

ECONOMETRIC MODEL FOR ANALYZING HRD FUNDS ABSORPTION AT REGIONAL LEVEL – NORTH-EAST REGION

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Abstract. The European Social Fund interventions in Romania in the field of Human Resources Development, as established in the National Strategic Reference Framework 2007-2013, will assure investment in human capital, modernisation of education and training systems, increasing the access to employment and strengthening the social inclusion for vulnerable groups. The present paper proposes a simple, but robust, econometric model in order to analyze the absorption of the funds allotted by the Sectoral Operational Program - Human Resources Development at regional level in one of the eight Development Regions in Romania.

1. Introduction

The Sectoral Operational Programme Human Resources Development (SOP HRD) sets the priority axes and the major intervention areas of Romania in the human resources field in order to implement the EU financial assistance through the European Social Fund, within the frame of „Convergence” objective, for the programming period 2007-2013.

Elaborated in the context of National Development Plan 2007-2013 and in line with the Priorities of the National Strategic Reference Framework, SOP HRD is an important instrument in supporting the economic development and structural changes. Moreover, the investments in human capital will complement and will confer sustainability to the increase of productivity on a long-term. A highly qualified labor force, with a high level of education, having the capacity to respond to the new technologies and to the changing needs of markets, is essential for a competitive and dynamic economy. Romania will promote active labor market policies to increase the adaptability and flexibility of labor force. It is envisaged to be reached a higher level of participation on the labor market, as a base for a competitive knowledge based economy.

2. General and Specific Objectives of the SOP HRD

The general objective of SOP HRD is the development of human capital and increasing competitiveness, by linking education and lifelong learning with the labor market and ensuring increased opportunities for future participation on a modern, flexible and inclusive labor market for 1,650,000 people.

The specific objectives can be summarized as follows:

- Promoting quality initial and continuous education and training, including higher education and research;
- Promoting entrepreneurial culture and improving quality and productivity at work;
- Facilitating the young people and long term unemployed insertion in the labor market;

- Developing a modern, flexible, inclusive labor market;
- Promoting (re)insertion in the labor market of inactive people, including in rural areas;
- Improving public employment services;
- Facilitating access to education and to the labor market of the vulnerable groups.

The ESF intervention in Romania shall support the achievement of the general objective and the specific objectives in the field of human resources development, making a real contribution to the implementation of European Employment Strategy and to the overall objective of growth and jobs.

3. Current situation - overview

3.1 Education Sector

The benchmarks for the education and training systems set up by the European Commission in 2002, at the European Council held in Barcelona, as well as the decisions made at the European level in the “Bologna process” triggered the reform of the education system in Romania.

The current structure of education and initial training system aims at ensuring flexibility and openness of individual educational routes. The current educational model provides for students the opportunity to either attend higher levels of education or to enter in the labour market (after 10th grade). Within the education system, the initial VET provides both academic and professional opportunities.

The recognition and validation of prior learning are not operational at the system level. Validation of prior learning operates in initial VET. Also, according to the existing methodology, validation of prior learning is taken into account in the development of the second chance education, contributing thus to higher flexibility and increased access to such programs.

3.2 Employment

The Romanian labour market faced significant changes in the economic transition process, emphasised by the reduction of the active and employed population, by maintaining the unemployment rate at relatively constant values, and by the increase of the youth and longterm unemployment, being mainly affected by the limited job creation capacity. Important changes occurred alongside a severe decrease in the employed population regarding the structure of employment by sectors, fields of activity, regions, and types of ownership, age, and professional status.

The human resources evolution has been for the past decade under the influence of several demographic and social phenomena such as: the speeding up of the fertility decreasing process and maintaining mortality at high rates, the increase of the emigration, and the decrease of the medical and social assistance services’ quality. These facts contributed to the increase of the share of 60 years old and over population and also to the maintaining of the demographic dependency rate at high level, especially in the rural areas.

3.3 Social Inclusion

Starting especially from the 80’s, Romania has entered into an impoverishment process of the population, accentuated in the transition period by two shocks: 1991-1993 and 1997-2000.

The socio-economic evolutions registered in the last years have led to the poverty level of 18.8% in 2004³⁰, and the extreme poverty rate level up to 5.9% in 2004. The drastically reduction of the number of work places, the diminishing of the real level of salaries and the tax wedge in particular on the low-paid have represented important causes of incomes' depreciation. The increase of the life costs during 1997-2000 has not been accompanied by a proportional increase of the income, implicitly leading to severe poverty.

In 2000, the living level estimated on the basis of the poverty threshold, represented 42.2% of the net average wage. Through its ascendant trend during the following years, the poverty threshold was 36.4% of the net average wage in 2003.

Starting 2001, a population poverty decreasing process has begun, but only during 2002-2003 this process produced positive effects over the categories with high level of vulnerability.

3.4 Health

The analysis of relevant statistical data of the last 10 years shows an unfavourable position of the three major components of population dynamics – birth rate, mortality and external migration, a deterioration of the entire demographic construction, and a tendency to enter an imminent demographic crisis – direct or indirect results of the entire political, economic and social context of the transition period. Against this background, health system's incapacity to appropriately and concertedly react to these challenges has played an important role in the evolution of data.

In the last decade, the birth and mortality rates have deteriorated and will over time affect the demography and have an effect on the labour market. In Romania, the general mortality indicator has increased surpassing the birth rate and thus, starting 1992 a natural population deficit and ageing of population have been registered. The birth rate decreased from 13.6 infants per 1,000 inhabitants in 1990, to 10.2‰ in 2005 and there was a significant increase in the death rate from 10.6 deaths per 1,000 people in 1990, to 12.1‰ in 2005. During 2003- 2005, the average life expectancy in Romania was of 71.76 years (NIS, Romanian Statistical Yearbook 2005), with significant male-female differences, against the EU-15 average life expectancy of more than 75 years for men and 80 years, for women. The health system has been unable to cope in due to lack of capacity and poor facilities. Moreover, during the last years has been recorded a shortage of doctors and medical staff caused by the external migration. During recent years there has been a trend for trained medical staff to migrate abroad in order to benefit from higher salaries. There are no formal statistics to support this, but it is a well-known fact amongst academics.

Changing attitudes includes increased awareness of patients' rights and responsibilities, less tolerance of discrimination and a reduced deference towards health care professionals. There is widespread evidence of a need for greater choice and more individualised services, access to a wider range of medical treatments. It is important to correctly assess and address the underlying health needs of the population, as this can contribute to the elimination of ineffective, or even detrimental, health services from being provided and administered.

4. Synthesis of the current problems & Priority action axes

The ESF interventions in Romania in the field of Human Resources Development, as established in the National Strategic Reference Framework 2007-2013, will assure

investment in human capital, modernisation of education and training systems, increasing the access to employment and strengthening the social inclusion for vulnerable groups.

The need to ensure educated and competitive human resources on the European labour market arises from the understanding that the competitive advantages that are determining Romania's current growth cannot ensure a long-term sustainable development given the growing pressures provoked by globalisation and the continuous introduction of new technologies.

Only a flexible, high-qualified working force will be able to respond to the constant changes in the labour market.

From the socio-economic analysis the following phenomena can be highlighted:

- Persistent low levels of participation in education and training at all levels of the lifecycle, in particular in rural areas, determining an overall low level of qualifications of the Romanian workforce;
- Incapacity of the education and employment structures to quickly adapt to the changing needs of the labour market;
- A productive structure that has been suffering some changes in recent years with an increase of the services sector but that will not present a dramatic decrease of the primary sector to European levels;
- A decrease of active and employed population on the background of a slow but continuous ageing process and increasing trends of emigration;
- Increasing of the poverty, especially at risk groups (Roma people, one parent families with more than two children, young post institutionalised).

In this respect, all Sectoral Operational Programme – Human Resources Development projects will be directed via the following Priority Action Axes and, more detailed, the following Key Areas of Intervention, as shown in Fig. 1.

5. The Need for Regional Analysis

The dynamic of changes in the whole world continuously increased, in an accelerated manner. Due to this, all economic development theories and strategies were impacted in a significant way, at different levels of modeling: global, national and regional. From a holistic perspective the process is much more complex at the global scale. However, the focus should be put on the lower organizational level – the regional level. This approach, if transposed at operational levels, constitutes the basis of more sophisticated algorithms which can be used for analyzing the process of regional development.

In order to realize policy shifts, local policy has needed to be innovative and entrepreneurial itself, typically through drawing on a wider network of resources, negotiating and building alliances between local and other tiers of government, universities, private sector interests and non-profit organizations. Thus the successful entrepreneurial municipality shifts from being an arm of the national welfare state to a catalyst for local co-operation and policy innovation.

Regional success has been characterized by a range of different models, but with a common agreement as to the factors underpinning success: agglomeration economies, economies of scope, trust, networks of small firms and supportive institutions. Central to successful innovation are the structures and modes of interaction between knowledge producers, disseminators and users.

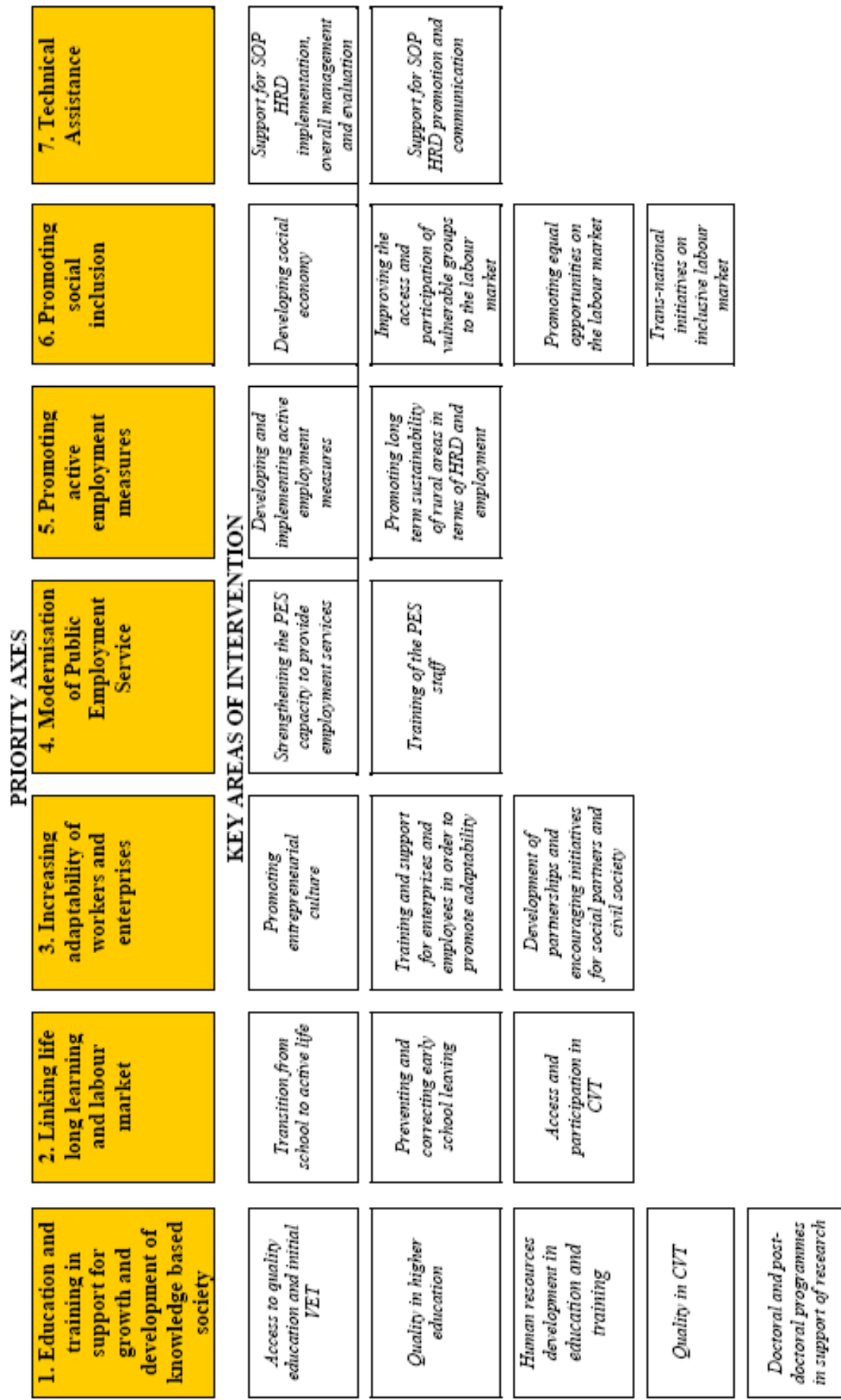


Fig. 1 Priority Action Axes & Key Areas of Intervention

6. Methods&Results

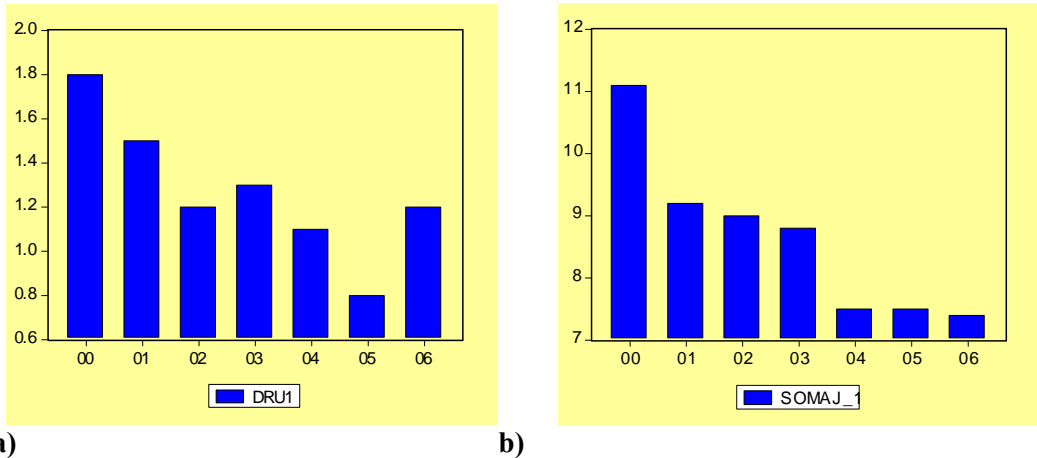


Fig. 2 The amount of pre-accession PHARE funds in the field Long Life Learning (a) and the official unemployment rates (b) between year 2000 and year 2006

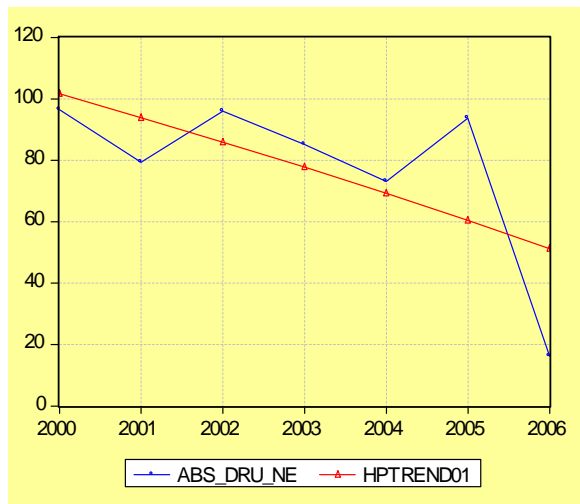


Fig. 3 Hodrick-Prescott Filter (smoothing parameter $sm=100$) and the model

The present paper proposes a simple, but robust, econometric model in order to analyze the absorption of the funds allotted by the Sectoral Operational Program - Human Resources Development at regional level in one of the eight Development Regions in Romania. The input data are represented by the amounts of pre-accession PHARE funds in the field Long Life Learning (Fig. 2a), by the official unemployment rates for the corresponding periods (Fig. 2b), by various economic indicators and by educational indicators also (at secondary, post secondary and tertiary level), at Regional level. Fig. 3 presents the Hodrick-Prescott Filter applied to the model against the real data and Fig. 4 presents the Hodrick-Prescott Filter applied to the model against the results obtained applying the Exponential Smoothing method.

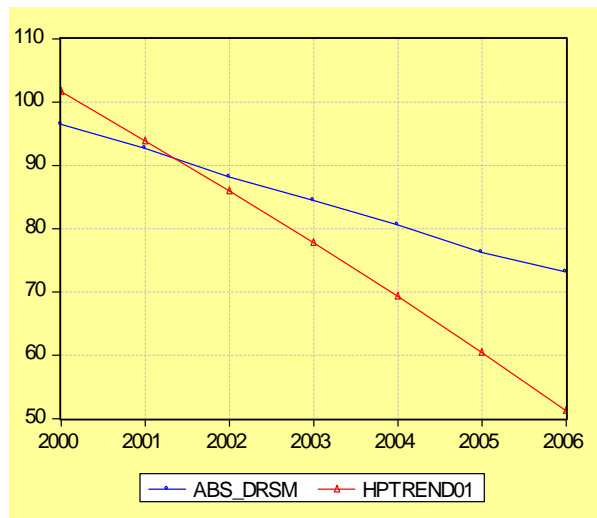


Fig. 4 Hodrick-Prescott Filter (smoothing parameter $sm=100$) and Exponential Smoothing

7. Conclusions

Within a regional environment where the differences in the nature of former economic practices, institutions and cultures will clearly influence the process of funds absorptions, such a model could be of real use in elaborating the programming documents and could play a crucial role in order to increase the effectiveness of using the available resources. Of course that the model could be refined by introducing more variables and/or correcting factors in order to identify as realistic as possible the regional profile.

REFERENCES (selection)

6. Bagliano, F.C. and Bertola, G. (2004) *Models for Dynamic Macroeconomics*, Oxford University Press, NY;
7. Bowerman, B., O'Connell, R. and Koehler, A. (2005) *Forecasting, Time Series and Regression*, Thompson Brooks/Cole, Belmont CA;
8. Dobrescu, E. (2006) *Macromodels of the Romanian Market Economy*, Editura Economica, Bucharest;
9. *** Sectoral Operational Programme - Human resources Development (2007);
10. *** PHARE LLL Financing Guides (2000-2006).