportion of 50%, and the book can be edited in approximately 6 to 9 months.*

PART I
CLASSICAL DEMOGRAPHIES AND THE EMERGENCE OF DEMO(GRA)STATISTICS AND DEMOGRAPHYSICS

Chapter 1. Author: Gheorghe Săvoiu
ALPHABET, WRITINGS ABOUT CENSUSES, POPULATION, AND THE REAL IMPACT OF STATISTICAL METHODS & PHYSICAL MODELS

A first signification of classical demography leads towards a broader concept, that of "writing about human population". A second acceptation is that

of a science, the object of which is human population, as a well delimited system, benefiting from relative autonomy, where the stress is laid on the variables of state and level, on the inputs into, and the outputs from the described system, and especially the structural changes, the dependencies, interdependences, associations and correlations between the characteristic variables of the population, its scientific methods and models being essential. Starting from the fact that demography as writing about population is based on a largely used alphabet, identification of the emergence of demography in parallel with that of writing appears as natural. In general, the European origin of the first alphabet was accepted, and thus the fact was recognized that the first symbolic and literal, but especially accessible, type of writing was the Phoenician one dated 900-800 B.C. The difficult Phoenician alphabet gradually turned into a new one, the Hellenic alphabet, and then the latter generated the Latin one, which lies at the foundation of the first truly rigorous census methodology-wise. Yet today it the physical model that can give demography greater clarity and once it has been integrated, demography becomes demographysics.

Keywords: *demography, alphabet, census, physical model, demographysics.*

Chapter 2. Author: Gheorghe Săvoiu

ASSAULT OF THE TWELVE CLASSICAL DEMOGRAPHIES AND DEMOGRAPHYSICS

The interdisciplinary demographies seem to be nowadays the adequate expression of the integrating approached of the human population, through the reunited sphere of the preoccupations of these numerous sciences, which search to explain in a more and more various and detailed way, our human dynamic, both in its quantitative side, and, especially, in the qualitative one. The exit of the new demographies from the captivity of other scientific disciplines was accomplished through an original process of segmentation comparable to the phenomenon of fission, followed by the free joining of the new demographies to the nucleus of other divided fragments from the classical sciences, free as well, but forced to state a new identity of the object and characteristic methods, in the so complex field of the contemporary science, during this period of globalization. The most adequate solution for the future seems to be demographysics as an expression of unifying the classical and modern laws and statistical methods of demography with physical models.

Keywords: *Interdisciplinary demography, objects & methods, demometria, mathematic demography, potential demography, social & economic demography, biometry, descriptive demography, regional demography, historical demography, demo(gra)statistics & demographysics.*

Chapter 3. Author: Gheorghe Săvoiu

THE THEORETICAL MIRRORS OF THE WORLD'S POPULATIONS AND THEIR ARTISANS

The demographic conceptions or the theories about population constitute themselves in a coherent explanatory system of the human population's evolution by means of dependencies, interdependencies, associations and correlations of the demography with economy, biology, sociological history and other various social sciences, the role of the resources, of the scientific progress and of other cultural factors being very well mentioned in comparison with demographic dynamic. From Thomas Robert Malthus to his contemporary alter-ego, famous authors of the theory of "the demographic explosion," Robert Cook and Paul Ehrlich, from the trend of human ecology of the Chicago School, with its famous representatives Robert E. Park, Roderick McKenzie and Ernest W. Burgess to Philip Longman or S. P. Kapitza, the long road of the demographic theory, mainly of the theories about the human population, remains an extremely exciting and attractive, aggressive and even speculative sometimes, but interrogatively existential, and, often, of an inadequate economic opportunism one.

Keywords*: population and the means of subsistence; Malthusian thinking; demographic, explosion; demographic transition; demographic revolution; stationary population; optimal population; demographic implosion.*

Chapter 4. Author: Gheorghe Săvoiu

NUMBER AND POPULATION STRUCTURE: A STATISTICAL & ECONOMIC SYNTHESIS OF THE EVOLUTION OF MAJOR CLASSICAL DEMOGRAPHIES

The number of the human population had reunited both in its quantitative side, and, especially, in the qualitative one, the most significant aspects of the various and detailed human evolution and dynamic. This demographic and synthetic indicator allowed a detailed and original process of population segmentation in the field of the contemporary analysis. Referring to a new process of demographic evolution and defining the population's decline, demographers like Ehrlich and Longman have used the concept of demographic explosion but with the opposite demographic implosion too. World population through the accomplishment of the United Nations Population Revision or UNO prognosis, seems to be forever somewhere between the limits of explosion and implosion.

Keywords: *Average number of population**;** equilibrium; demographical phenomenon; demographical event and method; cohort; explosion and implosion**;** world migrant stock; registered and estimated number of population.*

PART II
STATISTICAL METHODS AND PHYSICAL MODELS APPLIED TO THE STUDY OF DEMOGRAPHICAL PHENOMENA

Chapter 5. Author: Mircea Gligor
THE METHODOLOGICAL FRAMEWORK: THE SOCIAL TIME SERIES ANALYSIS AND THE CLUSTER VARIATION METHOD

Modelling dependence in the social sciences has to take into account circumstances that differ substantially from those encountered in the natural sciences. First, experimentation is usually not feasible and is replaced by survey research, implying that the explanatory variables cannot be manipulated and fixed by the researcher. Second, the number of possible explanatory variables is often quite large, unlike the small number of carefully chosen treatment variables frequently found in the natural sciences. The demographic time series are simply too short and noisy. Most social data have a quarterly or at most monthly frequency. When such time series have been produced for a very long period, there is usually strong evidence against stationarity. That is why in the first part of the chapter we introduce a new method to study the social time series, namely the Moving Average Minimal Length Path (MAMLP) algorithm that is an improved version of the classical Minimal Spanning Tree (MST) algorithm. This algorithm allows us to search for a cluster-like structures derived both from the hierarchical organization of countries and from their relative movement inside the hierarchy. In the second part of the chapter, the Cluster Variation Method known in statistical mechanics and condensed matter is revived for weighted bipartite networks. The decomposition of a Hamiltonian through a finite number of components, whence serving to define variable clusters, is recalled. As an illustration the network built from data representing correlations between four macro-economic features, i.e. the so called vector components, of several EU countries, as (function) nodes, is discussed. In the last section of this chapter the correlations between major demographic variables of 27 European countries are scanned in various moving time window sizes, taking into account the square averaged correlation coefficients, the network average degree and the weight set variance. The statistics of the weight distributions as well as the adjacency matrix eigensystem are discussed. The second section describes some of the investigated properties of the demographyc weighted networks, using statistical physics tools, taking into account the statistical ensemble of the networks with fixed number of vertices. The concept of entropy based may offer some more information about the structure, stability and evolution of the EU demography and demographyc country clusters.
Keywords: *Fluctuations, correlations, network, clusters, free energy, entropy.*

Chapter 6. Authors: Mircea Gligor & Gheorghe Savoiu
CRITICAL PHENOMENA AND PHASE TRANSITIONS WITHIN THE MODELS OF MIGRATION BASED ON THE THEORY OF SOCIAL IMPACT AND OTHER THEORIES

This chapter details a first section the history of demographical theories about migration (from classical theories of migration to modern theory of networks centred on physical models). Theoretical physics applied in the field of social sciences, generates a new field of investigation, commonly called Sociophysics, as a natural extension of Econophysics (both area being developed mainly in the last decades of the XXth century). Demographysics, as a similar result to the both sciences, applies models and methods of physics to the study of demographical processes and phenomena. Demographysics gradually became a kind of socio-based physics, and has also adapt the methods developed in theoretical biophysics and neural networks, placing them in the broader category of "complex physics phenomena", as almost all demographical processes are indeed. Except for a few notable previous work (H. Haken, 1983, EW Montroll, 1987), social sciences physics was imposed only after 1995, with the publication of a large number of papers dealing with extremely diverse phenomena, requiring a real time for Demo(gra)statistics and Demographysics to be born. These new sciences have developed and applied many methods and models from Statistics Physics into new demographical domains during the first decade and nearly half of the second during the XXIst century and migration is only one of the most adequate such an adaptation and application of physics thinking. We show that some usual methods of the statistical mechanics, namely the renormalization group theory and the noise induced transitions formalism, may be applied in order to study the critical behaviour of the demographic indices. As application, we consider the live births per 1000 population. The drastic decrease of this index on certain periods takes the specific features of the phase transitions as it follows approximately a power law and, as well, its variation leads to the complete change of the population age structure. The values of the critical exponents that are obtained by fitting the experimental data referring to some East European countries are in agreement with the value resulting from the theoretical approach, thus showing the universality of the power law behaviour in the vicinity of the critical point. In order to describe the nonlinear evolution of the index, a feedback mechanism is introduced, improving in this way the

one-dimensional variant of the model. We study further the influence of the noise on a control parameter and the conditions in which noise induced transitions arise.

Keywords: *Migration, physical model and method, critical phenomenon, phase transition, theoretical biophysics and neural networks, theory of social impact.*

Chapter 7. Author: Mircea Gligor

PHISICS OF URBANISM: NONLINEAR MODELS FOR THE FRACTAL EVOLUTION OF CITIES AND TOWNS

Some of the main ideas of the fractal city theory are briefly reviewed, and their applicability is tested for the medium and small-size Romanian urban settlements. In some previous works (Gligor, M. and Gligor, L. 2008) have considered the fractal distribution of cities in Romania by population and area of the urban perimeter. The dataset was taken according to the 2002 census, referring to 265 urban settlements. Subsequently, there were officially declared an additional 55 towns (Wikipedia.org). In Romania, to the end of the year 2011, there were 320 towns. In the present chapter, the author demonstrates that using the updated dataset, the basic features of distributions remain essentially the same. Regarding to the urban area development, the diffusion-limited aggregation with dendritic-like growth (modelling The Central Place Theory of Christaller and Beckman) was proved to be in disagreement with the urban area development. Instead, the diffusion-limited aggregation with correlated percolation and self-organized criticality mechanisms are found to fit well the urban perimeter growth. Finally, the streets of a small Romanian town (Roman) were found to display the statistical structure of a scale-free network. The last model allows us to simulate complex phenomena like epidemic/rumour propagation and to find the most efficient lines of the urban development. In the second part of the chapter, the Central Places Theory, the diffusion-limited aggregation and the self-organized criticality mechanisms are investigated by means of some numerical simulations and the last two are found to fit better the urban perimeter growth. [5]

Keywords: Zipf law, master equation, diffusion-limited aggregation, self-organization.nonlinear model, cities and towns evolution, fractals, demographical area, rural and urban development.

Part III

OPEN COLLATERAL APPROACHES AND DEMOGRAPHIC, STATISTICAL AND DEMOGRAPHYSICAL PROSPECTIVE

Chapter 8. Savoiu Gheorghe

A DEMOGRAPHIC, ECONOMIC AND STATISTICAL APPROACH TO RELIGION AND WELFARE

This chapter was inspired by the Emil Durkheim's *classical definition of religion as a "unified system of beliefs and practices relative to sacred things, that is to say, things set apart and forbidden-beliefs and practices which unite into one single moral community...". Another starting point is Irving Hexham opinion that "today, there is an overemphasis on certain narrowly defined academic traditions in Religious Studies to the neglect of studies dealing with religion as it actually occurs in the world". The classification of major religions is fairly recent. During the 1800s, Islam, Hinduism, Buddhism joined Judaism and Christianity on the list. Eventually, five smaller religions were officially recognized: Confucianism, Daoism, Jainism, Shinto and Zoroastrianism. Traditions and religions are connected with demography. A lot of original concepts could be generated from these sciences, demography and religion history ... The first section of the paper is the result of a dialogue converging towards multi-, trans- and interdisciplinarity, whose starting points are science and religion, scientific and religious inquiry. This section underlines the existence of a deep conflict between modern science and religion in the 21st century, while the second section emphasizes the historical complementarity holding between the two forms of knowledge, the scientific and the religious one. An interesting example of science-religion complementarity, or a manifestation of interference of religion with economics, ecology and sociology in the newly appeared human ecology, is the content of the fourth section. In the fifth section a number of general criteria are also identified for grouping the world's populations, i.e. some synthetic demographic factors are detailed, as well, such as life expectancy and demographic aging. The contribution capitalizes on the data in the annual report of the CIA, available on the Internet, which includes the key indicators on world population, offered to the public by the U.S. institution, detailed and complete for a number of more than 200 countries in the world, where religious faith is present mainly as a firm option of the inhabitants; demographic evolution and economic growth are radically different, and so per capita GDP becomes a polarization axis. Also, the category of those having no religious creed, and that of the atheists are equally important contemporary landmarks in the initial segmentation of the population. Starting from the high degree of determination of religion as a factor of wealth, potential statistical associations area quantified. Some conclusions naturally arise from the general approach of the statistical investigation. A final remark describes the coexistence of new sciences (demograstatistics &*

demographysics) with religion in the contemporary world, appealing to an approach at once scientific and religious.

Keywords: *major world religions; Islam; Hinduism; Buddhism; Judaism; Christianity; religious adherents*; *holy books; religious community and group; nonreligious; agnostic; atheist population. religious demography, religion-calendar connections, religion-welfare associations, demography and demographic indicators, Yule association coefficient.*

Chapter 9. Mircea Gligor – Gheorghe Savoiu

PROSPECTIVE EVALUATIONS OR PROGNOSIS AND THE METHOD OF PROFILING IN CLASSICAL DEMOGRAPHIES AND DEMOGRAPHYSICS

Planning or forecast of the demographic type represents the first subsection of the chapter, both being, in the classical vision, fugitive glances simultaneously cast into the more or less proximal (or distant) future, in accordance with past and present developments in the human populations, in the statistical and mathematical form of extrapolations, whose quality crucially depends on the quality of the processed statistical series, and also the design or forecast model; the estimates are based on breaking up the phenomena of the demographic type, the use of distinctive hypotheses in the prospective processes thus decomposed, turning to account the methods and validation of models. The quality of the projections and forecasts essentially depends on the quality of the demographic or statistical data series processed and the assumptions made, but it seems that the method, and especially the model, become strengths instead of hotspots. With the support of the physical model provided, the demographic prognosis turns into an increasingly accurate way of assessing, securing classical demography a few new benchmarks within demographysics. The second section of this chapter describes the practical use of the sociological and statistical method of profiling in various disciplines, underlining the importance of this new method concept as applied to Demographysics' approach. The method is described briefly in the introduction and applied in the third section, after the second section has detailed the multidisciplinary innovative management process. The practical results of applying the method in innovative educational systems are further detailed, based on both the specifically multidisciplinary nature of this type of processes, and the profile method applied. A final remark ends the paper in a structuralist, schematic and optimistic manner.

Keywords: *demographic prognosis, prospective demographysics, physical model, prognosis horizon, prospective alternatives, sociological and statistical profile, the profile method, innovative educational process, management in innovative educational processes, profiled skills.*

Chapter 10 Savoiu Gheorghe

A CENTURY OF POLARIZING DEMOGRAPHICAL EVOLUTIONS. THE WORLD'S POPULATION BETWEEN DEMOGRAPHIC EXPLOSION & IMPLOSION

In the 21st century the option of "to be religious or not to be at all" has already been exceeded by the importance of the problem of limited resources of existing industrial technologies, the problem of environmental pollution and the problem of the serious economic disparities and demographic developments of the continents. At the beginning of the new century, the world's population manifests more and more clearly a sharp demographic oscillation. For the next fifty years the trends of the demographic projections of many economically developed countries are descending, meaning that these countries, and to the limit even the entire European continent, will severely reduce their populations while in almost all the developing countries or economically underdeveloped nations population will increase at an accelerated rate. This chapter oscillates between the demographic explosion generated by certain religions, and the well-being levels and implosion of others, everything being physically modelled on a model existing in the pragmatic and experimental thinking of physics. [6-8]

Keywords: *explosion & implosion of classical demography, explosion & implosion in demo(gra)statistics, explosion & implosion in demographysics, physical model.*

IN ABSENCE OF SOME FINAL REMARKS OR WAITING FOR SOME CONCLUSIONS

A synthetic summary of the study object pertaining to classical demography, of the variables specific to the new contrasting and polarizing evolutions, new developments, of the methods and models of physics, lead to a final outline of this new science about to be universally recognized, which can be defined first as demo(gra)statistics, and finally, why not, demographysics [9-10].

Keywords: *demography, classical demography, demo(gra)statistics, demographysics, multi-scientitific future of demographysics*

3. SOME FINAL REMARKS

Statisticians, mathematicians, physicists and demographers have capitalized on methodological and instrumental statistical thinking as well as the theory of statistical physics, physics and statistical-mathematical modeling in new interdisciplines called demo(gra)statistics and demographiysics

succeding to identify as many of the decisive exogenous factors of human population development as possible.

The most interesting approaches in the new and creative interdisciplines analyze statistical-mathematical and physical-demographic, even spirituality and information, culture in the broadest sense of the word and cultural behavior derived in the distinct denomen of demographic type, practically representing the maximum shaping determination, trying to annul the classic Malthusianism, after which demographers who identified the food problem as the driving force of mankind were oriented for a long time [11-13]. The demographic explosion has become a temporary phenomenon, being influenced, essentially and paradoxically, precisely by the level of culture and the ability to receive information. The inaccuracy of the long-term and very long-term mathematical models distinguishes many terrifying demographic projections in stark contrast. One prediction is much older and belongs to François Héran, the director of the French National Institute of Demographic Studies (INED) focused on a diminished upward trend or an accentuated downward trend, the first describing a positive rhythm of the demographic surplus, but decreasing, which will lead, at the level of the year 2300, to a still explosive world population of about 36.4 billion inhabitants, as well as the second with a pessimistic level, almost stationary around the year 2 075, which would thus correspond to a historical threshold of 9.2 billion inhabitants, a projection probably characterized by incipient diminishing tendencies after the year 2100 and severely installed after the year 2300, when a population on Earth is estimated to be below 2.3 billion inhabitants. The hope in the new interdisciplinary demo(gra)statistics and demographysics sciences, focused on their much more rigorous and realistic modeling capacity, transforms the unpredictable long-term and very long-term predictions into direct challenges addressed to themselves as the last alternative of inter- and transdisciplinary demography. and through the administered projection hypotheses, one still sees the hope of solving the difficult predictive task with acceptably small errors, thus rehabilitating, reviving and returning human civilization to nature, to spirituality, to culture. The interdisciplines of demo(gra)statistics and demographysics integrate the technological aspects, on a secondary level, where they belong and thus return to simplicity, to rationality, to the classical demographic and economic, political and social balance, on the path of the statistical method and the physical model.

Any book can be born or not, it can be published or not, it can be read or not, etc. This project about demo(gra)statistics and demographysics recalls in the general memory a demographic phenomenon of the newborn who dies in the first month of life, known as the neonatal phenomenon [6] ...

A simple or complex classical quality-quantity model can not explain entire variations in mortality rate, birth rate, fertility rate, neonatality rate, stillbirth rate, life expectancy, etc across time for human populations. Only trans-, multi- but especially interdisciplinarity sciences can help to have a more accurate approach able to assure a major improvement of the demographical estimations or prognosis (from HI or human intelligence to AI or artificial intelligence, from methods to models, from techniques to instruments etc.) [11-13]. Nothing is totally random but only relatively associated, more or less intense, both in statistics and physics, statistical physics and quantum physics, econophysics amd sociophysics, demo(gra)statistics and demographysics...

But as you can never say “never”, it is likely that even this book will appear either with a single author or with other willing collaborators, together with another interested publishing house. The possible is always the opposite of the seemingly “impossible” of reality, like in any paradox's essence...

From this point of view, the author of the article was and is still open to all kinds of collaborations for the revitalization of this book, especially in memory of his two missing friends.

7. REFERENCES

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