# ECONOMETRIC ANALYSIS OF DEMOGRAPHIC PHENOMENA AND INTERFERENCE WITH LEGAL ISSUES

***Irina Oriol, PhD and Gheorghe Pinteala, PhD, "Eftimie Murgu" University of Reșița***

*Abstract: Exacerbating global common problems of humanity reinforces the need to increase awareness for concerted action to solve them in the public interest. Globalization issues are very different. But there are some common characteristics that are correlated with a deep connection and a relationship that includes political, economic, scientific and technical. They reflect the deepening economic influences, complexity and internationalization of all social processes that can be solved only by joint efforts of all countries and peoples. Today individual-society relationships are expressed as: decline, mortality, infant mortality, morbidity, disease, poverty and others. Future means birth, health, high standard of living, education, economic growth, scientific progress. The present work is aimed at analyzing the growing interest major influence on demographic processes in Romania and Europe such as birth, death, fertility, morbidity and other factors by applying econometric modeling elements. This work is part of a series of research in the field of demography and legislation.*

*Keywords: demo-economic resources, economic influences, econometric models, fertility population.*

## DEMOGRAPHIC ISSUES AND THEIR INTERFERENCE WITH LEGISLATIVE ASPECTS

From the legal viewpoint, the demographic policy of the Romanian state may be analysed from multiple perspectives, taking into account an accented population's drop after 1989. If we take into consideration the "theory of the optimum", i.e. of the demographic minimum and maximum, we find that it refers to the relation between population and territory (density, intensity of social relations, diversity of social, economic and cultural activities), and the relation between population and resources (subsistence means, survival, development).

The situation in the field of demographic policies in Romania after 1989 can be characterised by non-intervention. It is debatable, indeed, if we deal with the effective promotion of the non-intervention principles or simply with the marginalisation and avoidance of the theme.

The abrogation of the crime of abortion immediately after 1989 resulted in the uncontrolled increase of abortions, sometimes performed outside the legal frame and even in totally inappropriate locations, and by completely unqualified personnel, with serious, even deadly consequences for the mothers who resorted to such interventions.

Thus, the legislator was forced to proceed to the reintroduction of abortion on the list of crimes, if it is performed in other conditions and by other personnel than those stipulated in the law. Obviously, this should not be regarded as a coercive policy meant to support a pro-birth policy.

The lower fertility rate and the reduction of the number of Romania's population occurred after a forced growth supported by administrative means before 1989.

On the other hand, due to these very evolutions, an unfavourable pyramid of ages was constituted, by the strong narrowing of the base, i.e. small ages. In the next decade we shall have an upside-down population pyramid. Consequently, in order to prevent the excessive diminishing of the small-age generation, we must conceive and accept a pro-birth demographic policy.

A first step was taken by the promotion of a law meant to ensure the legal frame regarding the protection and promotion of children's rights, i.e. Law no. 272 of 21.06.2004.

For the legal consolidation of children's position in society, the law established the legal sense of the notion of child (person under the age of 18 who has not acquired the full capacity of exercise, in the conditions of the law), family (parents and their children), extended family (child, his parents and relatives up to the 4th grade inclusively), substitutive family (persons, other than those belonging to the extended family, who ensure the child's bringing up and care, in the conditions of the law).

What defines the law and is considered of great legislative importance for the growth of birth-rate is the notion of individualised protection plan, notion which defines the document in which one realises the planning of services, service providing and child's special protection measures, based on the psycho-social evaluation of the child and his family, in view of integrating the child who was separated from his family into a stable and permanent family environment, in the shortest delay possible.

Furthermore, the law constitutes the legal frame for defining and establishing children's rights – civil rights and liberties, family environment and alternative care, child's wellbeing and health, education, leisure and cultural activities.

The legislator also refered to the special protection of the child who is temporarily or permanently deprived of his parents' protection, approaching in this respect the legal issues of placement, emergency placement, specialised supervision, protection of refugees children and protection of children in case of armed conflict, protection of the child who committed a penal deed and is not penally liable, protection of children against exploitation, including economic exploitation (children' protection against drug use, against abuse or neglect, against kidnapping or any form of trafficking, against other forms of exploitation).

In order to implement the realisation of the stipulations of the aforementioned law, it was also necessary to establish the institutions and services with attributions in child protection enforcement, both on the central and on the local level, the private organisms, as well as the financing for the child protection system.

Obviously, Law 272/ 21.06.2004 stated that public authorities, authorised private organisms, natural and legal persons responsible for child protection are obliged to observe, to promote and to guarantee the children's rights established by Constitution and law, in accordance with the provisions of the UN Convention regarding children's rights, ratified through Law no. 18/1990, republished, and of the other international documents in the matter, in which Romania is a signatory.

The realisation of an adequate legislative frame is the result of the necessity to reconsider the priory granted up to now to the social dimension of the post-communist transition and in a more general plane, social policies in our country. The multitude of the present problems, with the accumulation of deficits in certain areas, imposes a legislative increase of the resource allotment, including by public social expenditure. Thus, Romania is confronted with a series of demographic changes with long-term implications.

**GENERAL CONCEPTS RELATED TO THE EXISTING DEMO-ECONOMIC RESOURCES**

"A country's population and economy are two main interdependent components of human society. Population, both as producer and consumer of goods and services, is the basis and purpose of production. A country's economy – one of the basic components of national life, determines the nature of civilisation. In its turn, national economy is one of the major forces that have built the nation."[1]

[1] Ya.V. Gusev, Russia's demographic situation is a threat to the country's economic security, Управление экономическими системами: электронный научный журнал , Editions OOO «Д-Медиа» , Kislovodsk, **ISSN** 1999-4516, http://www.uecs.ru/ojurnale

After the demographic post-reform we remark serious reasons of worry: rapid decline of the country's population, aggravation of population's demographic structure, extremely low birth rate and in a descendant trend, way under the threshold necessary for reproduction, very low indeed, we may add. This situation creates the risk that the quality of labour force exhibits unwanted structural modifications, influencing many domains of activity. The reduction of the number of young population, especially, triggers, throughout Europe and in the country, a series of serious problems, difficult to solve, especially in the socio-economic sphere. The recorded demographic problems will be a serious obstacle for the strategic development path.

Modern economy is characterised by a high level of complexity, proved by the variety of its subsystems, by a high level of mobility, manifested by the rapid structural changes, the apparition of new domains of activity and professions, under the influence of progress in the field of science and technology, as well as by the intensification of connections between different sectors of activity, branches and sub-branches of national economy.

The policy of the most intense population refers to the low birth rate in developing countries. Nevertheless, its implementation is difficult, and in the absence of financial resources is often limited to declarative situations. These policies were sometimes unaccepted by the citizens with large family traditions, with high social status of maternity and especially paternity. The governments of Muslim countries generally reject the state's intervention in family planning. The simple reproduction of population, or "growth zero" - one of the goals of the demographic policy in the developing regions, is theoretically possible if each family will have an average of 2.3 children (because there are people who do not ge married, childless families, early deaths in accidents). However, such a situation does not automatically mean the immediate stabilisation of the population, it is an issue with medium and long-term effects. Plus, if as a result of the demographic policy, a sudden drop of birth rate is recorded, this will lead to structural changes by age groups and genders of the population.

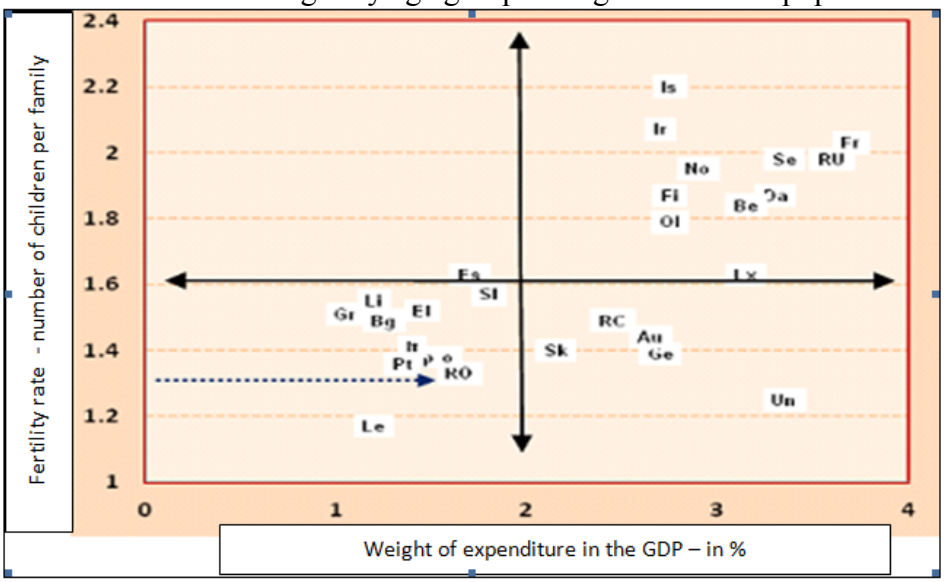


Figure 1. Correlation between the percentage of family benefit expenditure in the GDP and the level of fertility rate in European countries[2]

Today, in 47 countries of the Third World measures are taken to encourage a decrease in reproduction. They suppose that a rational population policy is an essential condition for

[2] Organizaţia pentru Cooperare Economică şi Dezvoltare / Organisation for Economic Co-operation and Development - OECD, Public spending on family benefits, Family database, OECD-Social Policy Division, 2011 (www. oecd.org/e/s/social/family/database).

the general economic growth and consequently they should pay a special attention to the population's regulation. The policy of limiting population growth is most frequently realised by means of family planning. India was the first developing country to include, in 1951, the objective of reducing birth rate in the five-year national development plan. In order to solve this problem the two-child family was introduced. In China, family planning was regarded as a fundamental fertility policy and was elaborated by the State's Planning Committee. The particularity of China's demographic policy is the relatively important role of quarantine measures, which included administrative and economic sanctions against families with many children. As regards human reproduction, today's China is closer to the industrialised countries than to the developing countries. In general, the family planning programme, the experience of each country as well as the efficient use of labour force and human resources may play a relevant part in the preservation of the living standards in developing countries and in the reduction of destabilising causes of economic situations when we compare industrialised countries with developing countries. The correlation between the weight in the GDP of the family-oriented expenditure directly influences the fertility rate in Europe's countries (figure 1). In many European countries situated at the bottom of the list when it comes to economic performance, the family composition decreased by the reduction of the number of children. It is a fact with serious consequences in the long run – the social burden will be difficult to carry by the avtive, fit for work population.

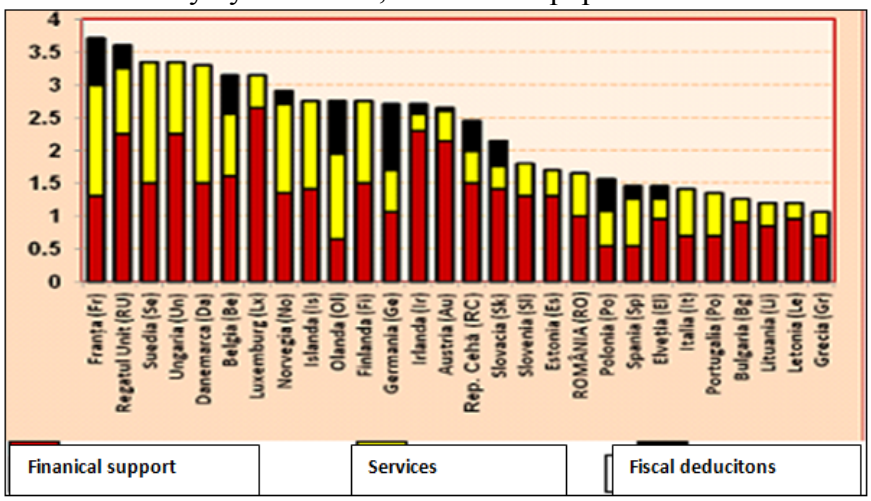


Figure 2. Weight of the family-oriented public expenditure in the GDP in European countries,
in 2007 (%)[3]

The state's financial support is substantial in developed countries such as Luxembourg (2.52%), Ireland (2.25%) or Austria (2.15%). The state comes to the support of families with further measures of economic aid such as fiscal deduction and the bearing of expenditure for some social services (education, health). Romania ranks 19th on that list (figure 2). However, the state's financial support and the expenditure for certain social services are rather low, which will not lead in the near future to the improvement of the existing demographic situation.

In the context of a certain uncertainty in the economic and social plane, an essential role must be played by the provisional activities, by the possibility to sketch some alternatives of economic development, able to offer solutions for the stability and macroeconomic balance, to orient economic agents towards profitable domains and activities, compatible with the needs of national economy. Grace to prediction studies, different paths and modalities can be suggested, meant to generate an acceptable future, through the future evolution orientation

[3] Idem. www. oecd.org/e/s/social/family/database

of different macroeconomic system's components and through the anticipation of the implications of certain forwarded solutions.

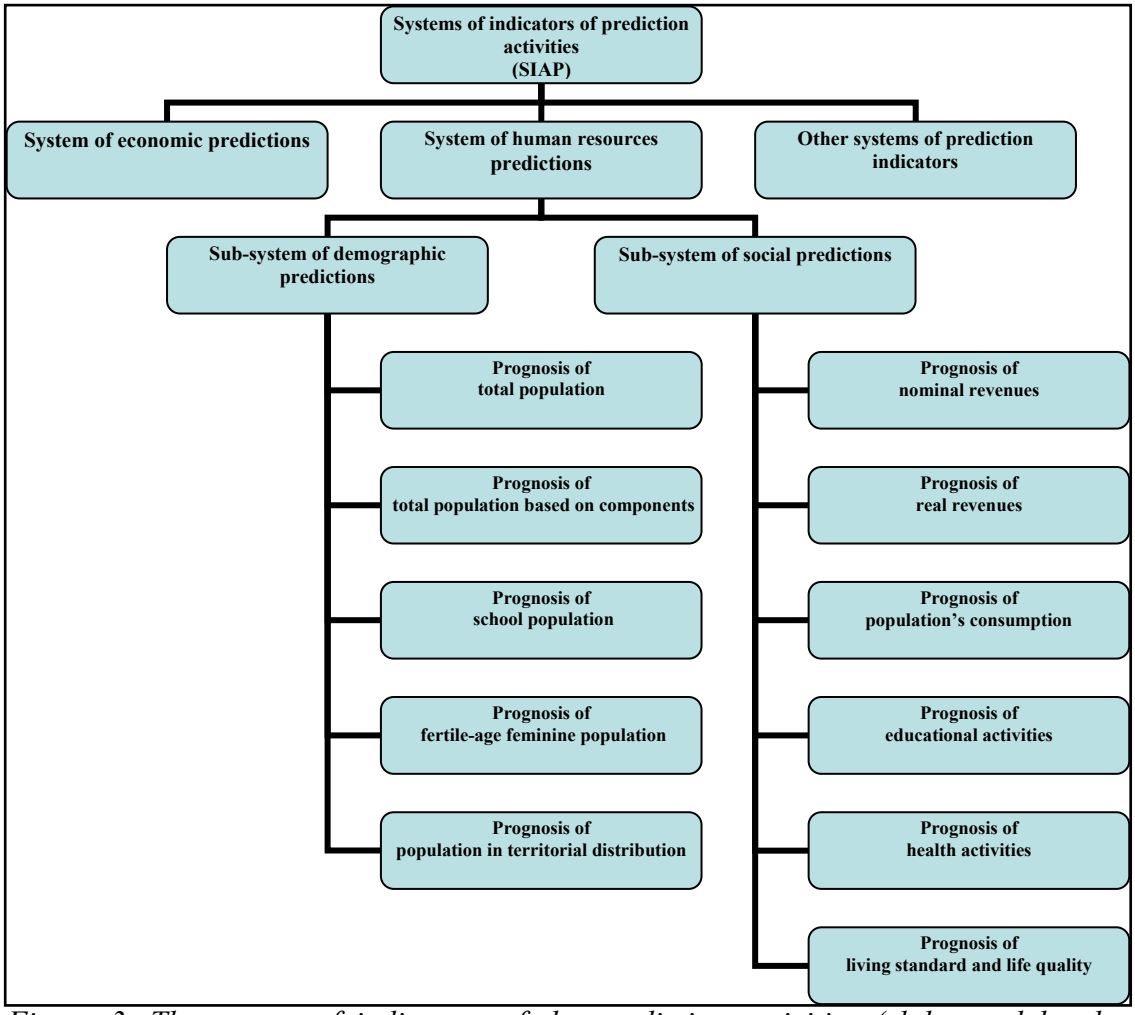


*Figure 3. The system of indicators of the prediction activities (elaborated by the authors)*

Observing the dynamism of economic and social processes, we may state that we are witnessing an absolute need for prediction, anticipation of wanted or unwanted future events occurring at present, and for the evaluation of prospective consequences of different action variants. Depending on the intensity of the influencial factors and taking into account the circumstances, predictions may range anyway between certainty and uncertainty.

The elaboration of the system of indicators used in provisional activities (SIAP) raises a series of problems related to their content, calculus methodologies, analysis and utilisation (figure 3). SIAP indicators are synthetic indicators at the basis on the characterisation of the country'y dimension, structure, proportions and rhythm of social-economic development. All indicators included in SIAP in relation with the social-economic conjecture may be grouped into indicators of outrunning, concordance and tergiversation.

The elaboration and analysis of demographic predictions constitute the basis of the calculus of predictions for all domains of social-economic activit. The system of human resources prediction indicators (SIPRU) contains two complex groups of indicators: the subsystem of demographic prognoses (SPD) and the subsystem of social prognoses (SPS).

**ECONOMETRIC MODELLING OF DEMO-ECONOMIC PHENOMENA**

The active research-innovation relations in the economic system depend on objective and subjective factors, both internal and external. Grace to their objective nature, environmental factors, caused by the long-term trends, and are not related to the arbitrary

decision of a specific individual subject – those whose action is a direct result of conscious decisions. For the same reasons - objective and subjective / co-ordinated – they are interlaced and form a system of incentives for an innovating research strategy. The structural crisis, a crisis of overproduction and unemployment, triggers the need and creates the conditions to reach a high efficiency rate, which is possible only by radical innovations.

For the analysis of the correlation between macroeconomic and demography indicators we used econometric and statistic methods. For this purpose we elaborated several econometric models based on the official statistic information[4]. In order to have a higher degree of relevance of results, dynamic indices were calculated (figure 4).

The macroeconomic factors included in the research are: GDP, consumption prices index (PIC), investments (INV), employed population (PO), total population (Pt), births (N), deaths (D). The connection between the factors is stochastic, and the mathematical representation is[5]:

$$y_i = f(x_1, x_2, \ldots, x_k) + \varepsilon_i \quad (1)$$

The regression function at the basis of the linear multifunctional model has the following form:

$$y_i = \alpha + \beta_1 \cdot x1_i + \beta_2 \cdot x2_i + \ldots + \beta_k \cdot x_{ki} + \varepsilon \quad (2)$$

where: $y_i$ represents the values of the resultative variable;

$x_{1i}, x_{2i}, \ldots, x_{ki}$ are the values of the factorial variables taken into consideration; $\alpha, \beta_1, \ldots, \beta_k$ are the parameters of the model, corresponding to the factorial variables $x_{1i}, x_{2i}, \ldots, x_{ki}$;

$\varepsilon_i$ is the random or residual variable.

A rather important problem consists in determining the degree to which the resultative variable reacts to the modifications of the factors included in the econometric midel influencing it to a higher or a lower extent. It represents the determination of the sensitivity of the effect phenomenon (resultative variable) against the variation of the cause phenomenon (factorial variable), known under the name of elasticity:

$$E_i = \alpha_i \cdot \frac{\overline{x_i}}{\overline{y_i}} \quad (3)$$

The variation degree of the factors included in the research represents the identification of the growth reserves of the value of the resultative factor[6]:

$$\beta_i = \alpha_i \cdot \frac{\sigma_{xi}}{\sigma_y} \quad (4)$$

where: $\sigma_{xi}$ - and $\sigma_y$ - variances of the independent and residual factors.

The solutions resulted for the econometric analysis and simulations were possible on the basis of the EViews 7.0 software[7].

**EVOLUTION OF ROMANIA'S POPULATION AND EVOLUTIVE TRENDS**

The demographic component of the human factor (labour force) is essential, as it determines the stability of a country's population and its economy. In European countries and in Romania there was a critical demographic situation. The high death rate and the low birth-

[4] Irina Oriol, Constantin Popp – Econometria / Econometry, ISBN:978-973-1906-96-6, Ed. Eftimie Murgu , Reşiţa, 2011, p. 35

[5] Idem, p. 160

[6] Irina Oriol – Metode statistice / Statistic methods, ISBN:978-973-1906-96-6, Ed. Eftimie Murgu, Reşiţa, 2011, p. 187

[7] Elizabeta Jaba, Ana Grama –Analiza statistica cu SPSS sub Windows / Statistic analysis with SPSS under Windows, ISBN: 973-681-609-5, Polirom, Bucureşti / Bucharest, 2004

rate were the main causes of demographic crisis, in which the natural population loss is not compensated by migration.

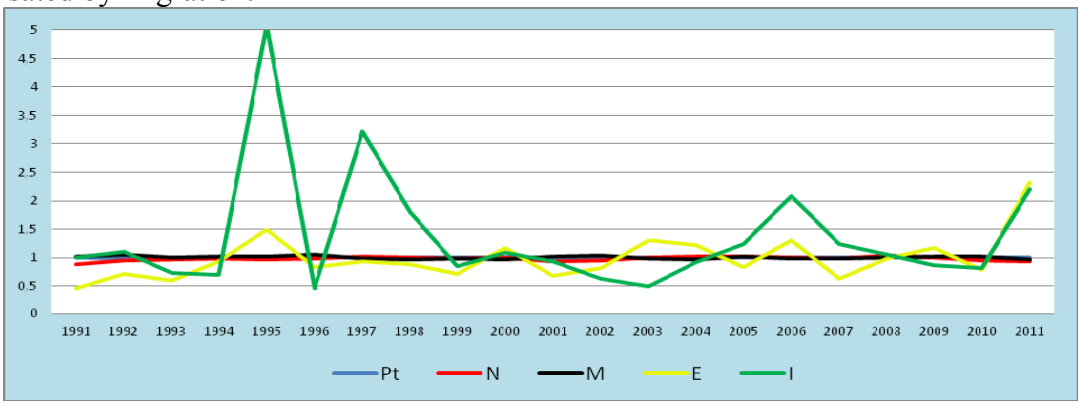


*Figure e. Dynamics of total population, natural and migratory movements in Romania, in the period 1991-2011*

The problems related to the human factor are not only the drop of total population, including that due to migration, but also the quality and structure of population, as mentioned above.

"The demographic situation in our country and in European counties, according to studies conducted by many internal and external researchers, describe it as catastrophic, and it is a serious impediment in the development of national economy".[8]

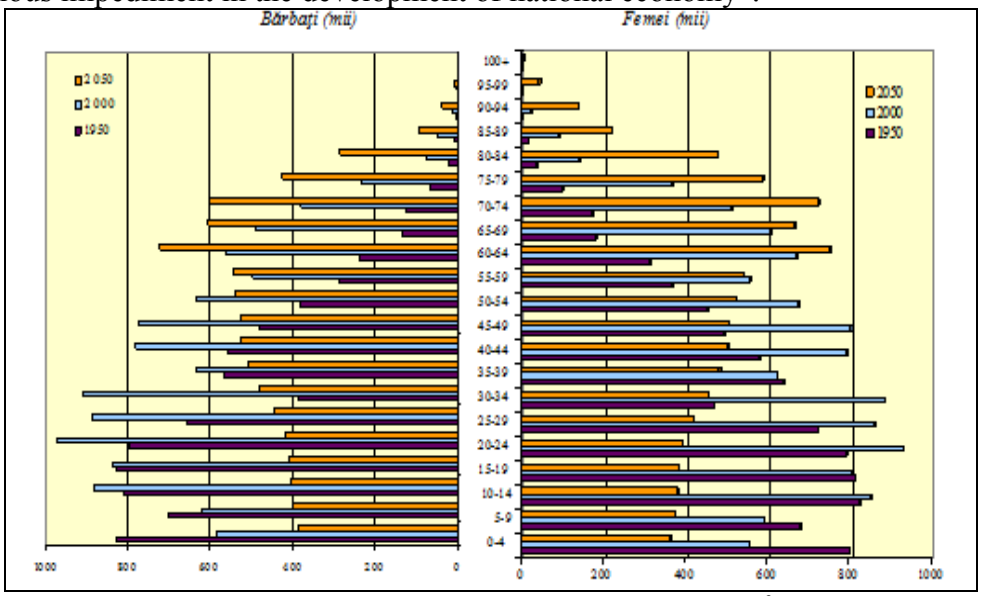


*Figure5. The ageing process among Romania's population*[9]

The population's ageing will result in thorny social and economic problems. The population's social burden will be felt in the very next period (figure 5). The basis of the age and gender pyramid is decreasing, and in the years 2050, according to prognoses, it will halve. The demographic policies must take priority in the national and European plane.

[8] Ya.V. Gusev, Russia's demographic situation is a threat to the country's economic security, Управление экономическими системами: электронный научный журнал , Editions OOO «Д-Медиа» , Kislovodsk, ISSN 1999-4516, http://www.uecs.ru/ojurnale

[9] Divizia Populaţie a Departamentului de Politici Economice şi Sociale a Secretariatului Naţiunilor Unite, Perspective privind populaţia lumii: versiunea 2008 / Division for the Population of the Department for Economic and Social Polices of the United Nations Secretariat, Prospects regarding world's population: version 2008, http://esa.un.org/unpp,

**DEMO-ECONOMIC CORRELATIONS, INFLUENCES AND TRENDS IN ROMANIA**

The present study is focused on the relation and influence of macroeconomic indicators upon the evolution of the total number of population, the influence of the demographic factors.

According to the data included in the study, the most relevant interdependence between the indices analysed is the interdependency between the $Ip_{tot}$ index and the following indices: $I_N$ (dynamics of birth rate), $I_M$ (dynamics of death rate), $I_{INV}$ (dynamics of investments), $I_{PO}$ (population's employment rate), $I_{PIB}$ (dynamics of the GDP in comparable prices) .

The econometric analysis of the model in its entirety highlighed the fact that the relation between dependent and independent factors is rather strong:

The correlation coefficient is *R =0,885* and the determination coefficient is *R-squared=0.783* (table 1). The Durbin-Watson test for verifying the self-correlation of random variable shows that the model obtained after the data processing is correct (coefficients are higher than 3.3). The calculated values of the Fisher-Snedecor test (*F)* of the econometric models indicate the higher relevance of the model– *F=5.*778 (probability $\alpha = 0{,}015$) (table value being 4.82 with the probability of results guaranteeing $\alpha = 0{,}05$).

Table 1.

Dependent Variable: $Ip_{tot}$
Method: Least Squares
Date: 03/19/13 Sample: 1998 2011 Included observations: 14
$Ip_{tot}$ =C(1)+C(2)* $I_N$ +C(3)* $I_M$ +C(4)* $I_{PIB}$ +C(5)* $I_{INV}$ +C(6) * $I_{PO}$

| | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C(1) | 0.918574 | 0.089288 | 10.28778 | 0.0000 |
| C(2) | -0.024196 | 0.038230 | -0.632915 | 0.5445 |
| C(3) | 0.001748 | 0.065914 | 0.026512 | 0.9795 |
| C(4) | -0.010106 | 0.004061 | -2.488738 | 0.0376 |
| C(5) | 0.001591 | 0.005595 | 0.284286 | 0.7834 |
| C(6) | 0.112173 | 0.029771 | 3.767885 | 0.0055 |

| | | | |
|---|---|---|---|
| R-squared | 0.783143 | Mean dependent var | 0.996349 |
| Adjusted R-squared | 0.647607 | S.D. dependent var | 0.006863 |
| S.E. of regression | 0.004074 | Akaike info criterion | -7.870916 |
| Sum squared resid | 0.000133 | Schwarz criterion | -7.597034 |
| Log likelihood | 61.09641 | Hannan-Quinn criter. | -7.896269 |
| F-statistic | 5.778119 | Durbin-Watson stat | 3.300915 |
| Prob(F-statistic) | 0.015005 | | |

The resulted econometric model has the form:

$Ip_{tot}$ =0.91857 - 0.024196* $I_N$ + 0.00175* $I_M$ - 0.01011* $I_{PIB}$ + 0.00159* $I_{INV}$ + 0.11217* $I_{PO}$ (5)

(0.5445) (0.9795) (0.0376) (0.7834) (0.0055)

As expected, two factors directly influenced the population's evolution, and they exhibited a drop during a determined period: birth rate and economic development (GDP).

The model (5) shows that once new jobs are created, unemployment will decrease, and the population's life quality and living standard will increase, which will influence one of the demographic factors in decline.

The variation ranges of the partial correlation coefficients were calculated for three variants of probabilities of results guaranteeing - 1%, 5%, 10% (table 2). The correlation coefficient of the GDP factor ($I_{GDP}$) fell within the range -0,019469 and -0,000742 ($\alpha = 0{,}005$). As for the $I_{PO}$ factor, it ranges between 0.0568 and 0.167533 ($\alpha = 0{,}005$).

Table 2.

| Coefficient Confidence Intervals<br>Date: 03/19/13 Time: 09:23 Sample: 1998 2011 Included observations: 14 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Variable | Coefficient | 90% CI | | 95% CI | | 99% CI | |
| | | Low | High | Low | High | Low | High |
| C(1) | 0.918574 | 0.752539 | 1.084609 | 0.712676 | 1.124472 | 0.618979 | 1.218169 |
| C(2) | -0.024196 | -0.095287 | 0.046894 | -0.112355 | 0.063962 | -0.152473 | 0.104080 |
| C(3) | 0.001748 | -0.120822 | 0.124317 | -0.150250 | 0.153745 | -0.219419 | 0.222914 |
| C(4) | -0.010106 | -0.017657 | -0.002555 | -0.019469 | -0.000742 | -0.023731 | -0.003519 |
| C(5) | 0.001591 | -0.008814 | 0.011995 | -0.011312 | 0.014493 | -0.017184 | 0.020365 |
| C(6) | 0.112173 | 0.056813 | 0.167533 | 0.043521 | 0.180824 | 0.012280 | 0.212065 |

For the analysis of the partial coefficients of the model we calculated the elasticity coefficients and the degree of variation of the factors included in the model (table 3).

Table 3

Partial elasticity coefficients and factors' variation degree

| | Partial elasticity coefficients $E_i = a_i \frac{\overline{x_i}}{\overline{y}}$ | Variation degree of the factors included in the model $\beta_i = a_i \frac{\sigma_{xi}}{\sigma_y}$ |
|---|---|---|
| The resulted econometric model | $E_{IN}$ = -0.0217<br>$E_{IM}$ = 0.00174<br>$E_{IPIB}$ = -0.01452<br>$E_{INV}$ = 0.00159<br>$E_{IPO}$ = 0.11294 | $\beta I_N = -0{,}114599$<br>$\beta_{IIM} = 0.0059434$<br>$\beta_{IPIBd} = -0{,}53905$<br>$\beta_{INV} = 0.059153$<br>$\beta_{IPO} = 0.905638$ |

Consequently, at a 1% increase of the GDP factors' dynamics and of the number of live born babies, the number of population will drop by 1.45% and 2.17% respectively, on condition the other factors remain unchanged. The positive growth is influenced by the factors "investments in national economy" and the factor of decrease of mortality and especially infantile mortality (as the birth rate itself is dropping).

The greatest reserves for the growth of the country's population number are found in the increase of population employment rate, the increase of investment volume, as we can see by analysing the coefficients of the variation degree of the factors included in the model ($\beta$).

**CONCLUSIONS**

It is crucial to prevent certain economic-social effects. Economy management is made based mainly on econometric calculations regarding the influence of population and labour resources on economic expectations. The present study is part of a series of studies aiming at determining and evaluating the factors related to social-economic life, living standards and population's life quality. The results obtained in our study suggest the following actions:

- review of the system of indicators and information regarding population, in view of collecting correct and complete data necessary for the realisation of calculations of enhanced prognoses, i.e. for instance to be able to use the methods of prognosis components, because, due to the fact that as the value of the population's natural growth was negative during a sequence of consecutive years, we recognise the necessity of knowing the factors of population's fertility by specific age groups, specific mortality by age groups and main death causes;

- as, in time, we witnessed an ascendant trend of the population's demographic ageing coefficient, it is necessary to elaborate a real demographic policy;

- orientation of demographic policy towards a pro-birth policy, i.e. encouraging families, perhaps by granting certain fiscal incentives, to have more children.

Nevertheless, the information based on the research related to this debate remain sketchy. Many aspects of the relation between national policies and demographic trends are not yet well understood and it is still difficult to separate the effects of specific policies and initiatives from the effects of the social, political and economic effects.

**REFERENCES**

1. Irina Oriol, Constantin Popp, Econometria / Econometry, ISBN:978-973-1906-96-6, Ed. Eftimie Murgu, Reşiţa, 2011
2. Irina Oriol – Metode statistice / Statistic methods, ISBN:978-973-1906-96-6, Ed. Eftimie Murgu, Reşiţa, 2011
3. Elizabeta Jaba, Ana Grama, Analiza statistica cu SPSS sub Windows / Statistic analysis with SPSS under Windows, ISBN: 973-681-609-5, Polirom, Bucureşti / Bucharest, 2004
4. National statistic data, National Institute of Statistics, http://www.insse.ro/cms/rw/pages/index.ro.do
5. European Commission, Equality between men and women, Report on Pregnancy, Maternity, Parental and Paternity Rights, 2007 (www.ec.europa.eu/justice/gender-equality/files/2007report_pregnancy).
6. Organizaţia pentru Cooperare Economică şi Dezvoltare / Organisation for Economic Co-operation and Development - OECD, Public spending on family benefits, Family database, OECD-Social Policy Division, 2011 (www.oecd.org/e/s/social/family/database).
7. Ray, Rebecca, Janet Gornick and John Schmitt, Parental Leave Policies in 21 Countries, Center for Economic and Policy Research, Washington, 2008 (www.cepr.net).
8. Divizia Populaţie a Departamentului de Politici Economice şi Sociale a Secretariatului Naţiunilor Unite, Perspective privind populaţia lumii: versiunea 2008 / Division for the Population of the Department for Economic and Social Polices of the United Nations Secretariat, Prospects regarding world's population: version 2008, http://esa.un.org/unpp,

9. Hantrais, Linda, Comparing Family Policy in Britain, France and Germany, Journal of Social Policy, vol. 23, no. 2, 1994 (www. journals.cambridge.org/action/displayAbstract).
10. Geisler, Esther and Michaela Kreyenfeld, How policy Matters: Germany's Parental Leave Benefit Reform and Fathers' Behavior, MPIDR Working Paper, WP 2012-021, 2012 (www.demogr.mpg.de)